
Book Review

Reviewed by Luc Hens

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**An Introduction to Forensic Geoscience by Elisa Bergdlien
Published 2012 by John Wiley and Sons, Chichester, UK
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(paper)**

How do chemical ‘oil fingerprints’ allow detecting the sources of an oil spill? What do diatoms tell about kidnapping? Is the microscopic analysis of pigments able to show that a painting is not by Diego Velasquez (1664), but a copy by Eduard Manet (1859)? How does one certify diamonds and detect whether they are conflict or blood stones? The answers to these and many other questions in the interaction area between science and crime are the core subject of this book. ‘Forensic’ in the title means ‘the application of scientific methods and techniques to the investigation of crime’. Forensic experts exist in almost all natural science, applied science and human science disciplines (biology, anthropology, medicine and psychology, to name just a few). This book is limited to contributions by geology.

The book entails 11 chapters. The first one presents a brief history of forensic science and is mainly built up around a series of eminent researchers, such as the German Georg Popp, the Frenchman Edmond Locard, and the American pioneer August Vollmer. The subsequent six chapters deal with ‘pure sang’ geology contributions. Aspects of minerals, gems and gemstones, rocks, sand and soil are discussed in a context of the forensic data they may provide. Chapter 8 is about the ‘geology of art’, and shows what the analysis of pigments tells about the origin of a painting and other artworks. The next chapters deal with the interface between biology and geology. They discuss respectively fossils/microfossils and anthropology/archaeology. The fossils chapter entails a case description of stolen dinosaurs. For the environmental scientists the chapter on ‘environmental forensics’ is probably the most interesting. It is about deliberate violations of the environmental law. It discusses how to trace the sources of pollution in groundwater and of oil spills. It combines elements of hydrology, hydrogeology and water quality with chemical and physical analytical techniques.

This book was written with the assumption that the reader does not necessarily have anything other than a general background understanding of the natural sciences. A similar background on law and criminology is even not necessary. Each chapter explains the basic concepts and the methods used by the respective geological investigations. The core part of the chapters is abundantly illustrated by tables, figures and photographs (some of them in colour). Next to references (that are occasionally out-dated) the chapters contain a list for suggested and further reading. Most interesting are the 45 real life case studies, which are as box texts distributed all over the book and which provide a clear idea of how geoscience is applied in the investigation of crime cases.

This book grew out from lecture notes. Therefore, it is primarily useful as a textbook for students in (applied) geology, criminology and forensic science. It offers most useful background reading for master degree students in environmental science, in particular for those interested in interdisciplinary approaches. But the book does more than that. It gives readers a familiarity with geosciences principles and with an amazing variety of ways showing how geological material can be used forensically. In this way it is more than an impressive, extensive and well-illustrated introduction to forensic geoscience. Although structured and formatted in a classical textbook way, it is the most original and intriguing book for students and a wider audience of professionals and interested readers, I have seen in many years.

Clearly, the book has its limitations. As a textbook it is not a collection of exhaustive research reports. These have to be traced in the specialized literature. The case studies are mainly related to the situation and the legal context of the United States. It would definitely be interesting to give the book a wider geographical outlook. The pedagogical aspects can be upgraded, e.g. using self-assessment questions.

In spite of these limitations, which are almost generic for each first edition of a textbook, I warmly recommend this book without reservation to forensic geoscientists, under- and postgraduate students, and a wider audience of readers interested in science and crime.

Book Review

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**Managing Europe's Water Resources. Twenty-first
Century Challenges by Staddon Chad Published 2010
by Ashgate Publishing, Aldershot, Hampshire, UK
ISBN: 978-0-7546-7321-7**

This book, in total 297 pages, is divided into nine chapters and covers items related to water management. From the first chapter, it is clear throughout the book that the author is in favour of governance on global, regional and local scale. In chapters 2 and 3 water regulation is discussed, a necessity in the subject of water management. It is written for a general public, meaning that the text is easy accessible for non-experts and students. It is a pity that the author uses mainly cases from the UK or the USA.

A broad overview of 'scarce water resources' is given in chapters 4 and 5. Why the term 'scarce' is used here is not clear. This chapter does not include a civil or hydro-engineering text but a general introduction. It would have been interesting to include a minimum of technical terms and definitions (related to hydrology, hydrogeology or water engineering) allowing readers to learn a little more about those subjects. This is not the case now. Other sources of information are needed to fill this gap but only limited references are given.

In this book the subject of privatisation is discussed in a separate chapter (chapter 6). The advantages as well as disadvantages of privatisation are discussed. For a scientist some new elements are presented and worth giving a thought. Another item related to water management is found in chapter 7, which discusses dams. The idea is to discuss one of the many hydro engineering measures in water management. Dams may be an interesting element in hydro engineering but in this book it seems a bit lost. Maybe it would have been better to give an overview of different types of hydro engineering and not to focus on one element. Next to this it is strange that only limited elements are found related to groundwater management, in many countries a very important water resource, which also needs management.

The climate problem is found in chapter 8. As mentioned by the author it is only a limited overview of possible impacts. There are no details discussed on this subject.

The last chapter (9) is about the challenges related to water management. One can find a general overview of challenges. The novice will learn from this but people with some expertise in water sciences will not find what is expected from the overview of 'challenges'.

The author gives a broad overview of water management aspects without going into technical details. The reader will indeed have a broad overview and this makes it worth having a look at this book. Mainly students will learn from this book. The major problem related to the content is the selected cases and the issues in water management which are

or missing or too much focused on a certain subject, e.g. the chapter on dams. As mentioned by the author himself the examples and cases given are rather limited. This is sad, especially when taking into account that in the EU there are plenty of management issues related to this subject. More of these European items should have been included. Groundwater issues are completely missing in this book.

Book Review

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Environment, Development, Agriculture: Integrated Policy through Human Ecology by Bernhard Glaeser Published 2010 by Routledge Revivals, London/New York: First published in 1995 by University College London Press, London. ISBN: 1-85728-290-6 HB 1-85728-291-4 PB

Agriculture was recognised as a core issue in sustainable development by the World Commission on Environment and Development (WCED, 1987). The Brundtland report highlighted the unsustainable character of industrialised agriculture and advocated a system with fewer inputs and a more rational use of resources. The environmental problems that modern agriculture causes were further elaborated in Rio's Agenda 21, and implicitly echoed by the Johannesburg Plan of Implementation. Recently, more insight into the climate change issues added a new dimension to this discussion. A UK report compiled over two years with the assistance of 400 experts in 35 countries, calculates the sustainability of the world's food supply. The authors foresee as a worst case a doubling of the maize world price by 2050. Half of that increase is related to climate effects. For rice the price might increase by 80%, of which 30% is mediated by climate changes. The report calls for urgent action to aid the nearly 2 billion undernourished people in the world (U.K. Governmental Office for Science, 2011).

While the problem has been relatively well established for a long time, solutions are less straightforward. This book offers more than awakening thinking on the subject. It focuses on aspects of philosophy and social science in human ecology and includes case examples concerning political implementation. It is structured in four parts.

Part one deals with the theory of human ecology. It points to the interdisciplinary and holistic nature of the human ecological approach and its typical, complex modelling. This latter is of key importance to address the complex problems, such as the ones raised by sustainable agriculture. This section also links sustainable agriculture (and related issues as sustainable housing) to the umbrella concept of sustainable development.

Part 2 moves to questions of human behaviour and action. Environmental ethics is analysed and the author concludes that an (ethical) "shift is required in society as a whole, especially in the domains of science and politics, towards ecological cognition and ecological behaviours" (p.74). Further on, the main lines of German environmental policy are described. This is most interesting as for example the worldwide applied precautionary principle dovetails in this German policy of the 1970s. Nevertheless, the analysis shows an approach that favours reactive and remedial measures over prevention.

Two examples of research work by the author illustrate what is meant by ecologically sustainable development in agriculture: a review of the environmental policy in China since 1949, and a regional case study from the Andaman and Nicobar islands in India. In

particular, this latter offers a prospective outlook: it examines opportunities for environmental planning involving local people and their own cultural settings.

Future thinking and action is the subject of the last part of the book. It includes chapters that discuss the North-South relations in agriculture and that advocate ecological and cultural variety. The last chapter is about the theory of nature–culture paradigm. It presents human ecology as a unifying factor to approach this dichotomy.

Each chapter is structured with an almost dialectical rigour, starting with a description of the aims, followed by a core text and a conclusion. Also the book as a whole entails all necessary aids for the reader: contents, an introduction, an index, and a wealth of references.

Professor Bernhard Glaeser is a sociologist and human ecologist, trained as an economist and philosopher. He has an impressive publication record on a variety of issues in human ecology, the environmental – social interface and international development. With this re-issued edition, Routledge in its new series “Revivals” acknowledges Glaeser’s contribution to interdisciplinary approaches in the social sciences. He delivers a most stimulating piece of societally relevant theory-driven research for a number of reasons:

The book provides an in-depth approach of selected core elements in human ecology.

It applies the human ecological approach to the issue of sustainable agriculture, in practice.

It extends its conclusions towards policy formulation.

It entails sections of environmental philosophy and ethics that are exquisite

As a re-issued edition the book also entails weaknesses. The literature list only includes references of the last century. Also, more recent aspects of the sustainable agriculture discussion are missing.

Over all, this book is however a masterpiece in the human ecology library. It is a must for students, trainers and researchers in faculties of sociology, agriculture and environmental sciences. It explicitly addresses policy makers and their advisers. But above all, it stimulates creative thinking about the interface of one of the most important overlays of sustainable development: environment, development, and agriculture.

Book Review

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Only One Earth: the Long Road via Rio to Sustainable Development by Felix Dodds and Michael Strauss, with Maurice Strong Published 2012 by Routledge, London/New York ISBN: 978-0-415-54025-4 hbk 978-0-203-10743-0 ebk

It is not evident to organize a conference on sustainable development worldwide in times of economic crisis, which monopolizes the attention of the decision makers. Although this economic debacle is often called global, it is mainly a problem of the Western countries which dominated the world economy during the past century, while accumulating damage to the life-support systems, the biological resources and the climate. Moreover, the political will to act cooperatively on climate changes, one of the key aspects to the human future, was never as low and as unconvincing during the past 20 years as it is today. This is remarkable as the roots of both the economic/financial and the environmental/climate crisis are the same: the inadequacies of the current system. In this geo-political context the United Nations organized the Rio+20 conference on sustainable development (Rio de Janeiro Brazil June 20-22nd, 2012). What came out was "The future we want", a consensus document of 193 nations, which was called "a firm foundation for social, economic and environmental well-being" by UN Secretary General Ban Ki-moon. Its content echoes to a large extent Rio's Agenda 21 (1992), and the Johannesburg Plan of Implementation (2002). Both these documents and the meetings during which they were agreed upon, dovetail in the conclusions of the conferences of Stockholm (1972) and Nairobi (1982). This 40 years pathway shows that the implementation of sustainable development is a laborious and long-term process.

This book identifies, describes and analyses the long road to Rio+20. It is organized in two parts. Part I takes the reader from the preparations of the Stockholm Conference to those of Rio+20. It pays ample attention to the UNCED Rio Conference and the World Summit in 1992, the Rio+5 Forum, and the other intermediate assessments, the Millennium Declaration, the Johannesburg conference and the Earth Summit of 2002, and its follow-up. The overall picture that emerges is one of fragmentation, and lack of structure and coherence in implementing the necessary sustainable development agenda.

Part II describes some of the road blocks to implementing the agreements of Rio and Johannesburg. It starts with an analysis of the governance gaps at international, regional and national level. This is followed by a summary, but nevertheless most interesting evaluation of the implementation of the 40 chapters of Agenda 21 and the Rio Principles, spanning the period from 1992 until today. What comes out is a picture characterized by few successes (e.g. on international institutional agreements and on the contribution by local authorities) and major challenges on most of the subjects. Other chapters describe

the democracy and the economic gaps. This latter discusses basic aspects of a green economy, a basic concept in the Rio+20 document “The future we want”. The book concludes with 21 actions to save the planet. They range from adopting the Earth Charter and a new climate agreement, over establishing an International Court for the Environment, to setting up a Global Green Bond investment system.

As a whole this book is a most influencing call to significantly modify the path of economic and social behaviour, to co-exist within the Earth’s ecological limits. This publication is most timely as it provides the wider context that backs the Rio+20 conference. It is impressive as it spans 40 years of environmental diplomacy at the highest level. It is unique in doing so, as the authors Felix Dodds, Michael Strauss and Maurice Strong were main actors and first-row audience participants of at least the last 20 years of the period which is described in the book.

The publication is compulsory reading not only for the 10,000 participants to Rio+20, but for all those who like to get insight in the logic and the difficulties in implementing a broad policy based on equity, which takes into account the planetary boundaries. This book really deserves the broadest possible readership.

Book Review

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**Russian Renewable Energy: the Potential
for International Cooperation by Indra Overland
and Heidi Kjaernet Published 2009, Ashgate Publishing
Limited ISBN: 9780 7546 79721 (hbk);
9780 7546 99293 (ebk)**

This book summarizes experiences on Russian-Nordic co-operation on the development and joint implementation of renewable energy projects. These projects are supported by the EU research programmes and the UN international agreements, that mainly result from the Kyoto Protocol and its mechanism of joint project implementation.

The reported data and their analysis are well structured. The analysis is most suitable for different groups of readers, starting from people interested in the problems of energy supply, ranging from the local to the global level, to the researchers and policy makers who are interested in the opportunities and perspectives to widen the Russian-EU co-operation. The nine chapters of the book discuss the development of the Russian energy market, education, research and innovation, the knowledge-base for renewable energy in Russia, Russia's solar power sector, EU-Russian science and energy cooperation and ten experiences as examples. The collected and analysed data allow to conclude on scenarios for future developments of the EU-Russian co-operation.

The language used by the authors is easy to understand, especially for professionals in the area. The ideas and results of the assessments contribute to international cooperation in the future and an improved understanding of sustainable development – one of the main goals of the EU policy.

Some positive experiences and areas on international energy research are beyond the scope of the book. For example, projects on energy that is recovered from both industrial and household waste, hydrogen and other new energy sources and technologies, such as geothermal and wind energy. FP7, FP8 and joint implementation projects under UN supervision provide other examples of win-win projects and will further contribute to the positive aspects of these collaborations.