

PART III.—SEISMOLOGY IN CANADA.

An Article on Seismology in Canada, by Ernest A. Hodgson, M.A., appeared at p. 37 of the Canada Year Book 1931.

PART IV.—THE FLORA OF CANADA.

Under the above heading the Canada Year Book, 1922-23, contained an article prepared by the late J. M. Macoun, C.M.G., F.L.S., and M. O. Malte, Ph.D., and revised by the latter. See p. 25 of the 1922-23 edition or p. 73 of the 1921 edition.

PART V.—FAUNAS OF CANADA.*

NOTE.—Textual footnotes are indicated by symbols for each page as in other sections of the Year Book. Bibliographical references are indicated by arabic numerals and run consecutively throughout the article (including footnotes); corresponding notes are listed at the end, on p. 52.

A *fauna* may be described as the aggregate or totality of the animal life of a given area, as of North America; of a given geological period or formation, as Tertiary fauna; or the animals inhabiting certain kinds of situations, as fresh-water, marine, or prairie fauna.

In this article attention will be given only to the so-called *Recent Fauna*—species which still exist in a living state, or have become extinct only within historic time. Space will not allow extended discussion of marine and fresh-water faunas and the main thesis will be confined to the higher vertebrate faunas.

Faunal Types.—The insect fauna has the greatest number of species and perhaps of individuals, is important as food for certain kinds of birds, mammals, and fishes, and greatly affects agricultural and forestry interests, as the distribution and abundance of most species of insects is almost entirely dependent upon the flora or host plants. Approximately 50,000 species of insects occur in Canada; many exotic species are continually being brought into the country, usually adventitiously, and may become pests, supplanting native species, so that the insect fauna is constantly changing.

Halkett (1913)¹ lists 569 species of fish known in Canadian waters, of which about 359 are marine, 225 fresh-water, and about 18 of these species are anadromous. The marine faunas are largely kept within certain narrow limits of temperature and salinity of water, and species which can exist in water that approaches the freezing point in winter will not find the water colder under the ice of the Arctic ocean. The abundance of species and of individuals depends principally upon food available, and that is contingent upon sunlight, depth of water, currents, and food brought from land by rivers and streams. The marine invertebrate faunas, such as the smaller crustaceans, derive much of their sustenance from the aquatic flora and are of enormous importance as food of fishes. The lengthening days and longer periods of sunshine in spring multiply the growth of diatoms and other microscopic vegetation of the sea, and directly influence the migrations of whales, seals, and other marine mammals.

The reptiles (numbering about 43† different forms) and the amphibians (37†) form the smallest vertebrate groups in Canada, being largely animals inhabiting warm climes, although frogs are abundant in parts of Canada, occurring north nearly to the Arctic Circle in the Mackenzie River valley and in central

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†Checked by C. L. Patch from records in the National Museum of Canada.