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Devil's-club.
(Photo by G. A. Hardy.)

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OUR COVER

George A. Hardy

The Devil's Club, (Oplopanax horridus). Oplo signifies a weapon, in reference to the fierce array of spines on the stem, and panax means 'all-healing', from the properties of some members of the family, while 'horridus' emphatically indicates the nature of the prickles with which the plant is so copiously armed. In fact, the scientific appellation is rather a contradiction of virtues, with the accent on the unpleasant features. The popular name makes no mistake as to what the average person thinks of it, not without reason, for the wounds made by the spikes can produce a painful sore.

Nevertheless, to the plant lover the devil's club is, at a short distance, a striking and handsome shrub; the large palmate leaves standing boldly out in marked contrast to the surrounding herbage. Each leaf is poised horizontally, and disposed in a perfect mosaic pattern, that allows all of them to receive their fair share of light, which is none too bright in its gloomy woodland habitat. The small greenish flowers that top the plant in a compact spike give place in the fall to a gay splash of scarlet berries, redeeming in some measure the possession of such fearsome thorns.

The devil's club has in the last few years come to the fore by reason of its roots, which are under investigation in regard to a substance said to be of the nature of insulin, or at least of some medicinal value. The plant belongs to the Ginseng family, so this might be expected.

The bark of the roots was extensively used by the Indians as a purgative, while a bit of the same bark tied to halibut hooks was supposed to ensure a large catch.

The type locality of the devil's club is Nootka Sound where it was collected by Menzies. It is of wide distribution from Alaska to California and east to Lake Superior, also in northeastern Asia and Japan. It occurs chiefly in moist woods and valleys at low elevations in hilly and mountainous country.

SOME FLOWERING PLANTS OF BRITISH COLUMBIA

On the evening of January 15th members of the Victoria Natural History Society met in the Provincial Library to hear Mr. C. P. Lyons give a most interesting illustrated talk on the trees, shrubs and herbaceous plants of our province.

British Columbia probably has the greatest known area in forest cover, comprising some forty species of trees. The importance of trees is obvious to all, especially their living function in holding together soil that would otherwise be washed away by rain and run-off or carried by the waves into the ocean. Witness the work of sitka spruce (Picea sitchensis) in this regard.

In spite of extensive logging, vast quantities of timber remain; and, incidentally, Mr. Lyons noted that more timber is left lying on logged-over ground in British Columbia than many countries have per acre to begin with.

Lives of mammals, large and small, are everywhere closely linked with forest growth. For example white-footed mice feed largely on Douglas fir seeds, hence a logged-over area may not 'come back' quickly due to seed scarcity. Again, in some areas these same white-footed mice affect moose population; moose feed on the leaves of deciduous trees and shrubs and if the mice keep down the invading conifer population deciduous growth will be able to flourish and 'take over'. But meantime weasels are doing their best to keep the mice in check, thus forming another link in the food-chain.

In the hitherto almost inaccessible North we have a vast estate of forest which will prove increasingly important as the coastal forest growth becomes depleted. In the Okanagan there are fine open areas of what Mr. Lyons calls "riding country", great groves of yellow pine (Pinus ponderosa). Isn't it most regrettable that up to the present time there has been made no reservation of even a small portion of such land? Surely it is important that efforts should be made to ensure conservation of every type of ecological zone.

In some British Columbia areas harvesting of Christmas trees has become a thriving business. Cutting can begin as early as October because cold nights keep the trees fresh until they are bundled and loaded into box-cars. Under intelligent management this trade can grow enormously. A tree cut a foot above ground leaving one good branch to become an erect leader will, in four years, be replaced by a new tree ready for cutting.

Fine pictures of forest-fringed lakes with mountain back-

ground gave point to the speaker's comment "scenery without trees is nil". Slides of Burns Lake region showing beautiful cottonwoods in fall gold led to the statement that this species (Populus trichocarpa) has probably the widest range of any tree in British Columbia, i.e. from the Coast to the Rockies as well as far into the north country. In many places cottonwoods grow out on deltas and frequently afford nesting places for eagles, a fine site for these fishermen.

In many areas tamarack or western larch (Larix occidentalis) can be seen forming a golden band along a mountainside up to 4000 feet and also down to the 2000 foot level as at Shuswap Lake, where, in the fall grouse feed on larch needles until their necks bulge out like Christmas stockings. Larch and yellow cedar, too, are important commercial species on account of their exceptional ability to withstand wetness.

About 60 to 70 feet off the highway near Kamloops there can be seen what is probably the oldest living thing in British Columbia — a mighty Rocky Mountain juniper (Juniperus scopulorum) rooted among rocks and having a diameter of 30 inches and a height of 25 to 30 feet.

There are in British Columbia approximately 200 species of shrubs and this is the form of plant life affording the most dependable source of food for birds and mammals. This economic importance of shrubs is matched by their importance to the landscape - "Shrubs tie the scenery together", commented Mr. Lyons, "mountains, trees and water need shrubs to complete the picture".

Devil's club (Oplopanax horridus), a shrub which well illustrates a plant's adaptability to environment, is commonly 10 to 12 feet tall but Mr. Lyons had photographed one rising to 20 feet in its effort to reach adequate light. Devil's club leaves are the largest possessed by any British Columbia shrub and when the plant is viewed from above, the leaves, great and small, present a remarkable example of leaf mosaic.

A British Columbia shrub found nowhere else in Canada is the red rhododendron (Rhododendron macrophyllum), found along the Hope-Princeton Highway in Manning Park; here on Vancouver Island it can be found west of Ladysmith.

A moisture-loving shrub of rather limited range is highbush cranberry (Viburnum trilobum) which bears its attractive white flowers in broad clusters. Antelope bush (Purshia tridentata), one of the best indicators of arid conditions, has spread beyond its natural range, due probably to the fact that Indian women used to carry the seed about with them.

Shrubby cinquefoil (Potentilla fruticosa) presents an odd reversal of growth habit, spreading in low masses in the

Cathedral Mountain area, south-east of Hedley, but reaching a height of 3 to 4 feet northward along the Alaska Highway. By contrast American laurel (Kalmia polifolia) with a normal height of 2 feet becomes at higher altitudes a prostrate form.

Rhododendron lapponicum is a circumpolar species known from very few localities in British Columbia and particularly abundant at Summit Pass on the Alaska Highway.

Cactus (Opuntia fragilis) is common from Hedley north to Clinton and Kamloops, displaying their masses of yellow bloom during June and July. In some dry areas, where it is abundant, flame-throwers have been used to burn off the spines so that cattle may feed upon these succulent plants.

Rock rose (Lewisia rediviva) is notable for the shrivelling of its fleshy linear leaves before it puts forth its short-lived flowers coloured rose or white. The roots of this plant were much prized by Indians; an early explorer once stated that "a sack of these roots would buy a good horse".

Mariposa lily (Calochortus macrocarpus) has unique beauty but presents so modest an appearance it frequently escapes notice. Scarlet gilia (Gilla aggregata) lifts high its stalks of scarlet flowers on dry southern slopes up to 6000 feet. Another resident of dry places is milkweed (Asclepias speciosa) whose roots and seeds are edible. Purple erigeron (Erigeron speciosus) displays its large showy flowers over a wide range, but seems to show a special liking for burned—over ground.

Scouler's beard-tongue (Penstemon scouleri) often covers a rocky point with its clusters of purple flowers; while acres of spring sunflowers (Balsamorhiza sagitatta) spread masses of gold along the slopes at lower levels. This latter is another plant whose roots and seeds are edible.

Clarkia pulchella, sprawling over dry areas near Grand Forks, has fragile-looking purple flowers whose petals are oddly clawed and lobed. The dainty lady's slipper (Calypso bulbosa) usually found singly or in two's or three's can be seen growing in companies up to 400 in Tweedsmuir Park.

In Three Brothers Mountain area (Manning Park) there are flower-covered tracts extending over many acres — a profusion of heather, paint-brush, arnica, anemone, columbine and lupine. Why so abundant a growth in such locations? — ample rainfall, misty days, numerous streams bringing mineral-rich silt, no weed competition, no shade and excellent conditions favouring pollination — these may be some of the reasons.

In the alpine meadows the earliest flowers are white marsh marigold (Caltha leptosepala) and western buttercup (Ranunculus occidentalis) followed by the pale-yellow flowers of northern fernleaf (Pedicularis bracteosa) and the reddish-

purple spikes of elephant head (Pedicularis groenlandica). A typical meadow on a northern slope in Manning Park affords an exceptionally favourable area for paint-brush and for lupines of various species, ranging from some that are 2 feet tall down to the almost decumbent Lupinus lepidus which seems always struggling to hold its place against wind and erosion. On high rock-slides or on gravel-bars two or three species of Dryas sit tight while their flowers come into bloom and then give way to fluffy seed-heads.

Closing his lecture with the showing of pictures of white shooting-star (Dodecatheon sp.) on the mountains around Hope and of harebell (Campanula uniflora) growing in dry locations well northward along the Alaska Highway, Mr. Lyons remarked that wherever there is rock or soil, there some plant will find a foothold and seem to say "This is my domain".

A hearty vote of thanks moved by Prof. C. W. Lowe was warmly endorsed by all present.

Reported by M.C. Melburn.

SPRING REALLY IS HERE !

On Wednesday, February 13th, four of us had the extreme joy of seeing and hearing our skylarks in action again! We now KNOW they have survived another winter in the field on the corner of Finnerty Road and Sinclair Avenue. We think the dozen or more cows which are grazing in the field may have helped them to live, but we wonder how long the birds will be able to put up with the Army men training with explosives, etc. in the same field!

Although the field was very wet in places, we walked around and across it, standing still often to get the full benefit of the glorious music as the birds soared and sang above us. We couldn't count them all, but often four or more would be in our sight and sound at one time, rising and singing their throaty melodic song with vibrating wings, then suddenly gliding and swiftly diving to earth. They seemed oblivious of us, but we certainly could only gasp in ecstasy, "Oh! How lovely! How beautiful!"

We saw and heard more later in the field where CJVI Radio towers are on Cedar Hill Cross Roads. While there I timed one singing up in the air for two minutes before coming to earth!

Do give yourself the treat of a trip along these roads to enjoy this wonderful gift to Victoria - English skylarks singing:

G.E.S.

FOREST AND FIELD

by George A. Hardy

There is an oft-quoted phrase to the effect that one "cannot see the forest for the trees". This may sound somewhat illogical but it is only another way of expressing lack of appreciation of perspective and proportion. In order to enjoy fully a walk in the forest we must recognize the many factors that help to give it the charm and character that the trees alone cannot do.

On the coast, one of the characteristic features of a forest is the abundance of the so-called lower orders of plants, the mosses and lichens. They add a grace and variety to the scene presenting a new picture at every turn of the path, inciting pleasurable exclamations of delight to the interested observer, long after the majesty of the trees has ceased to be extolled.

A rock is a hard and unyielding substance; it brooks no interference, resisting all power short of high explosives to change its grim appearance. It is determined to give way to no ordinary blandishments but the lowly moss and lichen with gentle soft caresses cover its face with a manyhued mantle of green and gray.

The lichen is the first to make friendly overtures with its pot of chemicals as represented by the green alga embraced among its twisted strands and with sunlight and moisture as the tools of its trade, it can grow and multiply, softening the surface of the hard rock by its subtle kiss, thereby forcing it involuntarily to contribute the soluble minerals so necessary for further development.

The ultimate result is debris from the old decayed lichen parts that furnish a trifle of soil for the more dependent plants. This process goes on continually and in course of time first the moss, then the fern and in turn herb, shrub and tree have found a foothold on the surface of the slowly vielding rock.

The lichen has played a more or less important part either directly or indirectly in the economy of mankind all through the ages of his existence.

From the point of view of nutrition the lichen is still a valuable source of food for the caribou and reindeer of the northern wilds. Reindeer "moss" is really a lichen, its many branching, perpetually growing tufts occurring in vast fields in the tundra valleys of the north. Close relatives are found in our own woodland. Other wild animals of the

region in which it grows find it a useful standby in times of scarcity of more appetizing food. In some northern districts in Europe it is prepared as food for cattle. The increased richness of cow's milk has been attributed to its use.

As a food for man lichens have been used considerably, although the actual nutritive qualities are somewhat debatable. There is no doubt that as an extreme measure they have served the purpose of tiding over difficult times. Iceland moss, which is also not a moss but a lichen, is a well known article of diet in European countries. It was often employed in the manufacture of ships' biscuit in the old days making a commodity that was less likely to be attacked by weevils than when flour alone was used.

Rock tripe is a lichen occasionally eaten by fur trappers and similar folk when in desperate need of food.

The manna of the Israelites was probably a lichen, a species of Lecanora. Like most lichens this particular species shrivels up during the heat of the day, but the dew of the night causes it to expand, hence the necessity of gathering it early in the morning before it dries up again.

From a medicinal viewpoint lichens contain much of value but more of fantastic credulity if we are to believe all that is said of them. For instance in the 15th century there was propounded the "Law of Signatures" based upon the assumption that any plant substance resembling the aching part of a human body could be used as a curative for that particular ache or pain. From that ingenious if ingenuous belief arose an astounding array of cures. Lichens contributed their mite in support of this theory. The long filaments of "Old Man's Beard" which festoons the branches of dead trees were supposed to strengthen the hair when suitably prepared for application because of a fancied likeness to human hair. The lung lichen, a common leaflike species growing in patches on tree trunks, was a sure cure for lung trouble because of its spotted or uneven texture, remotely resembling lung tissue. A yellow lichen would cure jaundice, while another common species the dog lichen, in our woods growing in leaf-like formations on moss or rocks, was supposed to be a reliable remedy for mad dog bites simply because the fruiting parts at the edges of the plant curl up into the resemblance of a dog's fang.

However there is no doubt that certain chemicals produced by lichens are in use for special purposes either

alone or combined with other ingredients. The study of plant juices is the basis of our medicinal knowledge as applied today. The nearest approach to the "Elixir of Life" so diligently sought by the ancients is to be found in the product of the plant world.

During the Napoleonic wars the monopoly by the French of Senegal gum as an important size used to give stiffening to fabrics and paper, led to the study of lichens as a source of mucilage to be used as a substitute.

Lichens have many other good uses, among which may be mentioned as an extract in a mixture for tanning leather. In Siberia it is recorded as replacing hops in the brewing of beer and while tasting exactly like the product of hops, was more potent in its exhilarating effects on the unwise imbiber. In more modern times lichens have taken part in the preparation of alcohol.

Litmus paper is one well-known product of lichens. This was prepared by soaking unsized paper in a solution of lichen extract. The finished product looks like pink blotting paper; if an acid condition is prevalent in the solution under test the pink will turn to blue. If this is now placed in an alkaline solution it will turn back to red. For this reason it is of value in determining the condition of the soil in garden and field in order to ascertain the correct treatment in applying fertilizers.

Dyes of various colours were at one time an important article obtained from lichens of various species. In the 17th century days of bewigged and bepowdered hair, ground lichens were one of the ingredients of the powder so freely used in those gallant times. The powdered lichen particles are very absorbent and retentive of the perfumes which formed an important part of the mixture. Thus the humble lichen is not only an efficient pioneer of the plant world but is a direct contributor to the comfort and needs of mankind.

(to be continued in April issue)

"NATURE NOTES"

Canon Martin W. Holdom of Crescent Beach, B. C., has published another collection of delightful nature observations in a booklet called "Nature Notes". The current volume concerns birds mostly but includes notes on other natural history subjects as well as personal anecdotes and bits of interesting history. J. W. Winson has written an appropriate foreword.

"Nature Notes" is available at 75¢ a copy direct from the author.

AN APPRECIATION

Owing to the postponment of Mr. R.H. Mackay's film and talk on "Arctic Wildlife", scheduled for the evening of February 12th, Professor Lowe on that date gave a most interesting lecture on "Aquatic Plants". In this he was aided by beautifully mounted illustration material provided by Miss Melburn.

These two members acted on very short notice, and I know that I am speaking for all when I express the deep appreciation which our Society owes them for turning what would undoubtedly have been a fiasco into a most entertaining evening.

May I also, on behalf of the Society, thank Dr. Hayes, Mrs. Parris and Miss Helen Baird for their labours in notifying all members by 'phone of the changed programme.

Jeffree A. Cunningham.

THE FIRST MIGRANTS

To those members who are interested in the return of the migrating birds from the south, the following are the dates on which they were first seen last year:

Violet-green swallows	-	-	-	March	15th	
Audubon warblers	-		-	***	18th	
White-crowned sparrows	-	-	_	**	26th	
Rufous hummingbirds	_	_	con	April	6th	
Townsend warblers	•	-	OND	91	8th	
Lutescent warblers	_	-		**	10th	
Cassins vireo	-	_	-	**	14th	
Savannah sparrows	_	-	1000	11	14th	
Chipping sparrows	-	_	4000	**	17th	
Warbling vireos	-	_	CHE	**	18th	
Myrtle warblers			_	**	22nd	
Goldfinches	4000	-	45500	11	28th	
Yellow warblers	_	_	4000	***	28th	
Western flycatchers	-	-	-	**	29th	

Members please note --

that the Annual Dues are now payable -- the Society's year ending on February 28th.

SHOULD WE INTERFERE?

by Walter M. Draycot

While resting in the shade of a tree from the sun's heat my attention became centred on the activity of a lonely medium-sized ant. It was carrying a pupa, or "ant egg". The course of his zig-zag journey was strewn with twigs, pebbles and grass. It was fascinating to watch the movement of those six legs as he negotiated the obstacles with surprising dexterity and determination. At last he emerged onto a clear sandy patch. He had not proceeded far into the open when two ants approached; they rushed in to take the pupa but the possessor maintained a firm grip. The attackers were soon reinforced by others, who began an assault on the victim's hind legs which they severed section by section.

It was not until one of the attackers started to dislocate his body at the waist that he was forced to release his grip on the pupa. Swiftly moving legs were actively engaged around his neck. At this juncture of the murderous attack, when the final blow was expected at any second, four members of the unfortunate victim's clan came on the scene. A vicious battle ensued. The former lonely ant was now on his back and though three of his legs had been severed he fought gamely on. Like infuriated bulls two of the ants rushed at each other, their legs and antennae waving wildly; others joined in and soon became entangled. They were really annoyed! Appeared like a "free for all" but was it?

To a human onlooker it was a conundrum, to attempt to understand how these creatures could tell friend from foe for the members of both colonies were, to me, very much identical in colour, shape and size, their colour being brownish-black. They wore no "Coat of Arms" to display distinction, that is no distinction was apparent though there could have been, but not within my ken. It was noticed during the excitement and confusion one of the ants had seized the prized pupa and had hurried away.

The battlefield now showed results of the melee; one ant had succumbed, for his head had parted from his body and a few of the contestants had lost one or more limbs. It was evidently war to the death. A beetle came near, but not too near, meditated then wisely withdrew. Even a large black ant thought it none of his business, or probably surmised the odds were too great, so did not interfere. At this stage it occurred to me to end the carnage by stamping the contestants into the ground but the timely arrival of my dog did the stamping for me.

JUNIOR NATURAL HISTORY PAGE Bruce Crawford - - - Editor

CHARLIE THE HAMSTER by Bruce Crawford

A friend of mine has a hamster called Charlie; and the things that hamster can get into! The first night he had it we built a cage for it. This cage was made of tin with wire mesh over half of it. It lasted exactly two nights. The second night Charlie got out, ran rampage all over the house, and was the primary worry for about twenty-four hours until he was found between the chesterfield and the chesterfield cover.

After this they bought him a laboratory cage costing five dollars. One night later he was out of that; he'd learned (the little devil) to open it by sitting up on the ledge and sliding it open with his teeth until he had it far enough open to slide back with a paw; he then merely stepped out. At first they counteracted this with books, but he learned how to move them as he had all the other things. They now have a hole drilled through the frame of the cage and have put a nail through stopping him for the time being, but in the last little while he has been looking this over as well and we are now trying to think of another ruse. If you have any suggestions please see me at the meetings some time.

P.S. Sorry I can't come to the meetings but I am tied up after school. Bruce.

The following members of the Society have recently addressed the Junior Group:

Mr. W. T. Tildesley on 'Seeds and Pollen'

Mr. Alex Peden 'Mackenzie Basin Field Trip'

Dr. G. C. Carl 'What is it?'
Mr. A. H. Marrion 'Volcanoes'
Miss Ann Gorham 'Seeds'

Mrs. Gladys Soulsby Gave a party
Mr. J. H. Whitehouse 'Fossils'

Dr. A. O. Hayes 'Rocks' (three talks with slides) and

Mr. A. F. Shepherd of the Department of Mines on 'Scale of Moh'.

1957

NOTICES OF MEETINGS

Tuesday
March 5:

PANEL DISCUSSION. Prov. Museum at 8 p.m. Subject: "Federation of British Columbia

Naturalists". Chairman: A.O. Haves.

Monday
March 11:

AUDUBON SCREEN TOUR. Oak Bay Junior High School at 8 p.m.

<u>Subject</u>: "Between the Tides" Speaker: Mr. Robert C. Hermes.

Tuesday ANNUAL MEETING. Prov. Museum at 8 p.m.

March 12: Election of Officers. Speaker: Mr. Ralph Fryer

Subject: "Flash in Bird Photography".

Tuesday ADDRESS by DR. ALBERT O. HAYES. March 19: Provincial Museum at 8 p.m.

Subject: "Newfoundland Scenery, Coastal and Inland." Coloured Moving Pictures.

Saturday GEOLOGY GROUP:

March 23: Field trip to Island View Beach. Meet at

Quadra and Cloverdale at 1:30 p.m.

Leader: Mr. A. H. Marrion.

Tuesday PANEL DISCUSSION. Prov. Museum at 8 p.m.

March 26: Subject: "Conservation"

Chairman: Mrs. Gladys E. Soulsby.

NOTICE RE JUNIORS

JUNIORS:

Tuesday, March 5, last meeting until after Saturday morning film showings; 9:30 & 11 Saturdays until Easter Week.

Tuesday, April 30, meetings commence. May 14th, last until September.

Don't destroy your back numbers of the "Naturalist". The supply of back issues in many cases is exhausted and we are unable to fill requests from libraries and other institutions for certain numbers to complete their files. We would therefore appreciate having any old issues of the "Naturalist" which you no longer wish to keep so that we can fill these requests as they are received. Copies may be left at the Museum Office or with any member of the executive. —————Editors.

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