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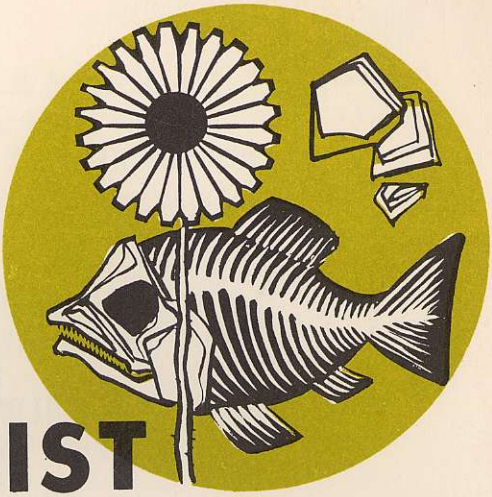

THE VICTORIA NATURALIST

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COVER PICTURE

Photo by G.Clifford Carl

THE LONE SENTINEL

by G. Clifford Carl

An isolated pile on Chesterman's Beach, a few miles southeast of Tofino, combines a bit of human history with natural history.

During the Second World War, when fears of invasion were at their highest point, defence installations were established at several places along the vulnerable west coast of Vancouver Island. The simplest, and possibly the most practical, were wooden piles driven into the sand to prevent vessels from landing on the beach. All are gone now except a few still standing in the Long Beach area, and the one photographed.

These historic piles are also of interest to a naturalist as they provide anchorage for a variety of organisms on an otherwise inhospitable shore. Most conspicuous are acorn barnacles (Balanus cariosus) and blue mussels (Mytilus edulis) which compete for space on all sides of the pile just above the level of the sand. Each may be several layers deep, the innermost being composed of dead shells fastened directly on the wood. The spaces between the shells provide a haven for various creatures, including pile worms, brittle stars, and amphipods.

Here and there, where a suitable foothold was available at the right time, clumps of goose barnacles hang among the mussels and acorn barnacles. The common species here is Mitella polymerus which seems to prefer exposed places where there is plenty of surf action. In crevices away from water-borne sand, amorphous masses of colonial tunicates flourish, sharing the slightly sheltered spot with branched, filamenthus hydroids or encrusting byozoans. Here, too, is found

the green anemone that seems able to stand considerable pounding by wave action so long as it has firm anchorage.

Intertidal organisms tend to favour specific areas of the beach between low and high water, creating a banded distribution pattern that is sometimes quite conspicuous on rocky shores. Such a zonation is also evident on piles. In this particular pile, the lowermost zone has been greatly modified by surf and sand that together have scoured away all surface organisms except for a few stunted barnacles which will probably be swept away with the next storm.

Above the sand-blasted area is the zone of heaviest settlement, occupied chiefly by barnacles and mussels. These gradually disappear at the higher levels and give way to other species, like the small barnacle Chthamalus dalli and bladder wrack, Fucus. Above this level, in the so-called "splash zone", may be found limpets and periwinkles which thrive best when covered by water only periodically.

Out of sight, but also present, are the undercover agents, the eaters of wood. Most destructive is the shipworm, Bankia setacea, whose work is only evident when the pile finally falls. But close scrutiny will usually show the tell-tale pallets of these boring molluscs protruding from small holes in the wood like brittle feathers plugging the entrance.

The exposed wood surface is also pocked with the holes and shallow burrows made by gribbles, those minute crustaceans that flake away the wood from the outside, and often produce the "hour-glass" shape characteristic of old unprotected piles.

The Chesterman Beach pile, the last of many, must be of particularly tough material to have withstood storms and wood-borers for 25 years. But it seems sturdy enough to last for a few more seasons yet.

** * **

SOME VICTORIA LOW TIDES IN SCHOOL VACATION:

July 6,	9:20 a.m.	.6 feet	July 7,	10:00 a.m.	.3 feet
July 8,	10:40 a.m.	.2 feet	July 9,	11:15 a.m.	.3 feet
July 19,	8:20 a.m.	.4 feet	July 20,	9:05 a.m.	.2 feet
Aug. 5,	9:35 a.m.	.5 feet	Aug. 6,	10:10 a.m.	.5 feet

Note that times are Daylight Saving. Check calendar to find the 3 weekend dates listed here.

FROM A TIDE POOL

This spring, I had the rare chance of watching the animal life of a tide pool in my own home.

With better equipment and a bigger aquarium, I might have sustained the life of that lively little community much longer.

I found my specimens in a rock pool near Fisgard Lighthouse. They were two small purple anemones, tiny hermit crabs with bright red feelers, 2 purple shore crabs, 2 green crabs, several colourful dog whelks, limpets, barnacles, a plume worm attached to a rock covered with red and yellow "lichen", several small fish and eel-like fish and 1 tiny sea squirt.

One day one of the eels was missing, and I just knew the anemones got hold of it. Sure enough, an hour later, one of them started opening up, expelling the whole eel which was about 3" long. I felt sad when my little community started to decrease, due mainly, I think, to my inability to keep the temperature down.

Julia Woodland.

HAS 1967 BEEN AN "EARLY" SEASON?

For proper authority one would need to consult the records on Gonzales Hill. However, at least one professional gardener, just consulted, agrees that 1966 was a bit more advanced as of this date; the prospect is that April-end will see growth in 1966 and 1967 standing all even. Meantime, here are some figures from my own wild plant records to and including April 11th.

	1966		1967	
January	31	species	20	species
February	20	"	18	"
March	45	"	48	"
April	34	"	38	"
Total ...	130	"	124	"

M.C.M.

INSECTS OF THE SEA

It is not generally known that there are insects which live in the sea, but we have them here on this coast. Go down at low tide on a beach where there are rocks or sea wall clothed with bright green seaweed and you may see long-legged black flies about ½" overall frantically scampering about on the rocks and clinging seaweed. Each is seeking a newly emerged female, to mate and stay with while she lays her eggs. Emergence,mating,oviposition,all must be accomplished while the tide is down. The flies never retreat before the advancing waves to take refuge above high water, but the next low tide will see an emergence just as numerous as before.

They belong to a special subfamily, the Clunioninae, of the great midge family called Chironomidae. With the exception of one species in fresh-water streams in the Hawaiian Islands, all the known Clunionines are marine in habitat, and different species occur on beaches all over the world. Our species was described from Alaska and so was called Paraclunio alaskensis. The larvae and pupae may be found in matted growths of tubular and filamentous algae,which they eat,and where they are immersed in sea-water for variable daily periods. Many changes in structure in all stages show that this group of midges has been separated from its fresh-water relatives for a very long time, probably millions of years.

Rather more surprising is to find very small marine midges only slightly modified from their fresh-water ancestors. Of the three species known,the males of two dance in swarms in the lee of rocks at low tide and the females are attracted by the hum of their wings, inaudible to us. The third species has developed the Clunionines' method of hunting on foot for the female,with consequent reduction of the plumose antenna of the male. Again mating and egg-laying must be done while the tide is down.

I discovered this marine insect fauna at Departure Bay, near Nanaimo, 40 years ago and wrote it up. In 1950 a graduate student working at Friday Harbor found that the food of young pink, chum, and spring salmon about 2½" long consisted 25% of larvae of marine midges identified as belonging to one of the species I had described. So my lowly little friends play an important role in the life of the lordly salmon!

These Chironomids are not the only marine insects on the coast. The larvae of a Tipulid, (Crane Fly) live in the same green and filamentous algae, and larvae of a predaceous fly, a Dolichopodid, feed on them. Also two species of beetles were found at Departure Bay, and others have been recorded from Alaska down to Washington State. Adults of these beetles when placed on the surface of seawater will climb down through the surface film and move about freely on the algae; they are not members of one of the diving beetle families, but are Staphylinids.

Going down to tropical seas one may see the Marine Water Strider, Halobates, actively running over the surface, sometimes hundreds of miles from land. They live on living or dead marine organisms floating at the surface. I once took a number of them on a coral reef in the Straits of Malacca; they were running up the outflowing streams draining reef pools, and so were stationary enough to be captured easily.

L.G. Saunders.

BEACH-COMBING TIMES - 1967 SEASON

Sea-shore animals are not always available when you want to see or collect them. You can only indulge in marine natural history during periods of low tide. But plan a little, consult tide tables and the calendar, and you will find that periods of low water occur in more or less regular series, roughly at 2-week intervals, and, during spring and summer, they fortunately take place during daylight hours.

Pick the days with the lowest tides when the maximum amount of beach is exposed, and the collecting or observing period is longest. Be on location an hour or two before low tide.

The following are a few of the best periods for the Victoria area during the coming season. Times given are local. Daylight Saving Time when applicable. Heights are in feet and tenths of feet as in the tide book.

An asterisk * denotes Saturday or Sunday.

May dates:

May	9	10:05 a.m.	1.4		May	22	8:55 a.m.	1.0
"	10	10:45 a.m.	.9		"	23	9:35 a.m.	.1
"	11	11:15	.7		"	24	10:20 a.m.	minus .5
"	12	11:55	.7		"	25	11:10 a.m.	minus .5
* "	13	12:40 p.m.	.8		"	26	11:55 a.m.	minus .2
* "	14	1:20 p.m.	1.1	*	"	27	12:40 p.m.	.4

More low tides on pages 102, 108.

G.C.C.

ANIMAL RELATIONSHIPS

In a previous article (March, 1967) it was mentioned that parasitism, mutualism and commensalism are all inter-related, and that this tendency can be demonstrated in various groups and families.

We all know the barnacles (Cirripedia), several species of which can be found at different tide levels, attached to the rocks on the seashore. These belong mostly to the genus Balanus and attach themselves to the rocks after a free swimming larval stage. Other species like Conchoderma, find it more advantageous to attach themselves to several whale species particularly those of the suborder Mysticeti or baleen whales where they profit from the constant flow of organisms carried past them in the water. This is obviously an improvement over the ordinary sessile life on stationary rocks. This group then comes under the heading of commensals as they receive food, shelter and transportation without harming the host.

Still another close relation goes a step further. After a free swimming larval life, similar to that of the previous species, it attaches itself to the body of a crab, where it develops a system of rootlets that enter the crab's body and serve to absorb food from the host's body juices. Typical of many other true parasites, the body of the adult has degenerated until it is little more than a mass of reproductive organs.

Transition to parasitism can also be shown in various types of flies. There are numerous free living flies. Best known are the ordinary houseflies which live on decaying material. Others have acquired a taste for the blood of various hosts and their mouthparts have been adapted to piercing the skin and sucking blood. They move from host to host and can be classed as periodic parasites until at the other end of the scale we find the sheeptick (Melophayus ovinus) which is a greatly modified biting fly that does not leave its host at all and has lost its wings.

There are many organisms which, when accidentally introduced, - for instance, when swallowed - find there a congenial habitat and thrive as incidental parasites.

There is a small roundworm, Rhabditis nigro venosa, living in mud at the bottom of ponds. These roundworms have also been found in the lungs of frogs where they have adapted themselves to a parasitic existence, even developing a modified method of reproduction.

It is seen then that in these instances the ability to adapt itself to changed circumstances will enable the species to survive should changes in its original muddy environment - through chemical pollution or change of temperature perhaps - make it untenable.

As survival of the species is one of the main aims in nature, we must conclude that far from being unmoral as they are often thought to be, parasitism and related associations are normal and acceptable ways of life.

A. Dehen.

(This is the last of a 5-part series. The 4 earlier articles may be found in Issues 1, 3, 5, and 7 of the current volume, Volume 23. Editor)

JUNIOR JOTTINGS

The juniors have held several interesting field trips. They explored the south slope of Mount Douglas and saw how Nature had re-established itself after last summer's fire. They examined some very old Douglas firs with fantastic limb growth.

They went to the south end of the Freeman King Park and examined the outstanding glacial scores on the rocks there, and discovered an old surveyor's bench mark.

In this area there is a large pond with abundant life from minute creatures to frogs, salamanders and waterfowl. Here we noted how the sun-loving plants have established themselves on the power right-of-way.

During the Easter holidays there were many visitors at Francis Park. Several of the intermediate section have been on duty at the Nature House, and given conducted tours around the trails. In the holiday week, we had approximately 700 visitors, including busloads of children from the YM-YWCA, Brownie packs, Cub packs and many others. All the trails have been cleared of fallen branches and are in good condition. There are many new trail cards giving information about features to be seen on a hike.

I would like to thank the girls and boys who helped so much during rush week. They are becoming very capable of handling a group and of giving conducted trail walks.

We have a real find in Mrs. Laurain Jones who goes out with the younger group on Saturdays. If I cannot go, Laurain takes over and does well.

Freeman King.

TEN DO'S AND DON'TS FOR MARINE AQUARISTS

Don't use any metal in contact with sea-water. Most corrode rapidly and give off substances toxic to living animals. Use glass or plastic containers.
Don't use rocks, gravel or coarse sand that may trap food particles or other decaying material.
Do keep cool. Marine creatures usually live in water that seldom warms above 55 degrees F. So put the container in the coolest part of the house.
Do select hardy forms. Some such as sea anemones, small sea urchins, and certain crabs adapt better to aquarium conditions than jelly fishes, sculpins and worms that live only a short time.
Don't overcrowd. Place one or two individuals only in each container at first. Others may be added later. The container's carrying capacity can only be learned by experiment.
Don't include sea-weeds. In general, marine plants soon die and pollute the water. It's better to avoid them except for adding bits as food when necessary.
Don't overfeed. Uneaten food soon decays creating toxic conditions. Feed only what the animal will eat immediately and remove the excess.
Do keep a glass cover on to reduce water loss by evaporation, to keep out dust, and to keep active inmates in.
Do inspect regularly. Remove all dead or dying inmates immediately. They foul the water.
Do return living animals to the sea when you are through studying or enjoying them.

Despite these hazards and restrictions, it is possible to keep some marine forms for long periods of time. With only occasional changes of water, a goby (small fish) lived for over 2 years, some crabs for more than four, and a shrimp more than 8 years. Each was in a small container.

G.C.C.

More low tides (for Victoria, Daylight Saving Time, height in feet) are

June 7	9:45 a.m.	.7		June 20	8:40 a.m.	minus	.3
" 8	10:15 a.m.	.4		" 21	9:25 a.m.	minus	.2
" 9	11:00 a.m.	.3		" 22	10:05 a.m.	minus	.4
* " 10	11:35 a.m.	.3		" 23	10:50 a.m.	minus	.2

G.C.C.

BOOK NEWS FOR NATURALISTS

These recent books are available from the Greater Victoria Public Library:-

Gubb, Michael. Life of animals without backbones. London, S.Low. 1966

Hoover, Helen. Gift of the Deer. N.Y.Knopf. 1966

Keast, Allen. Australia and the Pacific Islands: a natural history. N.Y.Random, 1966

MacDonald,Malcolm. Treasure of Kenya. London, Collins 1965

Mannix, D.P. All creatures great and small. N.Y. McGraw-Hill, 1963.

Patterson,Roger. Do abominable snowmen of America really exist? Franklin Press, Yakima, Wash. 1966

Yates,Elizabeth. Is there a doctor in the barn? a day in the life of F.F.Tenney, veterinarian. N.Y. Dutton, 1966.

List of books supplied by George McBride, head of Circulation G.V.P.L.

BIRDS OF CANADA

Birds of Canada by W. Earl Godfrey, illustrated by John A. Crosby and S.D.Macdonald. Issued by National Museum of Canada. 428 pages, Size 9x11" Price $12.50.

The previous "Birds of Canada", issued 30 years ago, was written by P.A. Taverner, whose "Birds of Western Canada" was published in 1926 by the Dept. of Mines and cost 75¢ (paper cover) and $1.00 (hard cover.)

This new book gives detailed descriptions of the 518 species seen in Canada. 431 are depicted in colour, and there are numerous line drawings of details to aid identification. For most species of regular occurrence there is a breeding distribution map.

Colour plates are beyond criticism. A detailed index gives common and Latin names. But there is no cross reference between illustrations and text. Plate and appropriate text may be more than 50 pages apart.

This valuable and useful book is the most complete ever issued on Canadian birds.

A. R. Davidson.

BIRDS FOR THE RECORD

by Gordon and Gwennie Hooper (477-1152, evenings)

Audubon's warbler (1) - Florence Lake - March 19 -
Slate-coloured junco (2) - March 22,23 -
Tom and Gwen Briggs
American goldfinch (6) - Bonnie View Place - March 24 -
Cy and Lois Morehen
White-crowned sparrow (1) - Alpine Crescent - March 24 -
Gordon and Gwennie Hooper
Roufous hummingbird (1) - Oak Bay garden - March 25 -
Mrs. F. Lansdowne
Turkey vulture (1) - Whiffin's Spit - March 25 -
Gordon and Gwennie Hooper
Mountain quail (2) - Munns Road - March 26 -
Enid Lemon
Mountain bluebird (3) - Parksville - March 30,31 -
Cy and Lois Morehen
Redhead (2) - Florence Lake - March 31 -
Tom and Gwen Briggs
Savannah sparrow (brooksi)(3) - Saanich - April 1 -
A.R. and Eleanore Davidson
Rough-legged hawk (1) - Florence Lake - April 2 -
Tom and Gwen Briggs; Gordon and Gwennie Hooper
Gadwall (1) - Hastings St. - April 2 -
Common teal (1) -
Allen Poynter and A.D. Herbert (Manitoba)
American bittern (1) - Poynter's Pool - April 5 -
Ralph Fryer
Solitary vireo (1) - Munns Road - April 6 -
Grace M. Bell
Orange-crowned warbler (1) - Otter Pt. - April 8 -
A.R. and Eleanore Davidson
Yellowthroat (2) - Cowichan Bay - April 8 -
Allen Poynter and Grace M. Bell
Evening grosbeak (2) - N. of Dom. Exp. Farm - April 9 -
Enid Lemon and Michael Miller
Rough-winged swallow (2) - Quick's Pond - April 9 -
Barn swallow (1)
Tree swallow (8) Allen Poynter

To look for in May: b-w.teal, s-p.plover, tattler, r.turnstone, pec.sandpiper,s-b.dowitcher, Tr.and o-s.flycatchers, w.wood pewee, W's warbler, cowbird, tanager, b-h.grosbeak.

THE EDITOR'S DESK

This is not a regular feature. Just a space-saver.

ANNUAL MEETING is May 9, (See Meetings) Miss E.K.Lemon (385-4676) heads the Nominating Committee.

B.C.NATURE COUNCIL'S SUMMER CAMP is for boys and girls, 10-14 years old. Dates are July 18-25. Location is Point Roberts, 30 miles south of Vancouver. Leader is Mr.M.A.F.Waugh, 3555 Cambridge St., Vancouver 6. Mail applications with $10 deposit to Mr. Waugh before June 1. Total fee is $50 for the week. Camp limited to 30 children.

MEMBERSHIP DUES AND CHANGES OF ADDRESS should be sent direct to Treasurer E. E. Bridgen.

"PATRONS' FOREST" Mr. R. Moyer reports that the 157 seedlings were 100 Douglas fir, 20 jack pine, 20 arbutus, 15 Garry oak, 2 maples. At last count, firs led the "sales", followed by oak, pine, arbutus and maple in that order.

SUMMER TREAT. Mrs Eve Smith, South Pender Island, has given an open invitation to members to spend a day on her waterfront property. For details, contact the Secretary.

LOW TIDE ADVICE. Low tides listed in this issue are for the Victoria area, warns Dr. C. Carl. If you plan to beach-comb in other areas, consult the tide tables for the port nearest the spot to be visited.

BOOK BARGAIN. Miss Lemon reports that Mrs. Lucy Kavaler's "Mushrooms, Molds, and Miracles", originally a hard-cover, illustrated book, is now in print as an unabridged, unillustrated Signet pocketbook, available in local book stores. This comprehensive, well-researched study of fungi, both useful and harmful, describes them as food, causes and cures of diseases, blights and mildews, as well as the controversial L.S.D. Readable, informative, this book has been compared with Rachel Carson's "The Sea Around Us."

DEADLINE FOR SEPTEMBER ISSUE. August 10, please.

VICTORIA LOW TIDES are scattered throughout this issue. See pages 102, 105 and 108. Plan a marine morning and enjoy yourselves. Marine aquarists, your do's and don'ts are on page 108.

Happy holidays.

MEETINGS AND FIELD TRIPS

EXECUTIVE MEETING: Tues. May 2: Dr. Carl's office at 8 pm. Provincial Museum.

BOTANY FIELD TRIP: Sat. May 6: Meet at Monterey Parking Lot, Douglas and Hillside 10 a.m. for trip to George Pringle Memorial Camp (W.side Shawnigan Lake). Bring lunch. Leader: Miss M.C. Melburn, 384-9052

NATURE COUNCIL MEETING: Sat.May 6 & Sun.May 7, Vernon: Meet other naturalists. Field trip. Information: R.Y. Edwards, 384-0689.

GENERAL MEETING: Tues. May 9: Douglas Bldg.Cafeteria 8 pm. Nominations and election of new executive. Short film: "Breath of Spring", Photographic Branch of Dept.of Rec. and Con.

BIRD FIELD TRIP: May 27, 9:30 a.m.: Spectacle Lake. Meet at Monterey Parking Lot or 10 a.m. at Spectacle Lake Road. Bring lunch. Leader: Mr. C. Morehen, 477-3383

BOTANY FIELD TRIP: Sat. June 3: Monterey Parking Lot at 10 a.m. for trip to Goldstream Park. Bring Lunch. Leader: Miss M.C. Melburn, 384-9052.

BIRD FIELD TRIP: Sat. June 10: East Sooke; Monterey Parking Lot at 9:30 a.m. or Colwood Plaza at 10 a.m. Bring lunch. Leader: Mr. M.C. Matheson, 383-7381.

BOTANY FIELD TRIP: Sat. July 8: Monterey Parking Lot at 10 a.m. for trip to Esquimalt Lagoon and Rodd Hill. Bring lunch. Leader: Miss M. C. Melburn, 384-9052.

BIRD FIELD TRIP: Sat. July 15: Salt Spring Island. Monterey Parking Lot at 9:30 a.m. or Swartz Bay at 10 a.m. Bring lunch. Leader: Mr. M.C. Matheson, 383-7381

BOTANY FIELD TRIP: Sat. Aug.5: Monterey Parking Lot at 10 a.m. for trip to John Dean Park. Bring lunch. Leader: Miss M.C. Melburn, 384-9052.

BIRD FIELD TRIP: Sat. Aug.12: Cowichan Bay. Monterey Parking Lot at 9:30 a.m. or Robert Service Memorial at 10:15 a.m. Bring lunch. Leader: Mr. M.C. Matheson,383-7381.

JUNIOR GROUP: Meet every Saturday at Monterey Parking Lot, Douglas and Hillside at 1:30 p.m. for field trips. A camp is planned for July.
Leader: Mr. Freeman King, 479-2966.

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