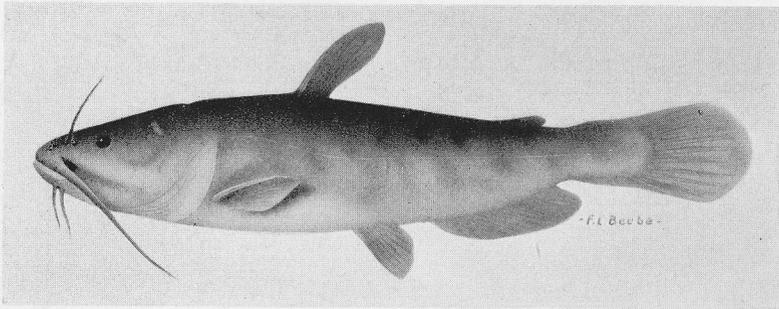


The
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Brown catfish.

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INSECTS AND THEIR PLACE IN NATURE

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Insects, as a group, are undoubtedly nature's most successful animals and man's keenest competitors. The exact number of kinds, or species, of insects in the world is unknown, but there are more known species of insects than there are of all other animals and all the plants put together. Actually, considerably more than half all the living things in this world are insects. Conservative estimates place the number of named and described species of insects at 700,000 and although there are several thousand new species described each year, there is no doubt that the number yet to be found far exceeds the number now known.

Insects are abundant everywhere about us, one or more insect species having been successful in invading and colonizing every part of the globe except the depths of the ocean. They are found everywhere from the equator to the poles. Aquatic insects are found in legion in lakes and rivers, and innumerable insect forms are found on and about plants of all kinds, in the soil, and on or in other animals.

Insect diets are just as diverse as are insect habitats. There are insects that eat all kinds and parts of plants and although many species feed on only one species of plant, there are so many plant feeding insects that almost no plant is immune from attack and some plants are known to support several hundred different insect species. Other insects live on the tissues, fluids, and excretions of animals. Decomposing organic materials and carrion attract and support thousands of different species.

These are just a few examples of the fact that insects are a remarkably successful group of organisms, and

it now becomes a matter of interest to consider why the insects have attained their dominant position in the animal kingdom. Some of the more significant attributes that have helped the insects attain their place will be mentioned briefly.

(1) Ability to fly. Most insects possess wings, and consequently are not restricted to the ground and vegetation, but rather can take to the air. This ability increases their feeding and breeding ranges and provides a unique means of escaping enemies.

(2) Small size. The majority of insects are small or moderate in size, and this very feature gives them many advantages not possessed by larger animals. Minute amounts of food material can nourish an insect and consequently, huge insect populations can develop on media neglected by other animals. For example, one frequently finds a single small fungus supporting a whole population of fly and beetle larvae. Small size also gives insects increased chances for hiding and escaping enemies. Small size, however, has a distinct disadvantage: the relatively tremendous body surface in proportion to the body volume results in an evaporation rate that would make terrestrial life impossible for a thin-skinned animal. The insects have overcome this difficulty with the possession of a body wall which is very resistant to the passage of water and water vapour.

(3) Complete metamorphosis. All the higher groups of insects develop by a method unique in the animal kingdom. Their type of development, termed complete metamorphosis, is a specialization in which four distinct stages, two of which are active, make up the life cycle. These four stages are the egg, the larva (an active feeding stage), the pupa (a transformation stage), and the adult (an active reproductive stage). For example, consider the case of the common white cabbage butterfly. The eggs, which are laid on the leaves of plants of the cabbage family, hatch into small green caterpillars which commence active feeding at once. These caterpillars, or larvae, continue to feed and grow for two to three weeks and then transform into an apparently quiescent pupa usually found suspended from the food plant by silken threads. After a few days to several months, depending on the time of year, the pupal case splits open and the adult white butterflies emerge to mate and lay eggs, thus completing the cycle. This type of development makes it possible for the larvae to live under conditions most

favourable for rapid growth and for the adults to live under conditions best suited to fertilization, dispersal, and oviposition. Thus complete metamorphosis has allowed the higher insects to utilize an infinite variety of food and habitat possibilities.

(4) Their skeleton. The insect skeleton is primarily an exoskeleton being in the form of a series of jointed tubes enclosing the body and appendages. This form of structure is adapted to give greater resistance to bending than a comparable vertebrate skeleton. It also gives the insects a large area for internal muscle attachment, almost complete protection of internal organs, and a means of guarding against undue water loss. The insect skeleton is, furthermore, composed of a very plastic material and has thus afforded the scope for the development of the innumerable structural forms that are the basis of the tremendous amount of species differentiation in insects.

Not all insects possess all these specializations (for example, entire orders of insects are wingless) and no single factor can be said to be the reason insects have achieved their present diversity and numbers but rather the factors enumerated above along with other factors not mentioned have worked together to make the insect organization such that insects today are the most abundant and widespread of all land animals.

REPORT OF THE OCTOBER GENERAL MEETING

The General Meeting of the Society was held in the Provincial Library on Tuesday, October 14th, at 8 P.M. The minutes of the September meeting were read and adopted.

The only specimen was a rock showing horn blend crystals, which was explained by Mr. Winkler. Professor Cunningham introduced Mr. L. J. Clark, Professor of Chemistry at Victoria College, who has many interests including botany, photography and conservation.

Mr. Clark made an appeal to the Society to use its influence in preventing the drastic ravages of the forests - our heritage. He also hoped the Society would put in a word against spoiling the beauty and campsites at Buttle's Lake.

He divided the flowers of the Forbidden Plateau into those of the (1) humid transition zone to 3000 feet (2) Canadian zone above 3000 feet (3) the Hudsonian zone from

5000 feet and the (4) Arctic zone above 6500 feet. Grouping his coloured slides in this way made them more interesting. Mr. Clark's coloured slides were beautiful and the colours of the flowers were exquisite, and made one realize how fortunate we are to be given the trust of so much beauty to preserve for coming generations.

ANOTHER RECORD OF CRESTED MYNAH ON VANCOUVER ISLAND

C.J. Guiguet

Provincial Museum,
Victoria, B. C.

On the occasion of the Pacific Northwest Bird and Mammal Society meetings at Nanaimo, January 19, 1952, Dr. G. C. Carl heard what he believed to be a crested mynah as he drove down the main street of the town. York Edwards, Forestry Service Biologist, and myself in a following car had occasion to pause in front of the theatre at Nanaimo where we heard the raucous calling and located the bird perched upon some electrical fixtures of the building.

Crested mynahs (Acridotheres caistatellus) otherwise termed Japanese Starling, have been recorded previously at Victoria where Dr. Carl destroyed a nesting pair at Oak Bay in 1946. Another pair was seen flying across Southgate Street in 1950. These incidents and other reports received at the Museum from time to time lead us to believe that these birds are established on Vancouver Island.

From the history of this introduced species at Vancouver on the mainland, there appears to be little cause for alarm. There they remained within the city limits for a number of years, increasing steadily until they were very numerous even in Kerrisdale where their early morning "matins" made the dawns noisy throughout the 1930's. In recent years, they have disappeared for the large part from the city, and have taken up residence on the peripheries, frequenting such areas as the Ladner, Lulu Island and Sea Island districts. Their numbers seem to have fallen off rather than to have increased. From all appearances, the population has struck a low "norm" which contrasts sharply with European Starling populations in eastern Canada.

There seems to be little or no competition with

indigenous species, although a certain amount is said to exist between the mynah and the introduced English sparrow -- "no honour among thieves!"

SECOND BOTANICAL FIELD TRIP

On June 14th a small number of botanists visited Island View Beach, Telegraph Road on the east side of Saanich peninsula.

The vegetation was that characteristic of exposed sandy and gravelly beaches. The most noticeable plant was the Sand Dune Rye-Grass, Elymus vancouverensis. This fine strong grass was in many places over five feet high and its soft erect spikes were from six to ten inches long. The stems branch freely at the base and send out runners which quickly root giving rise to new erect stems. If buried by drifting sand it soon grows up through the sand and sends out more runners and erect shoots. On this account it is a valuable aid in stabilising sand dunes. Along with other grasses it has been planted on many coasts and lake shores where sand drifting was bad. In some places as on the east coast of England these grasses are protected by law.

There were other characteristic shore plants such as the Beach Sweet Pea, Lathyrus maritimus; Yellow Sand Verbena, Abronia latifolia; Gumweed, Grindelia oregana; Thrift or Sea Lavender, Statice Armeria; Glehnia littoralis; and a pink Morning Glory, Convolvulus soldanella.

In wet situations behind the shore there were a number of salt marsh plants including the following: Sea Glasswort, Salicornia ambigua; Russian Thistle, Salsola Kali var. tenuifolia; Sea Milkwort, Glaux maritima; Sea Arrow-grass, Triglochin maritima; Salt grass, Distichlis spicata; and two or three species of Polygonum.

Away from the shore line not many species were found in the flowering state. Some late Miner's Lettuce was in bloom, also Yarrow, and wild mustard. A few plants of the Indian Consumption Plant, Lomatium nudicaule; Wild Onion, Allium acuminatum; Wild Hyacinth, Brodiaea grandiflora; Field Chickweed, Cerastium arvense and one unidentified species of Cerastium were also found.

C.W.L.

SHELL HUNTING IN THE SKOOKUMCHUCK

Lela M. Griffith, Egmont, B. C.

In the pursuit of our hobby of shell-collecting we make an annual excursion to the Skookumchuck, Sechelt Narrows that is, near the mouth of Sechelt Inlet. Sometimes we go more than once, choosing the day or days when the tide is at its lowest, usually in the latter part of May or June. Probably because of the enormous volume of water passing to and fro with a never-failing food supply, there is a greater variety of life along the shore there than anywhere else in the combined waterways of Sechelt and Jervis Inlets. We've practically given up expecting anything new for our own collection but for exchange with collectors in foreign lands this is an important source of supply.

We arrange our time to be on the beach an hour before low water and this necessitates our bucking against the run-out tide-- about all our small putter-boat engine can do. Once arrived we tackle the point right in the pass and, armed with a clam digger, we pull back the heavy trailing kelp, roll rocks and dig.

Of course we get those commercial stand-bys the Little Neck and Butter Clam--Venerupis staminea and Saxidomus giganteus respectively; also the introduced Japanese Little Neck- (Paphia semidecussata)- with its lovely orange or blue interior and dark zig-zag designs. Many dull little white clams -(Macoma inquinata) and pink Sunset Shells (Psammobia californica) come to light but the one we like best is harder to find--the rose-rayed little Semele rubropicta. Usually we get a generous quantity of Diplodonta orbella--round and fat--and Ark Shells (Glycimerus subobsoleta) also round but flat and with brown markings. Inside a dead clam shell we are likely to locate a few small pretty yellowish Kelly Shells (Kellia laperousii) and perhaps, if we are lucky, there will be some tiny pearly pink and white Melanellas (Eulima rutila or Eulima macra), slim-spined snails. Under and on the rocks are more pink snails but short and turban-shaped (Margarites pupillus and lirulatus) the candy-striped Calliostoma costatum, the lowly grey Bittium attenuatum and Diadora aspera, the limpet-like snail with an aperture at the apex. When the tide is almost low we are able to wade across a slowing stream of water to a reef in the channel. The reef doesn't offer

so much but we do get good Ridged Clams (Humilaria kennerlyi) white with concentric ridges and shiny hinges-- and we stop to admire the garden of gorgeous red and purple Sea Urchins (Strongylocentrotus franciscanus) bedded amid green and brown sea weeds and bits of pink coralline. When the tide turns we wade hastily back--the drop-off is very abrupt and for all the tide has begun to rise the current is still pouring out.

Because of the vast amount of water rushing through the narrow pass the tide is rising outside long before it begins to rise inside. This gives us time to trek in to a gravelly flat which juts out in a wide arc. Here we industriously plow up the sandy gravel with our indispensable clam digger. A good tide we count it when we can dig along the edge of the gravel bank where the swirling water keeps it neatly cut down.

Happy is the day when we find a Satinshell, a brown shiny clam (Spisula falcata) otherwise we must be content with a few more Semeles, the odd Bull's-Eye (Natica aleutica), a small round brown snail with a little shelly operculum or door. Moonshells there are in plentiful numbers--the large round Polinices lewisii--with a body so very large one wonders how the shell can contain it and with a brown horny operculum to stop up the opening when he finally gets in. Big Gapers, (Schizothaerus nuttallii) too, shooting streams of water into our faces as we dig. Again the Little Necks and Butter Clams and with them a great many cockles (Clinocardium nuttallii). Occasionally we take home enough of these last to fry for supper. Crawling on the sand are Thais lamellosa--Periwinkles to most of us--white, brown and white, and orange or purple. These latter colors are the treasures.

Above the flat and farther along, in a sun-warmed pool left by the tide we take a look but do not expect to find molluscs here--mostly small green sea anemones (Cribrina anthogrammica) and on the smooth rocks here and there a Black Katy (Katherina tunicata). Back on the flat we talk to an old Indian woman who is gathering cockles to smoke and the prickly green sea urchins (Strongylocentrotus drobachiensis); the eggs from inside of which she eats raw. The tide is coming over the flat now, the current is slacking fast and we are tired. Gathering our buckets and digger we climb up to the road and take a short cut through

the woods to the dock where the putter-boat waits. Perhaps we'll be back next low tide, perhaps not till next year but certainly we'll be there again.

THE BROWN CATFISH

The recent removal by poisoning of the catfish from Goodacre Lake in Beacon Hill Park has centred local public attention on this lowly fish. To some persons, perhaps, it is a surprise that catfish were present in this body of water and in such numbers.

Catfish are comparative newcomers to this Province; those in Vancouver Island lakes apparently date from 1906 when they were first brought to Victoria by Mr. H. E. Levy who operated a restaurant in this city at that time. As far as is known Mr. Levy's catfish came from Portland, Oregon, where they were first introduced from the eastern States in the early 1880's. Mr. Levy's fish were displayed for a time in a tank in his restaurant and from this stock plantings were made in local lakes. One report relates that a man by the name of Clark planted the catfish in Beaver Lake, a few miles north of the city, by throwing a few fish into the water from the train which used to operate between Victoria and Sidney. Plantings in other lakes of southern Vancouver Island were probably made about the same time. Catfish are now to be found in the following Vancouver Island lakes: Beaver, Elk, Langford, Prospect, Thetis, Swan, Glen, Lost, Young, Shawnigan, and Somenos.

There appears to be no record of the introduction of catfish on the mainland of this Province. In all likelihood plantings were made of fish taken in Washington or Oregon where the species was well spread before 1900. At the present time catfish are confined to certain lakes and sluggish streams in the lower Fraser Valley. A related species (Ameiurus melas, the black catfish) is found in Osoyoos Lake; its origin is quite unknown.

G.C.C.

SPIDERLAND

by George A. Hardy,
Provincial Museum.

If we could see all the spiders that reside in our district, as though all their hiding places were transparent, then, indeed, spiderland would not be an inapt word. At this season of the year especially, spiders have reached full growth, and are consequently more noticeable.

To say that they exist everywhere is but to state the obvious; the fields, lanes and woods are full of them, even our houses are not overlooked by their representatives, and even if we do not at once see them, we are constantly getting in the way of their webs, lines and snares.

In spite of their abundance, it is surprising how few spiders have popular names. Sometime ago a list of 173 different kinds were listed for Washington; 102 of these were recorded from the San Juan Islands alone, and not including British Columbia territory.

Most spiders are inconspicuous in size and colour, and because of their secretive habits, swift movements and partiality for the twilight hours by many of them for their social promenades, they are regarded with suspicion not to say horror by many of us who ought to know better.

The average length of life of a spider is one year. Emerging from overwintering eggs in the spring the youngsters are then very small and not so easily seen, but by the fall of the year they have reached maturity, and attract general attention. The females of the species, as usual, call attention to themselves for then the fine buxom ladies of the tribe delight to show themselves off, as they sit exposed in the middle of their large cart-wheel webs, literally the centre of attraction.

Nearly all these matrons are members of the Garden spider genus Aranea. It includes the Orb-weavers, or Hallowe'en spiders as some like to call them. To watch them at work while spinning their wonderful snares is a delight that can be witnessed by anyone sufficiently patient to observe.

The Banded Argiope (Argiope trifasciata) is a magnificent spider, with a body banded with silver and grey, and with a body sometimes the size of a thimble. It is found in our district and is frequently brought into the museum.

On the mainland it is credited with eating grasshoppers, so let's hope it increases by the thousand if that would

curb those pests.

House spiders (Theridion tepidarium) are of course known to everyone, as they often collect in bath tubs, into which they have fallen during their midnight revels, and from which they are unable to get out again. It is not surprising to find that this spider is unpopular in spite of its sociable nature, for as it runs swiftly across the carpet, the tense silence of the card players there assembled may suddenly be broken by loud yells of alarm as some of the party try to mount the card table, thinking no doubt that a mouse has just passed by.

On the lawns, we have also seen the handkerchief-like webs of the Grass or Funnel-Web spider, Agelena species. These are very noticeable early in the morning when they are thrown into relief by the dew drops which adhere in little globules to each thread of the structure. This spider hides at the bottom of the little funnel at one edge of the sheet, awaiting the entanglement of some fly in her web, when she will rush out with great speed to investigate. On one occasion I witnessed the capture of a wasp by this spider; the wasp, despite its size and venomous sting was soon over-powered by lightning-like darts by the spider which danced and circled about the wasp, as an agile boxer weaves about a clumsy opponent, until the wasp was finally trussed up and dragged into the spider's den.

No account of spiders no matter how brief can afford to leave out our most notorious species, the Black-widow (Latrodectus mactans) which is black in colour and by popular report black in character. This latter assertion is based on its poisonous bite, or rather stab, which is not necessarily fatal as often believed. The Black-widow is quite common in the Victoria district, where it is found in dry places, among stones, logs and outbuildings. Generally, shy and inoffensive, it may "bite" when least expected. When this happens a doctor should be consulted as a precaution. At the best the bite is very painful and can cause local swelling; its severity depends on several factors, such as the part of the body bitten, the state of health of the person and so forth. As its name indicates the spider is coal-black in colour, round like a small cherry and usually with a red spot on the underside.

The number of interesting local spiders will be totaled by the interest with which we have time or opportunity to study them. As with all Nature, the more we delve into her secrets the greater she will reward our efforts. The true naturalist is not content with reading alone, but tries to augment his knowledge with personal observations of the world of life which surrounds us.

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1540 Lyonel Street

HOW WE CAPTURED OUR TURKEY VULTURE by Cliff Wood

On Saturday the 6th of September, my dad, brother Jack and myself were fishing at Deep Cove; my dad had his shotgun along to see if he could get a few Band-tailed pigeons for Sunday dinner.

We decided we would go over to Salt Spring Island for our lunch. Just as we were pulling the boat up on the rocks we saw two raccoons; my dad who doesn't like raccoons because they eat birds and birds eggs, shot both raccoons. We then started up a short logging road and saw some vultures, rough-legged hawks and pigeons flying overhead. My dad said that vultures would not bother us, but we were a bit afraid because they are large and were flying low. We sat down to eat our lunch on the edge of the logging road and laid the dead raccoons on the road. My dad saw some pigeons land in an arbutus and went over to get a shot at them; just as he disappeared in the trees the vultures started to circle over my brother and me very low; we were afraid, though dad told us not to be; we moved a little and two flew away, the other swooped right down at us and we screamed for dad, as soon as we screamed he shot in the direction of the vulture to scare it off and the bird fell, knocked; we were excited and started to run after it but dad yelled to stay back as they were a vicious bird to be near, he said they might peck our eyes; we stayed back when we heard this, Dad grabbed it by the neck and legs, we then saw it was blinking its eyes, it was alive. Dad looked it over for injuries and found it had only an injured wing and we took it home with us. We put it in our fish bag and loaded up the boat while dad looked for a few pigeons. It was getting very windy and the birds were not flying much. He shot one and we left for home. That is how we captured our turkey vulture.

It is doing very well now, when we walk up close to look at it, it will stamp its feet and hiss like a cat, swells itself up and looks very vicious. Dad says that the vulture was coming down to eat the raccoons and wasn't interested in us, he was sorry that he hit the bird as he says they are a scavenger and do very little damage.

(Continued on page 60)

NOTICE OF MEETINGS

1952

- Friday AUDUBON SCREEN TOUR: First in series, Crystal
Nov.14: Garden Auditorium 8 p.m. Fran William Hall
"The Four Corners."
- Tuesday GENERAL MEETING: Reading Room, Provincial Library
Nov.18: at 8 p.m. Speaker: Mr. Frank Beebe, Provincial
Museum Illustrator. Subject: "The Gopher Patrol"
Illustrated. (Note change of date due to Remem-
brance Day holiday.)
- Tuesday GEOLOGY SECTION: Reading Room Provincial Library
Nov.25: at 8 p.m. Dr. F. W. Gray will take the meeting;
his talk will be illustrated.
- Wednesday BOTANY MEETING: Provincial Museum at 8 p.m.
Dec. 3: Professor Lowe will give the first lecture in
a series. Subject: "Plant Names -- The Why and
Wherefore." Members of all groups are welcome.

JUNIOR PAGE Continued.

Election results: Chairman, Bruce Colvin; Vice Chairman,
Peggy Carl; Secretary, Joan Livesay;
Editor, Alex Peden; Assistant Editor,
Bobby Glenny.

George Merrick sent a postcard with a squirrel picture. His
new address is 5336 N. E. Wygant Street, Portland, Oregon,
U.S.A. Alex Peden was elected Editor of this page in his
place.

We thank the management of B.C.
Packers for having us shown over
their plant at Ogden Point. We
watched the deheading saw the pack-
ing of fillets and went into the
long gallery where the salmon,
frozen solid, were stacked ceiling
high, and the temperature was quite
warm, our guide said, ten degrees
above Zero!



Turkey Vulture.
Story on page 59.

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