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GEOLOGY OF SASKATCHEWAN: A HISTORICAL APPROACH

ANTHONY GORDON. 1979. Western Extension College Educational Publishers, Saskatoon, Saskatchewan. 56 pp. \$4.75. Senior Edition (68 pp.) \$5.75.

On a day in late December 1979, a group of us stood in a gravel pit on the Davin moraine east of Regina and pondered the ebb and flow of the glacier that shaped this area. When, and how long, did the glacier stand there? Dr. Gordon's new book, *Geology of Saskatchewan*, gives answers to questions such as these. To students in our schools from Grade VII to Grade X and to students of Grade XII geology, in particular, but also to casual observers of the natural world, *Geology of Saskatchewan* will provide an appreciation of the land formations and scenery of Saskatchewan, and the forces which shaped this province over the last three billion years.

Two versions of the book are available, an edition for student use and a senior edition with additional information throughout, plus two additional chapters on projects and sources of information. The student edition first introduces geology as a science, then deals chapter by chapter with the relation of the study of geology to Saskatchewan, in a style that does not over simplify, but presents topics in a way that students can understand (even without use of the glossary). The first chapter provides a background for consider-

ing Saskatchewan in relation to the geological process which shaped our prairies. The second chapter discusses the Precambrian eras in enough detail to relate the lower bedrock to the other rock formations and soils which developed later. The next three chapters discuss events of the Paleozoic era, Mesozoic plus Cenozoic eras, and glaciation in Saskatchewan. The final chapter deals briefly with resources of the earth in Saskatchewan and gives facts and due balance to the value of mineral (i.e. commercial) resources, groundwater and soil. In the senior edition two additional chapters on "Projects on the Geology of Saskatchewan" and on "Useful Information" supplement the student edition with suggestions for assignments to a teachers. The senior edition is distinctly more satisfactory for the more serious casual adult student of geology.

In the same chapter are treated both the Mesozoic era, which involved extensive radiation of plants and animals, and the Cenozoic, which included major development of mammals and higher plants as well as the evolution of man. Cenozoic time might have been treated in a separate chapter. The maps which indicate the progress of retreat of the Wisconsin glacier are extremely useful, but separation of explanation of events in the ice retreat from the actual map makes the use of the maps more difficult.

This book will fill a real need in Saskatchewan schools. It will serve both Grade XII and the lower grades that could not use the old *Grade X Geology*. It will also suppleme

various levels of the teaching of the geography of Saskatchewan. It will serve a wider purpose too — teachers who use it in their classes will have their vision of the whole Saskatchewan scene broadened, not just in geology and geography, but within the social sciences and agriculture. Though some might question such a use, it will be useful in teaching art, for the soaring and varied vistas of Saskatchewan can inspire those who view them to reproduce them in a variety of art forms. Relative to use of this book in our school system, a word of caution should be introduced. While the book is useful without supplementation provided the teacher has a copy of the senior edition, teachers who expect to develop a full realization of the nature and significance of Saskatchewan geology in their students should have at least an introductory university course in geology. Even for the casual person it is a pity that the student edition leaves out many dates and additional details. Students from Grade VII to Grade X could use either edition effectively.

Another group of readers, the natural history people and all true outdoors people, will find *Geology of Saskatchewan* a must for understanding this province. The question and answer form of the author's presentation, as well as its uncomplicated organization and straight-forward style, make this book a vital reference for all those who try to understand the Saskatchewan scene. The author, who adopted Saskatchewan as his home after his formal education was complete, has provided the widening of vision of this province which has been needed for at least 50 years. Let us hope that our schools will all use this book somewhere in the intermediate grades. Those who do not are denying their students a fuller un-

derstanding of the Saskatchewan scene. — Reviewed by J. R. Jowsey, 2635 - 19th Ave., Regina, Saskatchewan, S4T 1X2.

BUDD'S FLORA OF THE CANADIAN PRAIRIE PROVINCES

J. LOOMAN and K. F. BEST. 1979. Agriculture Canada Publication 1662, Ottawa, Ontario. 863 pages. \$8.20 in Canada; \$10.20 in all other countries.

This book, as the authors state, is not just a revision of *Wild Plants of the Canadian Prairies* but is a much expanded edition. Although *Wild Plants of the Canadian Prairies* by A. C. Budd and K. F. Best forms the backbone of this manual it has been expanded to include all of Alberta and Saskatchewan and most of Manitoba, which means the boreal forest and Rocky Mountain regions are now included along with the prairies and parkland treated in the previous publication. A total of 1974 species are included (an increase of over 700 species from Budd and Best). A total of 53 new illustrations have been added; these are in the form of black and white photographs of pressed botanical specimens. New sections on fruiting and flowering characters of *Carex* (Sedges), pods of Cruciferae (Mustards) and the main characters of *Salix* (Willow) are valuable additions to this volume. The much expanded sections on *Carex* and *Salix* include almost all species found in the prairie provinces, correcting one of the weaknesses of the previous works. The glossary has also been expanded to include definitions of additional terms.



Prickly Rose.

Fred W. Lahrman

The quality of the book itself was found to be excellent. The hard cover and relatively heavy weight paper for the pages will withstand heavy use both indoors and in the field.

No book is without typographical errors but this volume is amazingly free of them.

A few comments on factors detracting from the value of the book: To begin with, no bibliography is included. Even a brief general list

would have given the reader something else to consult if difficulties were encountered. For example, the species descriptions are brief but generally adequate, but in cases of uncertainty a bibliography would give additional references to check.

Another point I wish to make is that the authors have changed some of the scientific and common names but have made no reference to the name (synonym) which was used in

previous editions. For example *Koeleria cristata* changed to *K. gracilis* and Bluebunch Fescue changed to Idaho Fescue.

Two of the line drawings in the copy examined reproduced very poorly (*Festuca idahoensis* and *Hierochloa odorata*) with some of the lines not showing at all.

The last negative point I wish to make is that the authors do not appear to have done sufficient research on the distribution of the species included nor have they included all the species which have been recorded in the area. In a brief check I located published records (prior to 1977) for 32 species which have been found in Saskatchewan and are not included in this work. Specimens for each of these species are located in either Saskatchewan herbaria or in the Department of Agriculture herbarium in Ottawa — sources which the authors should have checked before publishing such a book. This example is for Saskatchewan, the same may or may not be true for Manitoba and Alberta. Some species excluded from this volume are included in either the *Flora of Alberta* or the *Flora of Manitoba* (i.e. *Allium geyerii*). Why they choose not to include these is a mystery.

The ranges given by the authors are also misleading for a considerable number of species. An example of this is *Arethusa bulbosa* which is stated to occur in the "southeastern Boreal forest" which I take to mean the southern boreal forest of Manitoba. The actual range is from the south side of Lake Athabasca through scattered localities in central Saskatchewan and from there through to southeastern Manitoba; not what I would consider southeastern boreal forest in the area covered by this publication.

In spite of these limitations this publication is still an excellent one and well worth the cost to any person interested in identifying the flora of the prairie provinces. The keys and descriptions are not cluttered with the scientific jargon found in so many manuals. It also presents for the first time, a book which allows one to feel reasonably certain that the Saskatchewan species he is trying to identify is actually included in the book, rather than having to have several manuals at hand. Both amateur and professional botanists alike will find this a very useful book. — Revised by *Wayne Harris*, Box 994, Prince Albert, Saskatchewan, S6V 5S5.

FLORA OF THE PRAIRIE PROVINCES, Part IV, Monopsida.

BERNARD BOIVIN. 1979. Issued as *Provancheria* No. 5, Universite Laval. Reprinted from *Phytologia*, Vols. 42 and 43. 189 pp. \$8.00.

After a long interval the fourth part of Boivin's "Flora of the Prairie Provinces" has appeared. The previous three parts were reviewed in these pages in June 1968, September 1969, and December 1972.

This fourth part covers the plants commonly known as monocotyledons, whose best known divisions include the grasses, sedges, rushes, lilies, and orchids. The grasses have been left out of Part IV, except for two pages of taxonomic innovations. The author explains, "The Grasses were originally scheduled for a separate publication, but they will likely be published as Part V of this Flora along with the general index, the

bibliography, and the glossary". This reviewer, without inside information, is not too surprised at this happening, from mere considerations of space; if it took about 600 pages in three parts to cover the dicots, then it ought to require 300 pages to do the monocots plus glossary, references, and index; this would equal two smallish parts or one oversize one.

This treatment of monocotyledonous plants shows the strengths and disadvantages of the previous parts. The keys to genera and species seem workable on the whole. The descriptions are concise. Technical botanical terminology is used throughout — the completed work will require a glossary for explanation of these terms. The author has spared no pains to run down the basis in actual specimen or in mistake for species reported but not commonly found. The artificial key to the families of monopsids (= monocots) on pp. 182-185 will be found of considerably greater use in practical identification than the natural keys on pp. 3-4 and 169.

The sequence of families in this part runs onward thus: lilies - orchids - rushes - sedges - (grasses) - water plantains - pondweeds. It is hence in almost the reverse order to the conventionally used sequence of Engler — not that that matters much, except for convenience; the Englerian idea that apetalous flowers were primitive is pretty generally agreed now to be mistaken.

The orders of the monopsids as delimited here mostly consist of but one family. They are thus of not much use in helping one form a mental framework for pigeonholing the plants one sees. It is noteworthy that by no system of plant classification do taxonomic orders leap to the eye of the naturalist as entities existing in

nature, the way they do in other groups, notably mammals and insects. Consider how much clearer everyone's ideas are about *Carnivora* (Beasts of Prey) or *Coleoptera* (Beetles), as compared with, say, *Celastrales*. Behind this effect must be hidden some information about the course of evolution, but one is not sure what.

Some scattered comments are as follows: This reviewer is not sorry to see the author send *Scirpus validus* and *S. acutus* back to the Linnean *S. lacustris*; he never could recognize more than one species in our population of Great Bulrush. The same holds for the discarding of segregates in *Sisyrinchium* (Blue-eyed Grass) in favour of the Linnean *S. bermudiana*. A similar proceeding in *Juncus*, whereby the author has subordinated *J. balticus* (Baltic Rush) to the Alaskan and Eurasian *J. arcticus* because of lack of sufficient differences (so thinks the author, and this reviewer must agree), will not be as welcome. The trouble is that *J. arcticus* is an older name, but *J. balticus* is much better known.

An oversight is the leaving out from key and descriptions the fact that *Sagittaria* (Arrow-head) is monoecious, there being distinct male and female flowers on the same plant.

This reviewer will make no remarks about the treatment of *Carex* (Sedges) here, because his views were sought on many points thereon.

I had expected to be able to write when called on to review Part IV of "Flora of the Prairie Provinces," "At last this great work is finished." But this cannot be said yet; we still have the Grasses to encounter. — Reviewed by *John H. Hudson*, The W. P. Fraser Herbarium, University of Saskatchewan.

A FIELD GUIDE TO THE NESTS, EGGS AND NESTLINGS OF NORTH AMERICAN BIRDS

COLIN HARRISON. 1978. Collins,
Glasgow. 416 pp. + 64 colour plates.
\$12.95.

A FIELD GUIDE TO WESTERN BIRDS' NESTS IN THE UNITED STATES WEST OF THE MISSISSIPPI RIVER

H. H. HARRISON. 1979. Peterson
Field Guide Series No. 25. Houghton-
Mifflin, Boston. 279 pp. + 32 colour
plates. \$11.95.

In addition to their illustrations,
these two books, both field guide
size, give more information on the
breeding of each species than con-
ventional bird books. Based on a
check of 10 species, the Collins-
published book averages about 215
words per species, the Peterson
volume 140, Godfrey's *Birds of
Canada* 45 and Peterson's *Field
Guide to Western Birds* 20.

A comparison of habitat, nest and
egg descriptions, clutch and in-
cubation data for four passerine
(songbird) species and six non-
passerines shows comparable
coverage. Different facts are
sometimes quoted in each, e.g., for
Mallards, from Collins you will learn
that the female builds the nest; from
Peterson that the nest is sometimes
2.4 km (1.5 miles) from water and
that the species uses artificial nests.

Red-winged Blackbirds are colonial
nesters (Peterson); this is not men-
tioned in Collins. There are also con-
tradictions: both sexes of Red-tailed
Hawk incubate (Collins); incubation
by female (Peterson); Horned Larks
are "sometimes double-brooded"
(Collins) and "2 or 3 broods" (Peter-
son).

The Collins book has 32 pages of
introductory material, including 12
pages of keys to nests, eggs and
nestlings. There are 14 introductory
pages in the other volume with no
keys. Collins has 5-25 lines of
general information preceding each
family, thus avoiding some repetition
in the species accounts; Collins also
gives months of breeding. Peterson
does neither but does have a brief
up-to-date statement of breeding
range, often has nest dimensions
and sometimes compares eggs of
one species with another, none of
which is done in Collins. The
Peterson book is sometimes more
explicit about habitat, e.g., for
Burrowing Owl: "Prairies, deserts,
sagebrush flats, canal dykes, air-
ports, large vacant urban lots"
(Peterson); "on prairies and open
grassy places" (Collins).

The titles, however, indicate the
two major differences between these
books: nestling data in the Collins
book and geographical distribution
— North America in Collins vs.
western United States in the
Peterson book (a companion volume
is available for the eastern United
States¹).

Nestling data seems a natural in-
clusion for a book on bird nests. It is
treated under headings of
"Nestling" (a description), and "Nest-
ling period", including behaviour,
usually in five to 10 lines of text. Six-
teen coloured plates show 147 newly
hatched young, at least one from
each of the 28 families of non-

	Number Species Breeding	Number of species with eggs not shown	
		Collins	Peterson
Alberta	250	4	69
Saskatchewan	246	4	69
Manitoba	265	4	90
N.W.T.	212	7	112
TOTAL	341	10	138

passerines found in the Prairie Provinces and NWT and one from each of seven of the 22 families of songbirds found here. In addition there are black-and-white drawings of downy grebes, grouse and shorebirds.

The geographical coverage results in major differences in the volumes' suitability for this region. A check of species whose eggs are not illustrated shows the Peterson series significantly deficient (see table). For the region as a whole, 40% of the species are not shown in this book, and a few of those included are only in black-and-white. The 10 species with no egg illustrations in the Collins book are: Yellow-billed Loon, Ross' Goose, Yellow Rail, Thayer's Gull, Pygmy Owl, Calliope Hummingbird, Alder Flycatcher, Western Wood Pewee, Black-throated Blue Warbler and Harris' Sparrow. All of these species' nests and eggs are described in the text; this is not the case with many of the missing Peterson ones. Most birds with no data in the Peterson volume nest only north of 55° but also omitted are: Sharpshinned Hawk, Merlin, Gray Partridge, Franklin's Gull, Cape May, Chestnut-sided and Palm Warblers and six sparrows breeding in this region.

How do the coloured egg pictures compare? The Collins book, for the

most part, shows one egg of each species at 60 to 100% of life size. Most are life size; swans and Whooping Crane eggs are at three-quarter life size. Colour appears to be true. The Peterson series shows one clutch looking down into a nest for each species. However, these are so small (40 x 55 mm; 1.6 x 2.2 inches) that the shape and colour of egg markings and the shapes of some eggs are difficult to determine. The nest illustration on the dust jacket is, therefore, misleading: it is almost four times the size of pictures in the book. Furthermore, too many nests (and eggs) are off colour — too washed out, too blue, etc. This can be confirmed by comparing the illustrations in the western book with the same nests in the eastern version, where pictures are about four times as large. There are only 21 drawings of nests found in this region in the Collins book.

If you are only going to buy one of these books, Colin Harrison's, published by Collins, is well worth the money and is by far your best bet for this part of Canada. — Reviewed by *J. B. Gollop*, 2202 York Ave., Saskatoon, Saskatchewan, S7J 1J1.

HARRISON, H. H. 1975. A field guide to birds' nests in the United States east of the Mississippi River. Peterson Field Guide Series No. 21. Houghton-Mifflin, Boston. 257 pp.