

BC 31

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CANADA V8P4P5.

741 words including
Preface and Dedication.

I certify that this is the
student's own work.

K. A. Murdoch

K. A. Murdoch
St. Michaels University School

*Very thorough ambitious research. Refs displayed?
Has sensibly analysed the mass of information
and struck an evolutionary - cum - ecological note*

18 17
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+ 77 = (167)

PREFACE

"If I had not kept my face wrapped in a cloth, I am almost sure they would have blinded me, so pestiferous and poisonous are the bites of these little demons--- I confess this is the worst martyrdom I suffered in this country: hunger, thirst, weariness and fever are nothing to it".

Father Sagard, 1623 (1)

"Others see the Arctic Tundra as a high north wonderland--- a land where flowers and plants thrive in the short but sunlit summer; where valley floors are carpeted with acres of cotton grass and sedges, alive with the buzz of insects and the flickering flights of bees and butterflies..."

From "The Arctic Coast" (2)

(1) Quotes made by Father Gabriel Sagard, a Recollet Friar, on crossing the Great Lakes, and referred to on page 24 of "The Great Lakes" by R. T. Allen, 1970

(2) Quotes from page 52 of "The Arctic Coast" by D. Wilkinson, 1970

WRITE ABOUT INSECTS IN YOUR COUNTRY OR ANY OTHER COMMONWEALTH COUNTRY

CANADA AND ITS INSECT FAUNA:

PERSPECTIVES OF A 13 YEAR OLD

Of the Commonwealth countries, Canada is the largest, but insects are among the smallest and commonest of animals. Yet, insect evolution and development in Canada is wondrously unique, reflecting Canada's past and present.

"Insect Fauna" is generally defined as "the insect life of a given region or time", and in the regions or "life-zones" of Canada, the insect fauna has adapted and adjusted, sometimes over millions of years, to the regions' peculiar features.

The Canadian Arctic Coast is the only one of its kind in the Commonwealth. The Lowland Arctic is transformed in the brief summer, from a land of ice and snow, to a wonderland of lichens, grasses, and bright arctic flowers. Here insects adapt to a temperature range of $+15^{\circ}$ Celsius summer maximum to -30°C in the winter. But cold is just an inconvenience for them, who after all have existed for 300 million years.

In this region the Arctic warble-fly is unique. In July and August it deposits its eggs on the rump of the caribou. The hatched larvae live under and off the caribou's fat all winter, and in the following June they drop from the caribou's neck to the ground and continue the life cycle.

Arctic butterflies and mosquitoes take lengthy basks in the sunshine, preferring coloured

flowers; which have warmer sites. The wind can be strong and gusty, and so the Arctic bumblebees learn to crawl here, even when gathering nectar and pollen.

There is a simple food chain in the Arctic that binds one life form to another. Here an alarm has been sounded. Slow-growth lichens, have shown high radioactive contamination from past global nuclear explosions. This has shown up in insect life, in caribou, and in the Eskimo population.

?/x The Great Lakes are the biggest lakes in the world and a paradise for insects. This region is densely populated, industrialized, and intensively cultivated. Here are the famous giant swallow-tail and the migratory Monarch butterflies. Rich insect life is found in the shallow waters near the lakeshores. The range of insects is immense and includes the carnivorous miniature monsters, the diving beetles, the dancing Mayflies, the water-striders, and the transparent Phantom Larva.

This region's most distinctive development is the phenomenon known as "Crossing the Barrier and Species Dispersal". The last retreat of the glaciers commenced about 15 000 years ago. Since then, the insects have been following the retreat and returning from the south, foot by foot. But they have to go around the formidable lake barriers. For example, the Camel Cricket, a wingless humpbacked cricket, is found only at the east and west end of Lake Ontario, and no where in between (along the north shore)!

"The Tragedy of the Mayfly occurred in

1953 when the bottom of Lake Erie was found to be full of dead Mayfly nymphs. The dense Mayfly population has since disappeared from this part of the Great Lakes. Worsening industrial pollution and inadequate sewage disposal being the likely causes.

In the other regions of Canada, this tragedy repeats itself. Man is waging battles, using chemicals and other means, against the spruce budworms of the coniferous forests on the unique Canadian Shield, the grasshoppers on the Open Prairies, and the lodgepole pine beetles of Western Canada.

There is a clear message from our insect fauna: We should no longer consider insects as creatures to be destroyed or exploited. We must open our eyes to the intricate beauty of the insect fauna and see what a marvellous mirror they hold to the environment, whether in Canada or elsewhere.

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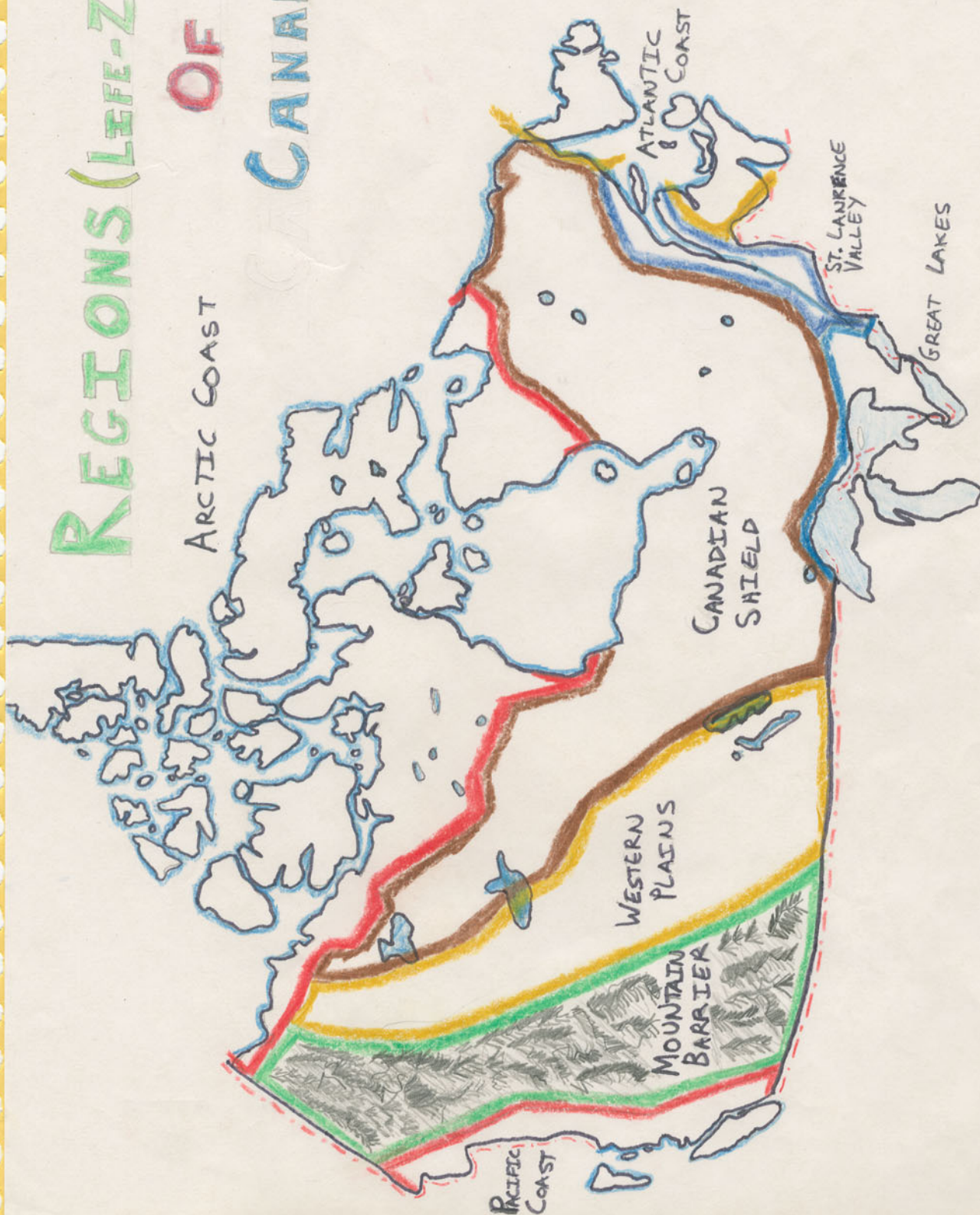
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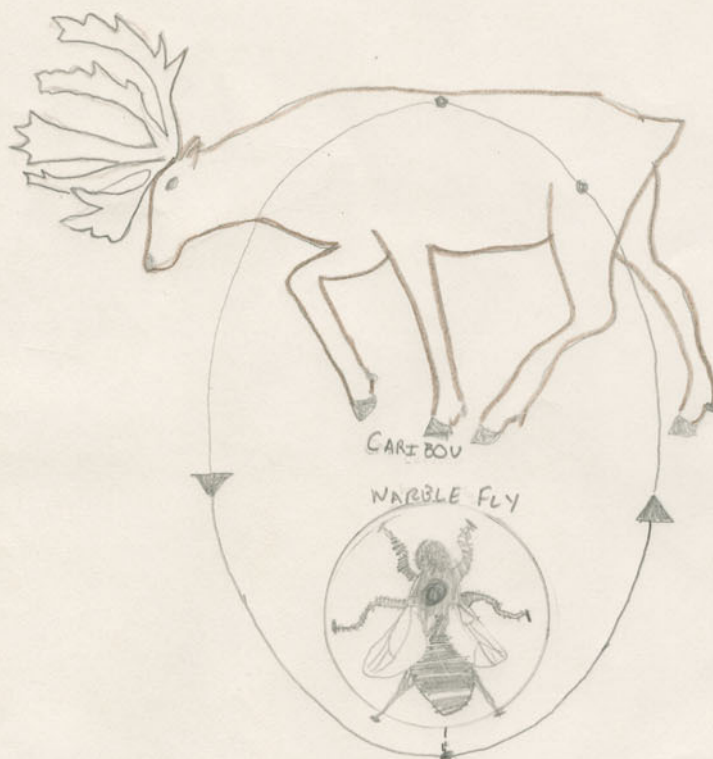
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REGIONS (LIFE-ZONES)

OF CANADA





THE ARCTIC WARBLE - FLY, SCOURGE OF THE CARIBOU

In the summer months, warble flies deposit their eggs in the rump of a caribou; the eggs develop into larvae and work their way up the animal's back by burrowing under the skin. Once there, as many as 350 can feed and grow over the winter. They burrow back out and drop to the ground the following summer, to pupate and emerge as warble flies.

From Page 130, "The Arctic Coast"



- ● RHINOCEROS BEETLE
- ■ WINGLESS CAMEL CRICKET
- ▲ ANTLION

CROSSING THE BARRIER AND SPECIES DISPERSAL

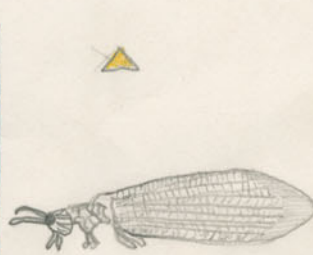
Following the retreat of the glaciers about 13 000 years ago, the insects have been returning foot by foot, going around the Great Lakes.



RHINOCEROS
BEETLE (1 INCH LONG)

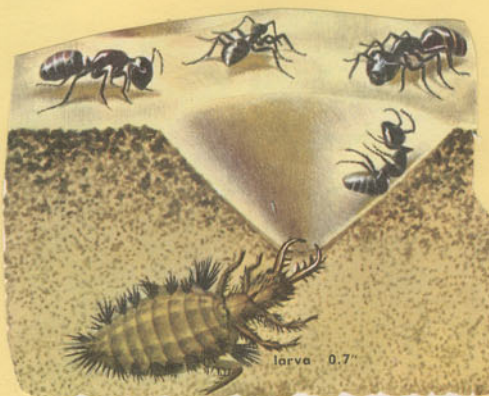
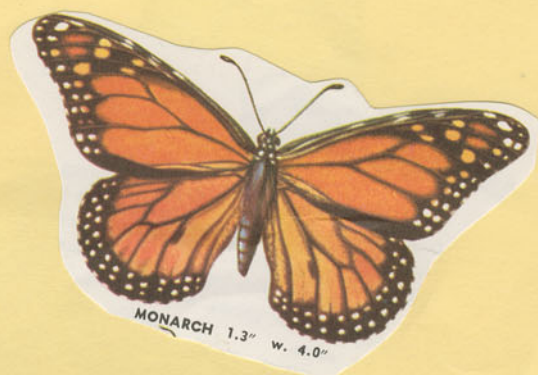


WINGLESS CAMEL
CRICKET



ANTLION

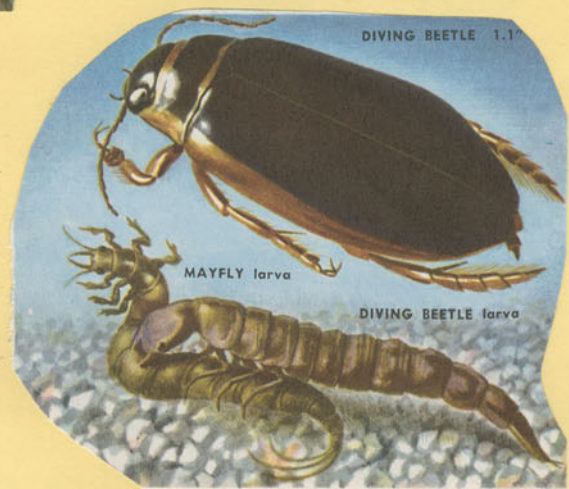
Crossing the Barrier: Original Sketch
Three Insects: From Page 90, "The Great Lakes!"



ANT LIONS



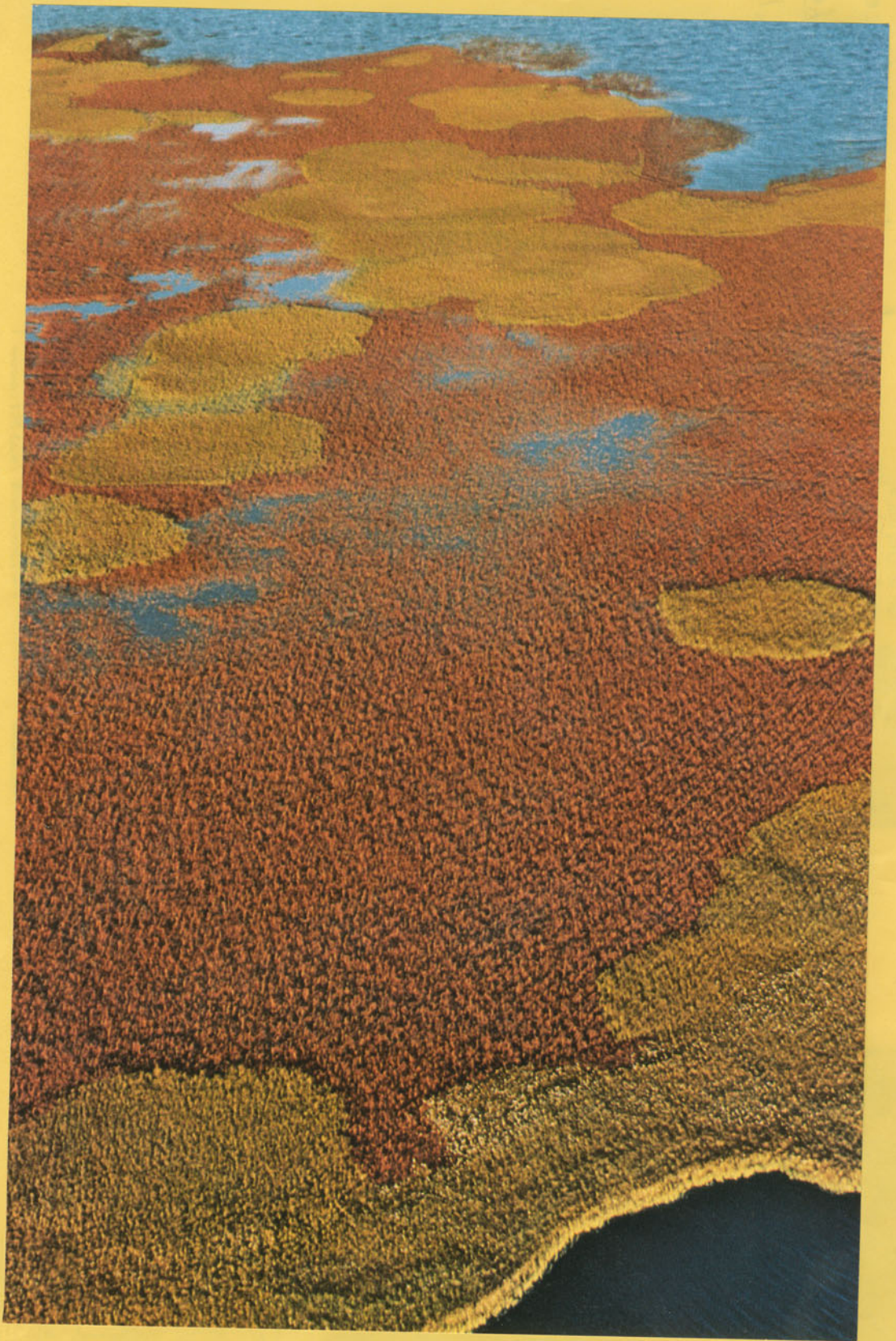
Illustrations (cut-outs) on
 previous page and this page
 are from "Insects", Golden
 Guide Series.



The three polaroid photos on the previous page were taken by the candidate. They were photographed from pages 101, 111, 112 of "The Great Lakes". The original photographs were by Helen Sutton, a gifted naturalist-photographer.

The candidate has contacted the publisher and obtained permission to take these polaroid photos, through the kindness of Ms. Shanne Matthews, of Toronto.

The following pages show some of
the habitats of the Canadian Insect
Fauna and of Man.



THE ARCTIC TUNDRA

Illustrations on previous
page and on this page (except
glacier lilies) are from "The
Arctic Wildlife" National
Geographic 1979



Final days of flowering on the tundra bring out a halo of seed filaments on the dryas (below) and a scarlet blush on the alpine bearberry (bottom). Tundra plants rarely rise more than a foot, their growth dwarfed by the arctic environment.



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swallowtail
butterfly on glacier
lilies

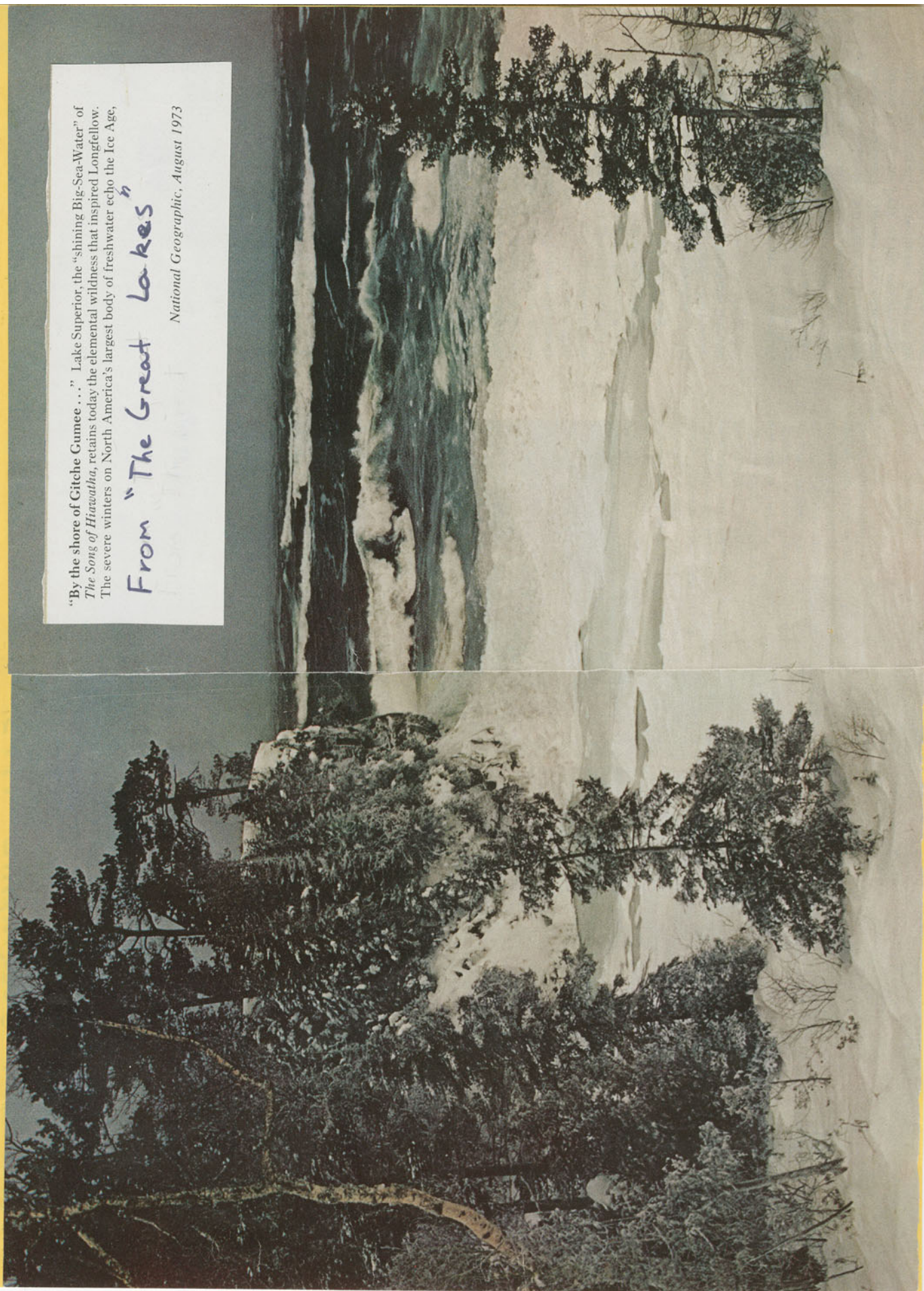
PHOTO: TRUDY CARSON

From Forestalk Fall/Winter 1982

"By the shore of Gitchie Gumee . . ." Lake Superior, the "shining Big-Sea-Water" of
The Song of Hiawatha, retains today the elemental wildness that inspired Longfellow.
The severe winters on North America's largest body of freshwater echo the Ice Age,

From "The Great Lakes"

National Geographic, August 1973



N. Geog. 1973 Aug

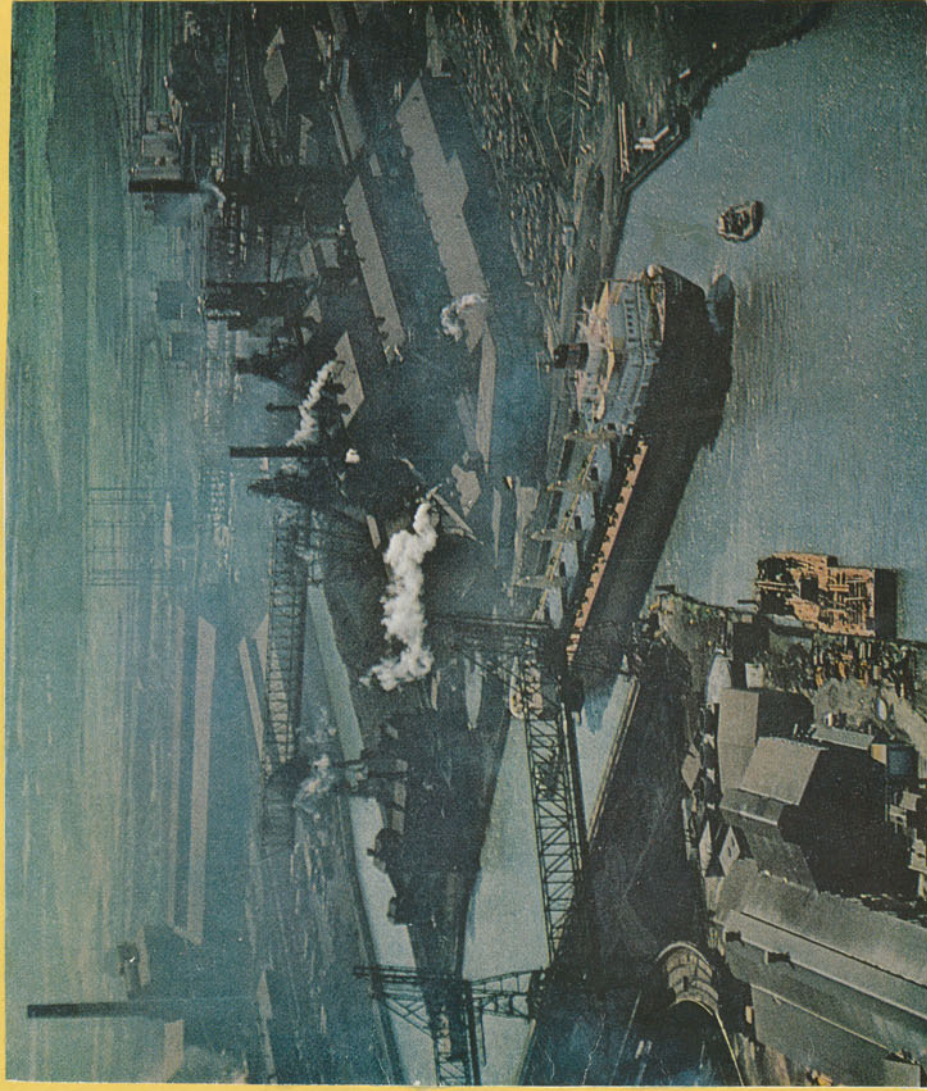


INFRARED PHOTOGRAPH BY NATIONAL ENVIRONMENT SATELLITE SERVICE

"Heat picture" from space color codes the ailing Great Lakes on an October day. The cold greens of Superior and Michigan loom darkly against the Midwest's still chillier blues. Warmer waters of Huron and the lower lakes shade from yellow to red, as does the Atlantic seaboard.



PHOTO: BOB HERGER OF PHOTOGRAPHICS



Illustrations on this page and the previous page are from "The Great Lakes" National Geographic 1973



Douglas Fir of The Mountain Barrier and Pacific Coast



Northwest Coast of Vancouver Island.

This illustration and illustration on previous page are from Forestalk Summer 1982

ForesTalk SUMMER 82

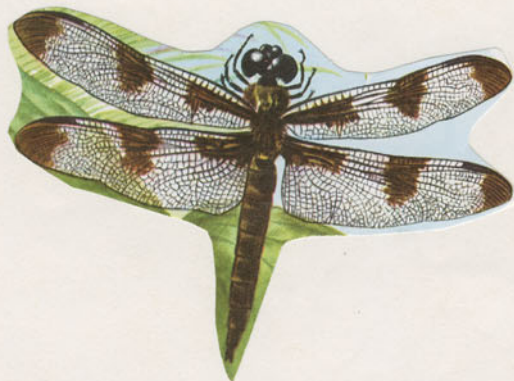
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Fig. 7: Spiral spruce-cone borer adult

From "Guide
to Common
insect pests
and diseases
in spruce
seed orchards
in British
Columbia"

Environment
Canada



DEDICATION

I wish to pay tribute to the West Coast tribes who first settled in British Columbia. The Haida and the Tsimshian of the West Coast considered insects such as dragonflies, beautiful. They would depict them in their art, carve them on totem poles, and spoon handles. We still have much to learn from this old attitude.



BERRY SPOON⁽¹⁾



⁽¹⁾ Berry spoon depicting dragonfly, from Boas' "Primitive Art"