

Journal of Sedimentary Research

An International Journal of SEPM

Colin P. North and Kitty L. Milliken, Editors

A.J. (Tom) van Loon, Associate Editor for Book Reviews

DOI: 10.2110/jsr.2006.BR003

Review accepted 24 February 2006

La Planète des Glaces, by Brigitte van Vliet-Lanoë, 2005. Vuibert, 20 Rue Berbier-du-Mets, Paris (France). Paperback, viii + 470 pages. Price EUR 52.00. ISBN 2-7117-5377-8.



The ever increasing specialisation of researchers in the earth sciences has led to an overwhelming flood of highly specialized books. Simultaneously, books that provide an overview about a specific topic, and particularly books that are written from different points of view, become increasingly scarce. Books with such rare characteristics are commonly edited by a scientific “éminence grise,” who supervises authors that contribute chapters that deal with their specific specialisation. It is therefore a great—and pleasant—surprise to find such a book written by one single author.

Brigitte van Vliet-Lanoë, professor in the earth sciences at the Université des Sciences et Technologies at Lille (France), has had the guts to write such a book. Her long field experience, ranging from Siberia to Canada, from the Alps to Scandinavia, and from Spitzbergen (Svalbard) to Iceland, forms the basis. The regions where she has carried out her research have in common that they are cold. It is therefore not surprising that the book deals with “The Ice Planet;” more surprising is that it deals not only with the present-day cold regions, but also with the cold regions and glaciation-related phenomena from the (Pleistocene) past. This combination of approaches has resulted in a book that combines geology and physical geography, in a way that makes it easier to understand the present on the basis of the past, but that also shows how to interpret the geological record on the basis of our present-day cold regions.

Such a multi-angle approach could have led easily to a superficial work, but the 470-page book has avoided this possible pitfall. It is, after a short introduction, subdivided into five parts, which are followed by an epilogue, an over 40-page glossary (very useful, because geologists and geographers have sometimes different terminologies, and the author makes thus clear in what sense she uses terms—which is most commonly in a geographical way), and an over 30-page reference list. The reference list is interesting because, in contrast to most French authors, van Vliet-Lanoë has included primarily English-language references, thus showing a truly international attitude. Her knowledge of the international literature is also clearly expressed in her texts.

The first part of her book deals with water in all phases. A first chapter is devoted to the physics of water and ice; it ends with the “implementation” of our knowledge in the form of an explanation how ice caps record the paleoclimate through the evaporation of sea water with an isotopic preference for light oxygen. The second chapter is devoted to ice itself and its occurrences (in the form of ice on lakes, rivers, seas, as ice in soils and in permafrosted areas, and as glaciers and ice caps. An intriguing last part of this part is the second chapter about gas hydrates (clathrates), a particular form of ice lenses in permafrost and in the bottom of continental shelves. This subject is rarely found in books devoted to glacial phenomena, but that may certainly help non-specialist earth scientists to recognize the danger of potentially decomposing gas-hydrate occurrences, and its importance for the climatic development. Chapter three deals with mechanical and thermal properties of areas under cold conditions, and their influence on, among others, flora and fauna, stressing the interdisciplinary character of the book.

Part two of the book deals with glaciations and their consequences, and with the parameters that control the climate. Chapter 4 pays briefly attention to a wide variety of topics, including ‘snowball Earth’, orbital forcing, the greenhouse effect, and oceanic circulation patterns. The fifth chapter deals

with all relevant aspects of the Cenozoic glaciations, sometimes in a most critical way, for instance with respect to the question whether the Last Glacial Maximum is a myth or reality. Such discussions are, in my opinion, a reason on their own to consider this an extraordinary book. Chapters 6 and 7 are devoted to permafrost, and the way in which these topics are handled indicate how much involved the author is in this type of research. Chapter 8, the last of this part, deals with the response of flora and fauna to Cenozoic climatic deterioration.

The third part is on dynamics and processes. This important part comprises two chapters, which deal with the dynamics of glaciers and other ice bodies, respectively. The numerous consequences, such as erosion and sedimentation (and therefore also morphology) get ample attention, as do processes such as glactectonics. I would consider this part as the most interesting for those who carry out fieldwork in glaciated areas, without specializing in glacial geology.

Part four is much more directed to geomorphologists and pedologists. It deals with cryogenic processes and their consequences, vegetation and soils, and several other aspects that are important for geographers rather than sedimentologists. I therefore will not go in any more detail here.

The last part of the book reflects again the unconservative attitude of the author. The two chapters in this section are devoted to the current environmental conditions (which the author considers as the end of an interglacial!), and with the anthropogenic and non-anthropogenic changes in climatic evolution. The epilogue that follows is a logical continuation of this fifth part of the book, indicating how we are on our way to a next glaciation and to more arid conditions.

The above overview, however long for a book review, is—in my opinion—still too short, because so many other aspects are dealt with in the book. This makes it, even though I do not always agree with the author's viewpoints, a scientifically valuable book that provides almost useful framework for future studies that we be carried out in cold regions or that deal with the Earth's glacial record. In a timespan like ours, where interdisciplinary research becomes increasingly important because we become aware of the interaction between almost(?) all natural processes, we dearly need such a framework.

Of course, a huge volume like this cannot be without some failures, mistakes and omissions. Perhaps the most important shortcoming is that it has been written in French; although French is important in part of Canada, most earth scientists who work in glaciated areas come from countries where English is the native language, or where it is at least the second language. We can therefore only hope that some Anglo-Saxon publisher will notice this book and publish an English translation. I have a second fundamental point of criticism. The contents of the book make it practice-oriented; this implies that researchers should take it with them into the field. A hard cover would therefore have been much more appropriate than paperback (but I know: the price would increase considerably ...)

The book is well printed, on paper that makes easy reading, and that allows perfect reproduction of line drawings. Almost unavoidable is that photos are much less well reproduced on this type of paper, and details are often invisible in the photos, indeed. Eight colour plates could have (partly) made up for this, but they comprise, unfortunately for sedimentologists, hardly any interesting sedimentological feature, apart from cryoturbation and solifluction structures.

In spite of these small shortcomings, I think that this book deserves attention from all 'cold' earth scientists. It should be read critically, particularly because it expresses well that viewpoints of geomorphologists and geologists commonly diverge, but I can recommend it wholeheartedly.

A.J. (Tom) van Loon
Faculty of Earth Sciences
University of Silesia
Bedzinska 60
41-200 SOSNOWIEC
Poland
tvanloon@ultra.cto.us.edu.pl



SEPM - The Society for Sedimentary Geology

