Dirt: The Erosion of Civilization

David R. Montgomery has written a fine book on the mistreatment of the soil throughout the course of civilization that has resulted in extensive and severe erosion. The coverage is geographically and historically comprehensive, and the style is very clear. It follows on and extends the writings of earlier authors (e.g., Carter and Hale, 1974; Hyams, 1976; Hillel, 1990; Ponting, 1992) as it provides an even more detailed description of the processes and consequences of human-induced soil erosion in different regions of the world. As such, the book sounds an ever timely and necessary clarion call for our generation at long last to stop exacerbating the abuses of the past and, wherever possible, to begin rectifying their dire consequences.

The book devotes much less attention to other forms of soil degradation, such as waterlogging and salination in irrigated river valleys, chemical contamination and pollution in urban and industrial (as well as agricultural) regions, progressive usurpation of natural ecosystems and appropriation of land for human uses, and various other anthropogenic soil degradation in wetlands and in humid as well as in arid regions of the world. Nor does the book deal with contemporary issues related to the carbon and nitrogen cycles affecting climate and, reciprocally, the effects of climate change on soil and water resources in both natural systems. In this context, especially problematic are the soils of cold regions and in tropical regions, which are highly fragile and prone to degradation.

The tone of the book is largely pessimistic. There are indeed justified grounds for considering past and present abuses. However, there are hopeful signs as well, but these are not sufficiently emphasized. Included among them are the current positive trends toward environmentally sustainable and energy-efficient modes of soil, water, and crop management. These include zero-till planting and management of field crops, maintenance of organic residues (surface mulches), installation of low-pressure trickle irrigation systems, precision application (temporally and spatially) of slow-release nutrients, controlled-environment production systems (e.g., under plastic cover), and the use of genetically improved, high-yielding, disease- and pest-resistant crops. One comment on page 234, referring disrespectfully to the late great Norman Borlaug as “the same guy” who [purportedly] made inconsistent statements regarding the Green Revolution, should be expunged from future editions of the book.

Finally, I feel compelled to comment on the unfortunate choice of the main title, referring to the soil as “dirt.” That derogatory and demeaning term (even if intended only as a facetious metaphor) should be avoided in scientific discourse, which is in fact the terrestrial domain’s main cleansing medium, wherein pathogens and toxins and various other pollutants that might otherwise foul our environment and endanger its myriad forms of life are normally adsorbed, filtered, altered, rendered harmless, and/or transmuted into nutrients for the continual regeneration of life on Earth. "Dirt" was similarly the main title of an earlier book by William Logan (1996), who at least followed it with the complimentary subtitle "The Ecstatic Skin of the Earth." Though indeed thin, the soil is much more than a superficial skin—it is a natural body of some depth, abounding with and sustaining an exceedingly complex community of mutually interactive living organisms, and as such should be regarded and treated with the utmost respect.