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River Planet: Rivers from Deep Time to the Modern Crisis

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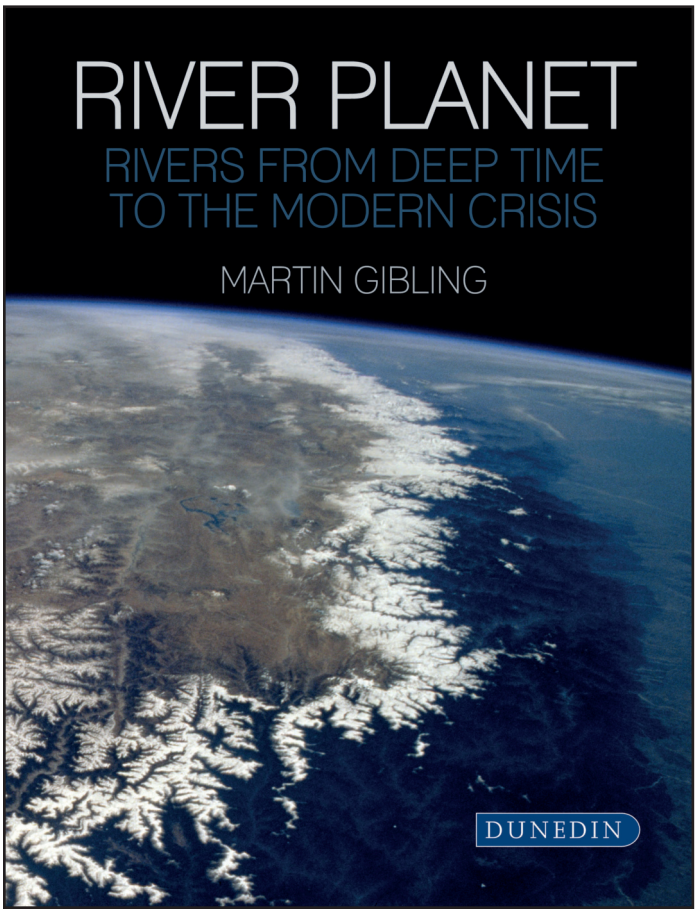
REVIEW



River Planet: Rivers from Deep Time to the Modern Crisis

Martin Gibling

Published by: Dunedin Academic Press Limited
Published: 2021; 240 p.
Colour illustrations throughout
Purchase price: $61 (CND; Hardback)
In North America, contact Independent Publishers Group
E-mail: orders@jpgbook.com

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River Planet examines the world's rivers from the perspective of a geologist. Written in an engaging and accessible style, the text is designed for the non-specialist reader interested in natural and environmental history. Gibling takes on the huge task of exploring rivers large and small throughout the planet's history, including the last few thousand years of human alteration of Earth's surface.

The book is divided into five basic sections. The first section starts with a chapter that reviews the history of geological thinking and explains how geologists interpret sedimentary rocks and paleoenvironments (Figs. A, B). As with each of the succeeding chapters, the vignettes and personal details of historical figures make the story more appealing to the general reader. The next chapter describes the geological histories of the oldest terrestrial rivers and of Martian rivers. The third

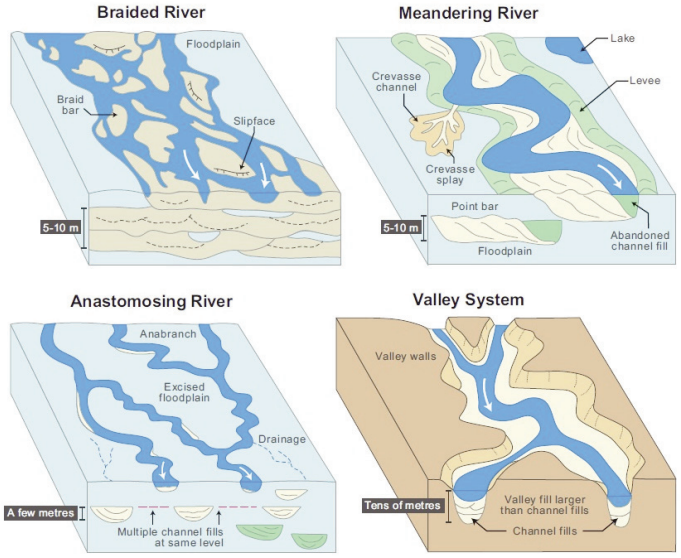

Figure A. Figure 1.5 from *River Planet*. Common river channel forms with the models' front face showing the differences in channel outcrop.

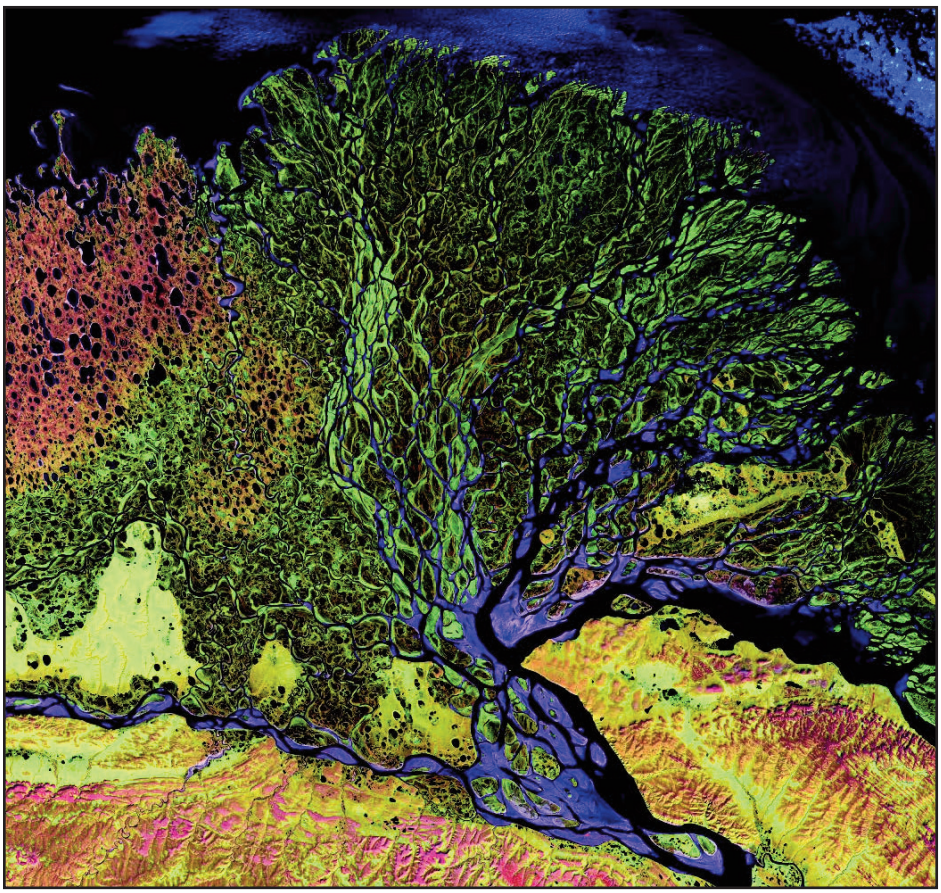

Figure B. Figure 1.6 from *River Planet*. False-colour image of Lena River Delta, Russia. Courtesy of United States Geological Survey.

chapter explores the geological history of interactions between rivers and vegetation.

In the second section of the book, seven chapters explore major rivers of specific geographic regions in the context of tectonic and human history. Chapters on Africa, the southern Pacific region (Australia, New Zealand, and Antarctica), Asia, Europe, South America, and North America are followed by a chapter on the ancient Canadian Bell River. Each of the chapters in this section of the book illustrates key points about rivers in the region, rather than providing a systematic or complete list of all rivers and all river characteristics.

The third section focuses on the Quaternary Ice Age, with chapters on continental ice sheets and river adjustments during and after glaciation; megafloods during glacial retreat; and ancient rivers drowned by rising sea level during the Quaternary.

The fourth section examines human interactions with rivers, starting with prehistoric changes in land cover that influenced river process and form, and then concluding with two chapters focused on specific examples. These latter examples are the Saraswati River in India, in which flow largely ceased as a result of Holocene climate change, and China's Yellow River, which has been significantly altered through centuries of artificial levee and dam construction.

The final section of the book examines engineered rivers, with chapters on the effects of dams, mining, and pollution; large dams; the Saskatchewan River and the effects of multiple dams; agriculture; urban rivers in London buried in pipes; and river restoration.

River Planet is unique in providing an integrated view of rivers in the context of geologic and human history. Gibling describes rivers as endangered species. This insight grows from a geologist's understanding of deep time, geological history, and biological evolution. Gibling also writes with a humanist scholar's appreciation of the individual personalities of famous historical scientists and engineers. The heartfelt writing makes the text a pleasure to read and the abundant, visually appealing colour photographs and diagrams effectively illustrate concepts described in the text. Gibling also brings himself into the book, opening and closing the text with descriptions of his own experiences with rivers and deftly weaving personal narrative into technical material throughout the book. In a sense, *River Planet* is a personal retrospective on a successful life and a career that included rivers across the planet and from contemporary environments to those interpreted from the rock record. The later sections of the book seem less coherent in terms of a clear structure and progression of information between chapters, but I think the book succeeds as a collection of brief explorations of the diverse rivers of the world. As such, it engages both the professional scientist and the reader interested in natural history and provides a distinctive, geological perspective on the world's rivers.