

The

Young Naturalist



VOL. 10 — NO. 10

PUBLISHED BY THE FEDERATION OF ONTARIO NATURALISTS

DECEMBER, 1968

Birding at Christmas in Victoria

The City of Victoria, which is situated on the south-east corner of Vancouver Island, is surrounded on three sides by the sea and anyone interested in birds can find here a wonderful variety of species.

The climate on this coast is much milder than in the rest of Canada. That makes it possible for many birds to stay here all winter instead of migrating south, as they do in other provinces. In fact, we have more species and greater numbers in winter than in summer.

Also, the waters off Vancouver Island are so rich in the food birds like that large numbers of them, principally ducks, mergansers and grebes, all of which nest in the north, spend the winters here.

To give some idea of their numbers and variety, the following figures are taken from the Christmas Count of last December:

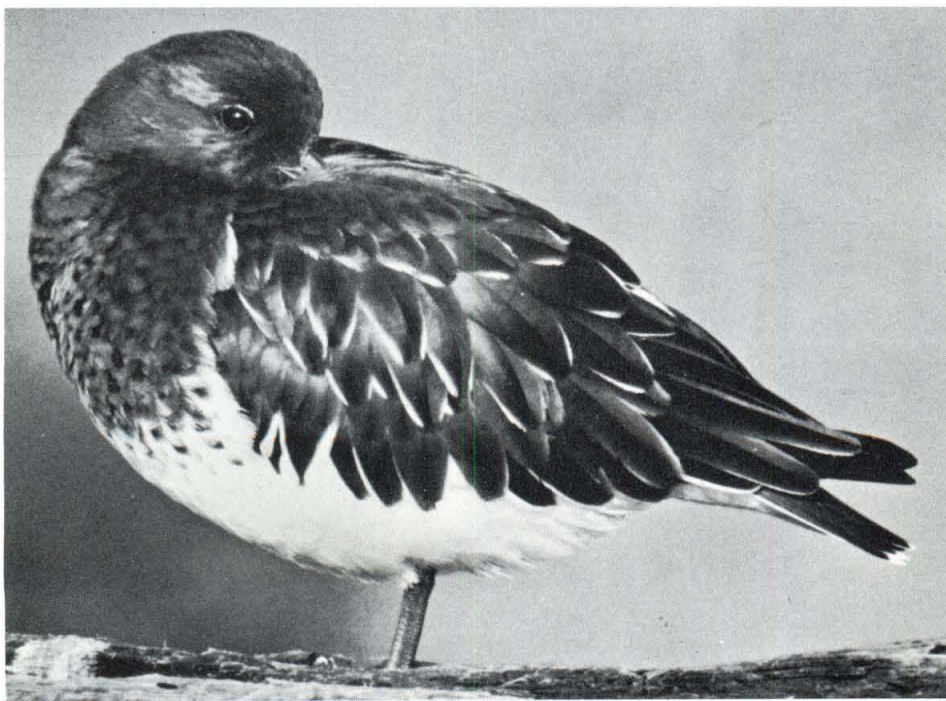
Horned Grebe	1153
Western Grebe	955
Mallard	4107

Green-winged Teal	1505
Widgeon	7851
Scaup	2700
Bufflehead	1576
Scoters	1236

One of the birds with us all year is the Robin. On the count in December the total seen by the fifty observers was 4800, as well as 658 of their closely related species, the Varied Thrush. Others are the Song Sparrows, the Bewick and Winter Wrens, the towhees, and the woodpeckers, kinglets, creepers and nut-hatches, and, of course, the crows and ravens, so no matter what the season, we can go out into the fields, the forests and the sea-front, and find much pleasure in locating our birds.

One bird seen here that cannot be found elsewhere in the Americas, is the Skylark. This part of Vancouver Island seems to be the only place where the climate favours their survival. Skylarks were brought over from Europe and liberated in other places, but they soon disappeared. They have been here now for about sixty years, and though they have lost their migrating habits, are slowly spreading out from the field in Victoria where they were originally placed, and now can be found as far as thirty miles away.

The Black Turnstone in the photograph is one of our winter residents. The photographer thought it was asleep when he took the picture, but the print shows at least one of its eyes open, and that he was watching the photographer

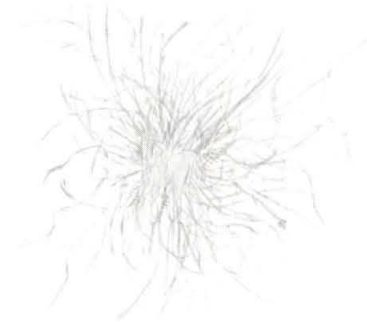


Photograph by Ralph Fryer

The Black Turnstone spends most of the fall, winter, and much of the spring near Victoria. They are quite tame and feed in the sea-front parks.

See BIRDING — Page 3

FEATHERS



DOWN FEATHER

Feathers are found only on birds and this characteristic distinguishes birds from other animals. At least once a year, in adult birds, the feather is molted and a new one grows in its place. Birds' feathers are called upon to do many things; they must provide surfaces for the wings and tail to make flight possible and they must provide adequate insulation and waterproofing to protect the bird in unfavourable conditions.

Feathers come in practically endless variety but we can place them in four main groups: flight feathers, contour feathers, down feathers and filoplume feathers.

Contour feathers are the most numerous and give the bird its shape. In cold weather these are fluffed up and efficiently trap the warmer air against the body. This is why on a cold winter day a bird appears fatter. A house sparrow may have as many as 3,500 contour feathers in winter.



CONTOUR FEATHER

Lying beneath the contour feathers of adult birds are the down feathers. Down feathers are small and soft. Their main function seems to be insulation. In water birds, down feathers are especially well-developed. It is from these birds that we get the down that is used in our sleeping bags.

Filoplumes are hairlike feathers always associated with the contour feathers. They are usually covered by the surrounding feathers but sometimes protrude. Their function is unknown but they may serve as decorations or perhaps as sensory organs.

Flight feathers are long, with stiff quills for strength in flight. They are found in the wings and tail.

Examine a feather with a hand lens and try to see how it is held together. How do birds keep their feathers waterproof? What else can you discover about feathers?

GERALD McKEATING



FLIGHT FEATHER

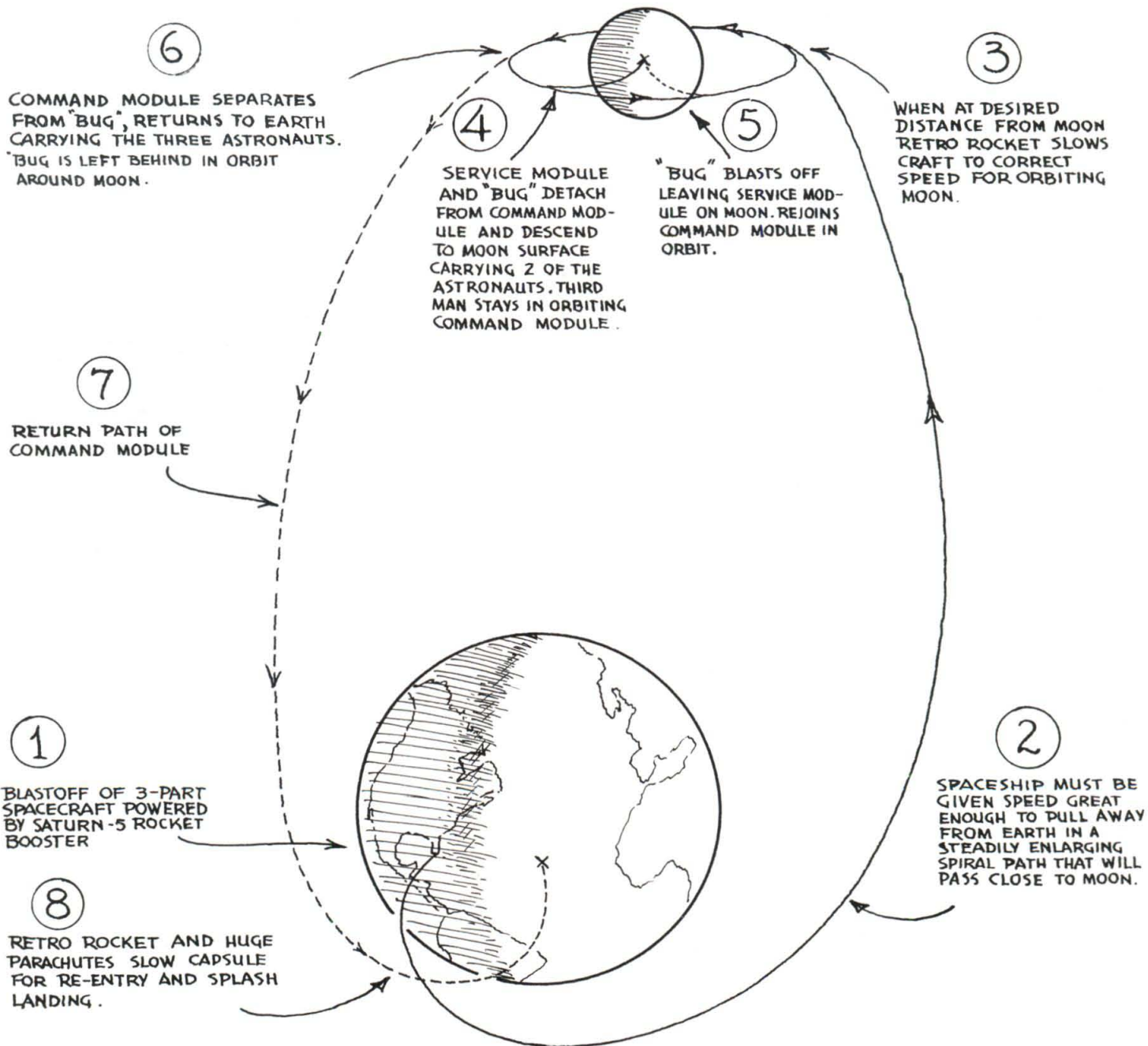


FILOPLUME

Sketches by Kenn Davison

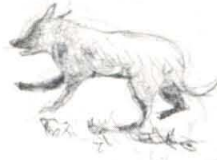
Lunar Landing '69

The approach of the exciting attempts to visit the moon has increased interest in the many problems that must be overcome in order to make such trips possible. Some of the details of the plans that are known are explained on this page. The spacecraft itself will consist of three sections or compartments. The command module, in which the three astronauts will ride during the trip to the moon, the service module, which will provide the rocket for the soft landing on the moon, and the lunar excursion module or "bug" which will carry two of the men from the command module to the moon and back to it again — all three parts will be hurled into space by a giant Saturn 5 launch rocket. To understand the possible sequence of events follow the numbered notes on the diagram below.



DEFENSES AGAINST PREDATORS

A skunk discourages an aggressive dog with a blast of scent.



The stickleback builds a portable nest that looks like part of the pond floor to hide eggs and young.

The steep cliffs where gannets and other sea birds nest are inaccessible to most predators.



The gray and white noctuid moth is effectively camouflaged by a birch tree.



The harmless hognose snake (puff adder) tries to frighten intruders away by hissing and looking as dangerous as he can.



If this fails, he rolls over and pretends to be dead.

Club News



Is your class nature club looking for a project? How about making a nature trail near your school, in a suitable woodlot? According to *Audubon Outlook*, published by the Buffalo, New York, Audubon Society, this has been done by several schools in New York State. One of the trails was set up on school land, but another is on near-by private land. The trails were made primarily by grade five pupils, who cleared brush to create paths and built steps. Twice a year, in spring and fall, they place identification markers next to trees and plants and make improvements in the trails. While most of the upkeep is done by grade fivers, many other classes use the trails, walking them and then returning to school to discuss what has been seen. Classes

from other schools have visited the trails as well, to enjoy them and to find out how to build their own. How about it, young naturalists?

BARBARA WILKINS

Many boys and girls have organized a natural science club in their school or classroom. If you have such a club, you are invited to share your experiences with others by reporting your activities in this column. We would be pleased to have pictures of your outings and projects. Be sure to describe your activities fully, giving the names of the leaders and assistants. Write to Mrs. Barbara Wilkins, Editor of Club News, 213 Rosedale Heights Drive, Toronto 7, Ontario.

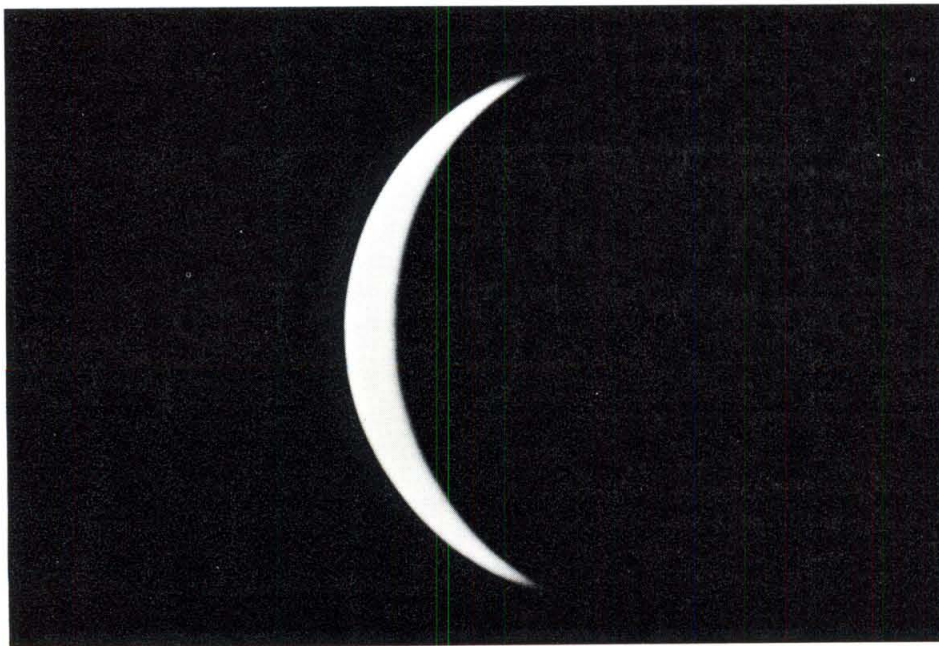
Venus - A Hostile World

One of the few planets that is easily distinguished from the stars is our neighbour in space, Venus.

Shining brilliantly in the south west throughout these winter months, it far

exceeds the brightness of any object in the night sky except for the moon.

Why is Venus so bright? The main reason is that it is very close to the
(See next column)



Mt. Palomar photograph taken through the 200-inch telescope.

The Moon? Guess again. Through the giant telescope on Mt. Palomar, California, the planet Venus appears to have phases like those of the Moon.

VENUS — from second column Earth. On Christmas day it will be only eighty-five million miles away and by next April it will pass within twenty-six million miles of us. This is nearer than any other planet can ever approach.

Despite its proximity, very little was known about Venus until recently. The surface of the planet can never be seen through a telescope because it is perpetually cloud-covered. These clouds reflect light quite well — and this is another reason why Venus appears so brilliant.

The nature of the clouds is still a mystery. We know the atmosphere itself is mainly carbon dioxide and nitrogen and that it is very dense. Recent analysis of data received from Soviet and U.S. space probes indicate that the air pressure at the surface of Venus is at least 75 times the pressure of Earth's atmosphere. This is equivalent to the pressure experienced at an ocean depth of 2,550 feet!

Radio telescopes on earth have been used to determine the temperature on the surface of Venus. The U.S. space probes Mariner 2 and 5 and the Soviet Venera 4 also made temperature readings and relayed this information back to Earth. The observations have been compared and the surface temperature of Venus appears to be about 800 degrees F. If this is true, then Venus is the hottest planet in the solar system and certainly a hostile world. Man may never be able to set foot on the surface of his nearest planetary neighbour.

T. DICKINSON

BIRDING — from Page 1

very intently. Actually they are quite tame and feed busily on the grass in the sea-front parks of Victoria, without paying much attention to the people. They nest in Alaska, the Yukon and Northwest Territories, leaving here in April and returning in July and August to spend most of the fall, winter and much of the spring with us.

The outdoor study of birds is of perennial interest and can be followed throughout one's life. Boys and girls of eight years and over, with their sharp eyes and ears, make good birders once they learn to identify them by their calls and songs, and become familiar with their coloration, size and habits. All that takes time and enthusiasm!

A. R. DAVIDSON

WOODLORE FOR THE NATURALIST

John Macfie

Measure Your Latitude the Way Champlain Did

Your 'latitude' is your position on an imaginary line joining the Equator and the North Pole. It is expressed in degrees. The Equator is at 0° and the North Pole is referred to as being 90° north.

Not long after people concluded that the world is round, a simple method for determining latitude was discovered. You can find your approximate latitude the same way using a wooden carpenter's level, a thin wooden slat a foot or so long, three shoe tacks and a protractor.

On a clear night locate the Big Dipper in the northern sky, line up the two 'pointer' stars forming the outer side of the bowl and follow the imaginary line a little more than a distance equal to that of the dipper's length to a medium bright star. This is the North Star. It stays in the same spot night and day the year round, while the other stars and constellations appear to rotate around it once in twenty-four hours. Viewed

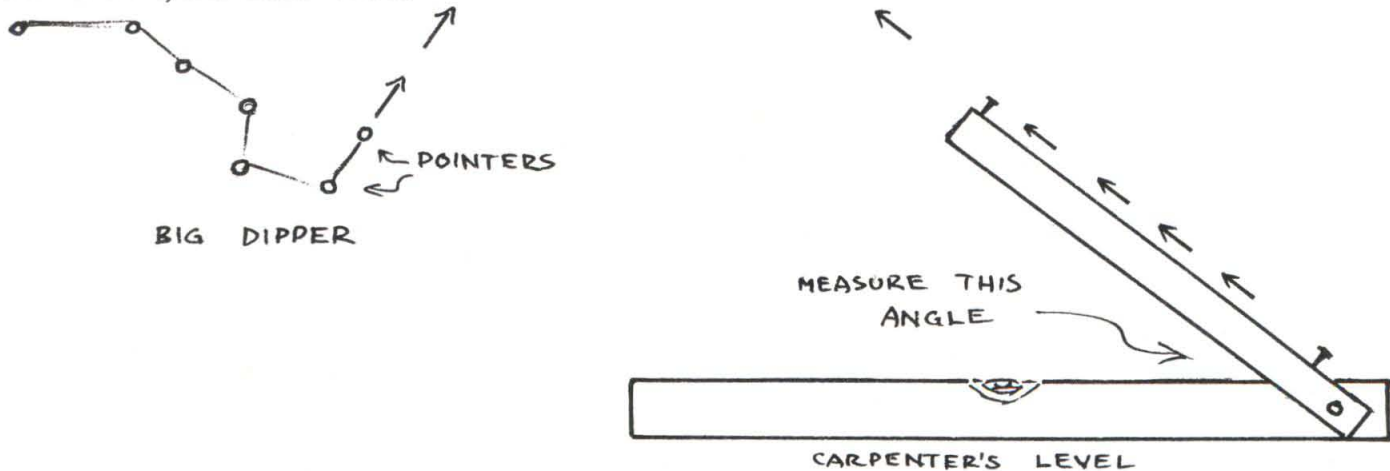
from the North Pole, the North Star is directly overhead.

Push two tacks into the upper edge of the slat then tack it to the side of the level, as illustrated. Place the level on a flat surface, shimming up one end or the other until the bubble tells you it is horizontal. Then line up the sights on the North Star, pivoting the slat up or down as necessary. Then carry your sighting instrument into the house, carefully so as not to move the sighting arm, and measure the angle between level and sighting arm with the protractor.

The angle you measure will be your approximate latitude. To check it out,

consult a topographical map of your region and compare your findings with the figures printed in the right and left margins opposite the place where you live. These figures represent degrees and (usually) parts of degrees or 'minutes' north of the equator.

Early explorers used crude instruments, such as Champlain's famous 'astrolabe' to determine latitude fairly accurately. Later, a means of determining 'longitude', distance between west or east of an imaginary north-south line running through Greenwich, England was devised. Then an explorer, or sea or air navigator, could pinpoint his exact location on the earth's surface provided he had an accurate timepiece and a set of very complicated astronomical tables. He 'shot' the North Star and made a horizontal line on his chart, then 'shot' another star in the eastern or western sky and crossed it with a vertical line. And "X" marked his spot.



THE YOUNG NATURALIST is published ten times a year by the Federation of Ontario Naturalists for the Young Naturalists Club. Reprinting of text only is permitted provided credit is given to *The Young Naturalist*. Editor: Donald Young, 1262 Don Mills Road, Don Mills, Ont.

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