

### Large-scale Geologic Structures

Author: Petley, David

Source: Mountain Research and Development, 20(1): 103-104

Published By: International Mountain Society

URL: https://doi.org/10.1659/0276-4741(2000)020[0103:LSGS]2.0.CO;2

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at <a href="https://www.bioone.org/terms-of-use">www.bioone.org/terms-of-use</a>.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

## A word from the section editor

The aim of MountainMedia is to bring to the attention of our readers new information relating to the communication and exchange of knowledge concerning mountain regions. In doing this, we aim to complement other sources of information. For this reason, Mountain-Media will regularly present relevant web sites, particularly those with many links to other sites. Given the dynamics of internet sites, we cannot guarantee that web addresses will remain valid in the long term. Mountain Research and Development (MRD) will continually add these sites to its searchable list of web sites on the MRD web site. Mountain-Media does not currently intend to review mountain films or videos but is discussing how to develop wider awareness of these. One component of MountainMedia will continue to be reviews of books that fall within the scope of Mountain Research and Development. Such books are not always easy to identify. "Mountain" is a keyword used by few abstracting services, and many important books on mountain issues are published by small publishing companies and in a diversity of languages. We will also review relevant CDs.

I would like to encourage our readers to inform me of any book or CD that should be reviewed in *Mountain Research and Development*, and I would also be grateful for volunteers to undertake reviews, especially of books in languages other than English.

#### Web sites

#### http://www.mtnforum.org

The Mountain Forum web site. It features interactive interfaces, such as discussion lists, E-mail auto-reply, electronic conferencing, an on-line library, and databases. Global information on sustainable mountain development is archived on this web site.

#### http://www.fao.org/forestry/for/ forc/Mountain/default.stm

The FAO Mountain Program web site. It contains information on the International Year of Mountains 2002, FAO field projects in relation to sustainable mountain development, mountain-related events and links, Chapter 13, mountain issues, and publications.

#### http://www.cipra.org

The web site of CIPRA (International Commission for the Protection of the Alps), including current news from the Alps and documents relating to the Alpine Convention. The web site is presented in four languages: French, German, Italian, and Slovene.

#### http://www.sci.port.ac.uk/ geology/rgsmrg/rgsmrg.htm

The web site of the Mountain Research Group of the Royal Geographical Society, including an on-line database of mountain scientists and their research. Please register!

#### Martin Price

Editor, MountainMedia, Mountain Regions and Conservation Program, Environmental Change Institute, University of Oxford, 11 Bevington Road, Oxford OX2 6NB, UK. martin.price@environmental-change.oxford.ac.uk

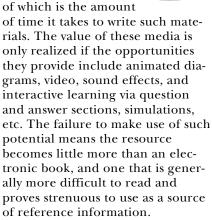
#### **CD ROMs**

# Integrated Watershed Management

CD ROM by H. Schreier, S. Brown, L. Lavkulich, and P. Zandbergen. Institute for Resources and Environment, University of British Columbia, 1999. C\$100, US\$75. Requires PC with Windows 3.1 or higher.

The development of the multimedia computer and the world wide web seems to offer a multitude of opportunities for deliver-

ing courses in new and innovative ways. To date, progress appears to have been relatively slow in this area, probably due to a multitude of factors, one



The CD ROM *Integrated Watershed Management* is the major resource that accompanies a distance-learning course of the same name being offered by the University of British Columbia. The course, which assumes that the participant has a bachelor's degree in a cognate subject, runs over 14 weeks. As I did not register for the course, this review examines only the material available on the CD ROM.

The package must be installed on the hard drive of the user's computer, a process that is gratifyingly easy to complete. The menu allows easy navigation through the package, for which the authors should be congratulated. (However, in my copy, the Internet access button succeeded in linking to my browser but then failed to find a web page, returning an error message.)

The main part of the package is divided into 10 chapters. The first provides an introduction to watershed management, and subsequent chapters look at topics such as techniques, river hydrology, water quality, governance, land use issues, case studies, and watershed management. Each chapter starts off by introducing quite basic concepts, then seeks to develop the themes. For example, the introduction starts by explaining what is meant by the term watershed, then goes on to explain the advantages and disadvantages of the watershed approach to management. The text makes extensive use of animated diagrams in which the user is invited to move the cursor to specific locations in order to understand aspects of the topic. Thus, the package is interactive, although the user remains fairly passive, as the information is always available on demand. The linkage between different parts of the package is most impressive, allowing the user to follow lines of interest. In general, the depth of information available and the quality of presentation are very good, and every page seems to open up further avenues for exploration.

Throughout the package, the material provided is well written and factually accurate. Extensive use is made of photographs, and the detailed case studies are both useful and instructive. However, there is a strong North American bias in the choice of material, which is unfortunate, given that the course could and should have a global appeal. It is perhaps a shame that the legislative framework does not develop the theme of differing international approaches to the same problem, eg, comparing and contrasting the

approaches used in Canada and in the European Union.

Overall, I think the material contained within this package is interesting, thoughtfully compiled, and well presented. My disappointment comes from the failure to utilize the possibilities of the system to the full by incorporating video footage, sound clips, etc. In the case examples section, eg, the material could have been brought alive by the inclusion of some real footage of the sites, allowing the user to develop a much better feel for the problems associated with each catchment. Similarly, one feels that the material could have been more interactive, with the use of self-assessment sections. As a general rule, I find it very difficult to absorb material presented on a computer monitor. The use of interactive material, in which I have to deduce the answers to problems, possibly by referring back to previous sections, greatly aids this process. In this package, this is required too infrequently.

In summary, this is a bold attempt to produce a useful electronic package. The amount of time and effort invested in the package by the authors and the clarity of the information presented are to be admired. The inclusion of a relatively small amount of extra (video and interactive) material would have greatly enhanced the package. However, it must be remembered that the primary aim of the CD ROM is to support a course in which I did not participate, and so its usefulness in that context cannot be ascertained.

#### **David Petley**

Center for Geohazards Research, School of Earth, Environmental and Physical Sciences, University of Portsmouth, Portsmouth, PO1 3QL, UK

#### **Books**

Páramos: A Checklist of Plant Diversity, Geographical Distribution, and Botanical Literature.

By James L. Luteyn, with contributions from Steven P. Churchill, Dana Griffin III, S. Rob Gradstein, Harrie J. M. Sipman, and Mauricio Gavilanes A. Memoirs of the New York Botanical Garden 84. The New York Botanical Garden, New York, 1999. xv, 278 pp, 6 pp of plates, illustrations (some color). US\$64.00. ISBN 0-89327-427-5.

James Luteyn, botanist at the New York Botanical Garden, has spent the last two decades learning about the Andean páramos, studying especially the páramo flora (the richest high-elevation flora in the world), but also the tropical high alpine environments in which páramos occur. In 1986, he developed a plan (with Antoine Cleef of the Netherlands and Orlando Rangel Ch. of Colombia) to produce a generic flora and guide to the Andean páramos and, with the help of other páramo specialists, began assembling databases that would be critical to this ambitious project. He and his collaborators presented their plan for the flora at a 1991 symposium in Aarhus, Denmark, the proceedings of which (H. Baslev and J. L. Luteyn, editors, 1992: Páramo: An Andean Ecosystem Under Human Influence, Academic Press, London) make an excellent companion to the present volume. But for practical reasons, Luteyn decided that he could not produce the full flora. Instead, he turned his databases into this book: a checklist of páramo plants, localities, and literature that sets the stage for the later production of a full flora and meanwhile serves as a highly useful resource for all who are interested in páramo.

As this book explains, *páramo* vegetation is found above the uppermost continuous forests and below the permanent snowline between 8°S and 11°N, especially in Venezuela, Colombia, and Ecuador, but with a few outliers in Panama, Costa Rica, and northern Peru. Some *páramos* bear evidence of a long history of human disturbance; most are today threatened by increasing human pressures in surrounding lowlands.

The book is organized into four sections. The "Introduction to the Páramo Ecosystem" begins with definitions and then reviews in turn geography, climate, soils, long-term history, plant adaptations and growth forms, floristic diversity and origins, páramo fauna, human influences (especially the effects of burning and grazing), and the future of páramo ecosystems. Highquality color and black and white photographs are included. Among these are a large number taken by the late José Cuatrecasas, a field botanist with special expertise in the Colombian páramos, who is recognized by Luteyn and others as the "father of modern páramo studies." This introductory chapter also contains climate diagrams and tables on plant diversity and floristics. It is the most comprehensive overview of páramo research that I have seen; novice and expert alike should find things of interest.

Part 2 offers a checklist of páramo plants in four sections: lichens (Sipman), mosses (Churchill and Griffin), hepatics (Gradstein), and vascular plants (Luteyn). Short commentaries preceding each checklist explain sources of information (herbarium specimens, literature), decisions about which collections to include, difficulties and shortcomings (incomplete collections, differing species concepts, inadequately labeled specimens), and selected taxonomic, biogeographical, and ecological aspects of the group under consideration. In all, 1298 nonvascular plant species

and 3339 vascular plant species are listed, each with its authority, countries of occurrence, and altitudinal range. Taxonomic references follow each checklist, and an appendix provides further details on taxonomic representation of different plant families in *páramo*. This is an incredible resource for anyone trying to identify *páramo* plants or to make comparisons between *páramo* and other habitats.

Part 3 is a gazetteer of 2100 páramo localities, arranged by country (but with Costa Rica and Panama appropriately considered together). Luteyn has here attempted the Herculean task of trying to make geographical sense of localities used on herbarium sheets and in the literature. For each locality, he gives the highest elevation, latitude and longitude, primary and secondary political divisions (eg, province, canton for Costa Rica), and notes about place names. In putting together the gazetteer, Luteyn had to grapple with the familiar difficulties of place names and asks that errors be brought to his attention.

The last part of the book is a bibliography of botanical literature on *páramo* that includes the citations from the introductory chapter, along with many others, including unpublished theses in libraries of Andean countries. A subject code (19 categories) follows each entry. I would have categorized a few references differently (including a few of my own), but overall, this is an excellent contribution that I will use often and recommend to others.

In an electronic book review for the Mountain Forum (www.mtn-forum.org) in August 1999, Fausto Sarmiento criticized Luteyn's failure to more strongly articulate the role of humans in creating and maintaining *páramo*, which Sarmiento sees as an important determinant of the high biological diversity of *páramo* landscapes. For one site I know well (the Buenavista

páramo in Costa Rica), I think Luteyn may have erred in the opposite direction, describing the vegetation as "páramo-like" and "manmade" (p 138) when in fact evidence points to rather similar vegetation having existed in the area for tens of thousands of years. My reaction to this and other statements by Luteyn on human disturbance is that the larger story of human influence in the páramo, and especially its possible link with high diversity (Sarmiento's intriguing idea), has simply yet to be written. Luteyn's new book will greatly help whoever takes on that task and all others interested in treeless landscapes of the neotropical high mountains.

#### Sally P. Horn

Department of Geography, University of Tennessee, Knoxville, TN 37996, USA

Les Vignobles des pays du Mont-Blanc, Savoie, Valais, Val d'Aoste. Étude historique, économique, humaine.

By Maurice Messiez. Revue de Géographie Alpine, Grenoble, 1998. 320 pp, hardback. FF 195.00. ISBN 2 90 30 95 40 X.

This is a splendid book and a model of its kind: a thematic monograph with a clear focus and an excellent presentation. The quality of the book stems from the specific circumstances of the author. The grandson of wine growers and for many years director of a college situated in the heart of the Combe de Savoie vineyard area, he has a lifelong experience of viticulture in all its aspects. Having already produced a first thesis on the 19th century history of Savoyan viticulture, the present book is based on a doctoral thesis completed at the Institut de Géographie Alpine, Grenoble.

The book compares the evolution of viticulture in three areas flanking the Mont-Blanc Massif: the subalpine trench and Combe de Savoie in France, the Rhone corridor in the Swiss canton of Valais, and the headwaters of the Val d'Aoste in Italy. From the age of railway development and industrialization onward, the three regions have experienced contrasting fortunes. Whereas viticulture in Valais has extended virtually to its physical limits, the vineyards of Savoie and the Val d'Aoste have declined by two-thirds. In simple terms, this may be explained by the fact that the Valais is the Midi of Switzerland and its main wine producing area, whereas the alpine vineyards of France and Italy are but local and relatively unknown enterprises within nations of huge production.

The book is divided into three sections: a comparative historical account, an analysis of the role of viticulture in society, and an account of the commercialization and heritage of viticulture. The historical section reviews the evidence for viticulture in Neolithic times before describing in detail the expansion of the planted area under the Romans. In the Christian era, the bishops became major landholders and the abbeys major foci of land clearance and vine planting. The Middle Ages witnessed a dramatic decline, but by the 11th century, the revival of ecclesiastical power produced a recrudescence of production. By the 14th century, the Church was joined by the aristocracy and the bourgeoisie, employing the peasantry as laborers or share croppers. Progressively, the peasantry became producers and incorporated vines into their economy.

The *phylloxera* crisis was a severe blow, which was only countered by grafting the local vines or *cépages* onto American rootstock or by replanting with American varieties, the latter producing higher yields but of lower quality and implying the loss of native varieties. In the

period between the two world wars, the decline in production and acreage accelerated. Labor shortages and the difficulty in marketing what at the time were essentially ordinary wines for local consumption against the competition from mass production regions were the main causes. The Valais region escaped this contraction and, to the contrary, continued to expand based on improved quality and better organization. This first section concludes with a very detailed account of the varieties grown in each region and a fascinating description of production methods, the calendar of activities, and the vernacular buildings and implements used in traditional production. The section is lavishly illustrated by documents, reproduced photographs and prints, and by excellent color photographs taken by the author.

The second section examines the role of viticulture in the formation of society. This is reflected, eg, in the position of wine in local place names, songs, and poetry together with its culinary use. Social organization is also adapted to the needs of wine production, and attention is paid to the functions of cooperatives, wine merchants, syndicates, and training bodies. In terms of economic impacts, a clear distinction is drawn between the Valais, where 53% of farm income is derived from vines as opposed to only 23% from livestock, and the Savoie, where only 22% is derived from viticulture and 85% from livestock. Vines fare even worse in the Val d'Aoste, with only 3% of farm income from viticulture as compared to 85% from pastoralism.

The final section concerns the commercialization of wine and an evaluation of viticulture as a heritage feature. A very detailed discussion of appellations is followed by an account of promotional activity and the link to tourism. Whereas the wines of the Valais enjoy a high status and have well-developed dis-

tribution circuits, the wines of the Savoie, and even more so of the Val d'Aoste, are more modest in quantity and quality, and their commercialization relies increasingly on finding a niche in the tourist activity. Thus, the renovation of vernacular buildings, the creation of wine museums, the revival of wine feasts, and wine-tasting offer a means of inserting wine into agrotourism.

The book concludes with an overview of the importance of viticulture in the formation of the landscape over the last 2000 years and a glimpse into the potential future. The author views wine as part of the trilogy of winter sports, cheese, and wine in the tourist's perception of the Mont-Blanc Massif. Appendices include a glossary of viticultural terms, an index of cépages, and a comprehensive bibliography. The book is illustrated with well-chosen and effective color photographs, and the quality of production is high. It will appeal to wine historians and to specialists in rural economies as well as geographers, and such is the quality of both scholarship and presentation that it would not be out of place in the library of any wine enthusiast.

#### lan Thompson

Department of Geography and Topographic Science, University of Glasgow, Glasgow G12 8QQ, UK

# The Rwenzori Mountains National Park, Uganda.

Edited by Henry Osmaston, Joy Tukahirwa, Charles Basalirwa, and Jockey Nyakaana, Department of Geography, Makerere University, 1998. x + 395 pp. £20 (excludes postage). ISBN 9970-429-01-9.

The Rwenzori Range has attracted scientists since the beginning of the so-called exploration of East Africa. Among the pioneering efforts were the 1906 British Museum Expedition and the famous voyage led by the Duke of Abruzzo,

Luigi di Savoia, in the same year. On the occasion of the 90th anniversary of these expeditions, the Geography Department of Makerere University in Kampala organized an international conference. This volume includes all the contributions. Its strength lies in the extraordinarily wide range of topics. More than 40 specialists from various fields wrote contributions on more than 50 different topics related to the "Mountains of the Moon." The volume concentrates on aspects of exploration and mountaineering, the physical environment, community relations, and management issues. All papers were specifically written for the conference, so the book provides an up-to-date review of issues.

The main part of the volume opens with the keynote address by H. Osmaston, which is refreshingly critical of the scientific achievements in the region. In calling for a joint effort to collect present knowledge on the Rwenzori Mountains, Osmaston states the principal aim of the conference. Part 2 offers notes on the exploration of the mountain and on mountaineering. The historical information is well presented and, together with the appendices, provides a comprehensive overview.

Part 3 deals with geographical and biological issues. Topics include geology, present climate, quaternary history, and hydrology. A series of high-quality photos is particularly instructive, demonstrating the rapid retreat of the range's glaciers since Luigi di Savoia's time. Climatological and geological information are complete, although most material has already been published and the lack of recent studies is apparent. Biodiversity-related information was compiled by specialists on almost all major groups of organisms except terrestrial arthropods and cryptogamic plants. Species lists account for large parts of these contributions, and ecological information was included wherever available. An account of forest dynamics in the region reviews recent information on quaternary history. Part 3 is thus an excellent introduction to available scientific information.

The entire second half of the book is devoted to conservation (Part 4) and community relations (Part 5). Part 4 covers mainly conservation and management issues. Contributions on the situation in Uganda's mountains in general and the Rwenzori Mountains in particular constitute further pertinent examples of human pressures on tropical mountains. Fortunately, these issues are not described from a purely scientific point of view. The authors work in nongovernmental organizations or governmental institutions operating in western Uganda, so the picture drawn is closer to reality.

Tourism is generally presented as a proper alternative source of income for the local communities, but critical comments on the community-based Rwenzori Mountaineering Service (RMS) show the pitfalls of such an approach. This organization became a corrupt body designed to allow people in far-away Kampala to drain foreigners' pockets. Anyone who has traveled the range in the mid-1990s will recognize the often unpleasant experiences with RMS presented in the volume. The situation has apparently greatly improved by now, but due to rebel activity in the range, tourist operations stopped completely in early 1997 and have not yet been

Under the header "community relations," topics as different as sharing National Park revenues and spiritual beliefs of the local communities are combined in Part 5. Most of the papers are highly instructive and readable. Even the nonspecialist reader will find interesting information in this part of the book, which is of potential interest to tourists as well.

The appendices feature a very valuable updated list of publica-

tions, allowing most of the available literature to be traced. The historical accounts in the appendix have already been mentioned. Additionally, recent vegetation maps are announced, but I was unable to make contact at the addresses listed.

Given that so many different authors contributed to the volume, the quality of the individual papers is necessarily uneven. The majority of contributions demonstrate the lack of knowledge in the given field. Climatological information relies mainly on short-term measurements made in the 1950s. The biodiversity inventories compiled so far are by no means comprehensive (probably except for vascular plants and birds), and ecological information is also scarce. Detailed studies on the interaction between the local people's demands and ecological constraints in the steeply dissected terrain of the Rwenzori Mountains are poorly represented in the book and may in fact not be available. This list could easily be prolonged.

The recent political history of Uganda has made it extraordinarily difficult to get comprehensive data in the country itself. This book is a large and important step forward in this direction. Yet further studies on almost every topic are also needed. Hopefully, the political situation will soon allow researchers from all fields to continue their efforts in the Rwenzori Mountains. For the time being, this is definitely the book to consult when preparing such activities. It can also be recommended to anybody with an interest in tropical mountains either in Africa or on a global scale. The rather low price will hopefully contribute to its distribution.

#### Karsten Wesche

Faculty of Geography, University of Marburg, Deutschhausstrasse 10, 35032 Marburg, Germany

## Large-scale Geologic Structures

By Jacques Debelmas and Georges Mascle. Translated by N. Venkat Rao. A. A. Balkema, Rotterdam, 1997. 311 pp. £42. ISBN 90-5410-776-6.

Although the plate tectonics paradigm is now over 30 years old, rapid and significant advances continue to be made in the understanding of large-scale tectonic forms and processes. This book is a welcome attempt to synthesize these advances and to present, in a single volume, a summary of current thought about the evolution of major geological structures. Mountains are of course such structures and figure heavily. The volume is divided into four main sections. To begin, the authors give a short introduction to the two main types of crust and to the concept of isostasy. They then go on to examine oceanic structures, dividing this large topic into seismically active and seismically inactive oceanic reliefs. The third section examines extensional structures of the continents, including sedimentary basins, crustal fractures, and continental margins. Finally, and of most interest in this context, there is an examination of compressional structures of the continents.

The text is a translation from French of Les Grandes Structures Géologiques, published in Paris in 1997. Although it is comprehensively researched, one feels at times that the act of translation has slightly disrupted the smooth flow of the text, making the book a little awkward to read. However, this is compensated for by the extensive use of detailed case examples in preference to theoretical work and/or analogue models. Thus, eg, the section on collision chains examines the Andes of Colombia and Ecuador, Taiwan, and the mountain belts of the western United States.

This use of current literature on real-world examples allows the reader to gain a good grasp of the concepts being introduced.

Overall, the book will be of great interest to geologists trying to place particular mountain chains in a global context. In addition, it must be hoped that the current move toward interdisciplinary, holistic approaches to research in mountain environments will mean that other scientists will start to consider aspects such as the bedrock geology and the on-going geological processes in mountainous areas in more detail. While this book is by no means an introduction to this topic, it puts a huge amount of flesh on the bones once general concepts are understood. The inclusion of a comprehensive reference list organized by geological structure and region will prove invaluable. Thus, it is a book that can, and should, be used by a wide variety of researchers.

#### **David Petley**

Centre for Geohazards Research, School of Earth, Environmental and Physical Sciences, University of Portsmouth, Portsmouth, PO1 3QL, UK

# BERGHAHN JOURNALS

## **NOMADIC PEOPLES**

International Union of Anthropological and Ethnological Sciences
Commission on Nomadic Peoples
Published for the Commission on Nomadic Peoples

EDITORS: Michael J. Casimir, William Lancaster, and Aparna Rao EDITORIAL BOARD: Hugo Beach, Riccardo Bocco, Michael Bollig, Salman Cissé, Jean-Pierre Digard, John G. Galaty, Marceau Gast, Barbara Göbel, Jörg Janzen, J. Terrence McCabe

"Nomadic Peoples now serves the international community as the single most important information resource about nomadic and pastoral peoples around the world. Offering high quality research reports from both in-country and external experts, Nomadic Peoples bridges the gap between disciplines, between academics and applied professionals, and between East and West, North and South. To learn about the current circumstances and future possibilities of peripatetic and pastoral populations Nomadic Peoples is an invaluable guide." Philip Carl Salzman, Dept of Anthropology, McGill University

#### Forthcoming themes include:

- Risk and Uncertainty in Pastoral Societies
   Guest edited by Barbara Göbel & Michael Bollig
- Savoirs et Pouvoirs au Sahara
   Cuest edited by Pierre Banta & F.

Guest edited by Pierre Bonte & Hélène Claudot-Haward

#### Forthcoming articles include:

- An Aboriginal Outstation Movement in Arnhem Land and the Perils of Advocacy Anthropology - David H. Turner
- The Chang Pa of the Ladakh Himalayas: Some Observations on their Economy and Environment Prem Singh Jina

Nomadic Peoples is published twice a year

ISSN: 0040-5817

# ORDER FORM FOR SUBSCRIPTION (send to your nearest Berghahn Books office as below) Please enter my subscription to Nomadic Peoples (NS), Volume 3, 2000: Institutional Rate: £40.00/\$60.00 Individual Rate: £30.00/\$45.00 (all rates include surface mail) Name Address METHOD OF PAYMENT I enclose a cheque (UK/US bank/Eurocheque) payable to Berghahn Books for Invoice my credit card: Mastercard Visa Amount Card number Expiry date Signature For further information on individual issues contact your nearest Berghahn Books office:

Berghahn Books, 3 Newtec Place, Magdalen Road, Oxford, OX4 1RE, UK Berghahn Books Inc, 604 West 115th Street, New York, NY 10025, USA