The Soil Underfoot - Infinite Possibilities for a Finite Resource.

Edited by G. Jock Churchman and Edward R. Landa


Reviewed by Ray R. Weil*

In many ways this book is a celebration of the soils Renaissance of the past few decades. The soils Renaissance has been marked in scientific circles by special issues of the premier scientific journals, such as the 2004 issue of Science Under the title Soil - the Last Frontier, and in the broader public by at least two feature length films devoted to soils (Dirt: The Movie, and The Symphony of Soil) and the United Nations’ designation of 2015 as the International Year of Soils. Yet, it has been a rather strange Renaissance, with formal soil science academic programs and departments shrinking and, in some cases, disappearing at universities in the USA and around the world. At the same time scientific and public interest in soils has soared. It has become increasingly recognized that soil science has a central role to play in almost any project aiming to study or manage terrestrial ecosystems. The pivotal role of soils in biogeochemical processes, climate change, biodiversity, water resources, and other great natural science challenges has become firmly established. Yet, the soil portions of ecosystems research may not always be carried out by those that would identify themselves as soil scientists. As soil scientists attempt to grapple with how particular soil processes influence ecosystems it is important that they have internalized a broad and integrated view of soil science. Whatever specialty they bring to the ecosystem analysis team - chemistry, microbiology, pedology - scientists also need to see the context of their specialty within the large complex soil system.

That said, this is not a book that would serve well as an introduction to soil science for the novice, nor would it serve as a reference book for the professional. Rather it will most likely find its place as a pleasure book, doped into by those that already love, respect and know about soils but want to broaden their knowledge or enjoy new perspectives on a world to which they have already committed. Although most readers, as most of the authors, are likely to be soil scientists, portions of the book will also appeal to artists, philosophers, or gardeners who use or appreciate or think about soils. One could say that this book was written by and for soil aficionados.

As the title would indicate, the various chapter authors delve into soils from a seemingly infinite number of perspectives. In the words of the editors: “A high level of generalization is embraced. It is hoped that the chapters are quite poetic and almost lyrical, while others are quite dry and prosaic. Some are written in rather technical terms on a narrow subject while others are written very broadly appealing to a wide audience.

The Soil Underfoot is organized into five sections, each with five chapters that deal with such future topics of the involvement of soil in climate change, the challenge of feeding 9 billion (increasingly wealthy) people on the planet, and preventing the soil itself from being lost via erosion and dumpers. It attempts to look into the far future when even the soil will become part of the Internet of Things. The second section Valuing Soil consists of six chapters that range from poetic to the religious and sacred. Two chapters discuss ancient indigenous cultures’ approaches to valuing soil. The third section addresses how the soil serves as nature providing the concept of ecosystem services on which human activity depends. The third section includes 11 chapters on Valuing and History that discuss mainly indigenous attitudes, knowledge and management of soil in such diverse traditional ancient Roman, Maori, Korean, Incan and Anatolian cultures. A section of only five chapters on the subject of The Soil and the Internet of Things. Three of these address fairly narrow soil physical uses (irrigation scheduling to minimize leaching of nutrients and carbon in human feces and urine. The chapter about efforts to help people value and connect with soils of soil. The final chapter to the volume. Its three chapters each bring distinctive ideas and inspirational concepts. Chapter 27: Biophysics - The Challenges is written by a senior soil scientist who is also a university professor. In it, he has brought together ideas from a broad range of angles and perspectives on soil and the future of soil science.

The fifth and final section of the book contains three chapters on the future of soil science. The first chapter is a wide-ranging discussion of the future of soil science. The second chapter addresses the need to develop systems models that take into account the involvement of soils in climate change, the challenge of feeding 9 billion people on the planet, and the relationship between soil loss and erosion. The final chapter about efforts to help people value and connect with soils of soil. The final chapter to the volume. Its three chapters each bring distinctive ideas and inspirational concepts. Chapter 27: Biophysics - The Challenges is written by a senior soil scientist who is also a university professor. In it, he has brought together ideas from a broad range of angles and perspectives on soil and the future of soil science.

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