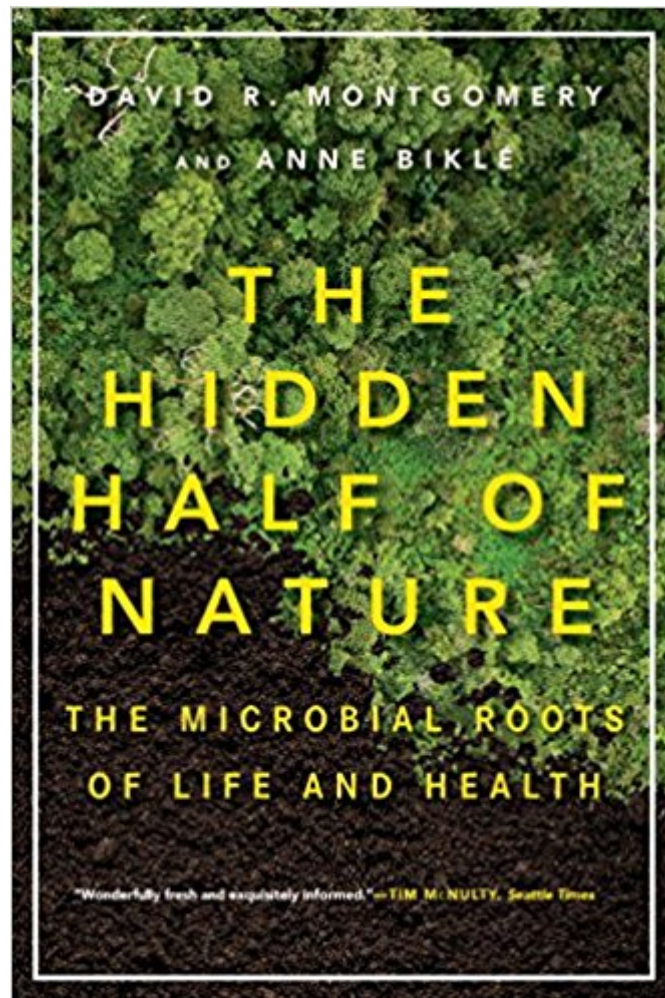




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# The Hidden Half Of Nature: The Microbial Roots Of Life And Health



## Synopsis

A riveting exploration of how microbes are transforming the way we see nature and ourselves—and could revolutionize agriculture and medicine. Prepare to set aside what you think you know about yourself and microbes. Good health—for people and for plants—depends on Earth's smallest creatures. The Hidden Half of Nature tells the story of our tangled relationship with microbes and their potential to revolutionize agriculture and medicine, from garden to gut. When David R. Montgomery and Anne Bikl decide to restore life into their barren yard by creating a garden, dead dirt threatens their dream. As a cure, they feed their soil a steady diet of organic matter. The results impress them. In short order, the much-maligned microbes transform their bleak yard into a flourishing Eden. Beneath their feet, beneficial microbes and plant roots continuously exchange a vast array of essential compounds. The authors soon learn that this miniaturized commerce is central to botanical life's master strategy for defense and health. They are abruptly plunged further into investigating microbes when Bikl is diagnosed with cancer. Here, they discover an unsettling truth. An armada of bacteria (our microbiome) sails the seas of our gut, enabling our immune system to sort microbial friends from foes. But when our gut microbiome goes awry, our health can go with it. The authors also discover startling insights into the similarities between plant roots and the human gut. We are not what we eat. We are all—for better or worse—the product of what our microbes eat. This leads to a radical reconceptualization of our relationship to the natural world: by cultivating beneficial microbes, we can rebuild soil fertility and help turn back the modern plague of chronic diseases. The Hidden Half of Nature reveals how to transform agriculture and medicine—by merging the mind of an ecologist with the care of a gardener and the skill of a doctor. 20 illustrations

## Book Information

Paperback: 320 pages

Publisher: W. W. Norton & Company; 1 edition (November 15, 2016)

Language: English

ISBN-10: 0393353370

ISBN-13: 978-0393353372

Product Dimensions: 5.6 x 0.9 x 8.3 inches

Shipping Weight: 8 ounces (View shipping rates and policies)

Average Customer Review: 4.7 out of 5 stars 57 customer reviews

Best Sellers Rank: #59,874 in Books (See Top 100 in Books) #21 in Books > Textbooks >

Medicine & Health Sciences > Medicine > Basic Sciences > Immunology #22 in Books > Science & Math > Agricultural Sciences > Horticulture #33 in Books > Medical Books > Basic Sciences > Immunology

## Customer Reviews

• - Barbara Kiser, *Nature* • A must-read for avid gardeners, those interested in bolstering our precarious food supply, or anyone remotely concerned about their health and the soil under their feet.

• - Kirkus Reviews • The Hidden Half of Nature offers a wonderfully fresh and exquisitely informed approach that could change how we relate to ourselves, our diets, our gardens and our world.

• - Tim McNulty, *Seattle Times* • [A] transformative read.

• - Tom Philpott, *Mother Jones* • Montgomery and Bickel argue that when we farm and when we eat, we're feeding a diverse community of microorganisms. This book is sure to become a game-changing guide to the future of good food and healthy landscapes.

• - Dan Barber, chef and author of *The Third Plate* • Amazingly detailed and well-researched. [The Hidden Half of Nature] lays out the beautiful connection between the microbial garden in our bodies and the microbial garden in the Earth.

• - Sally Peterson, *Oregon Live* • The Hidden Half of Nature draws a straight line from the microbes that live in healthy soil to those that live in healthy guts, skillfully blending the personal and the scientific. This is a must-read for anyone concerned with their own health.

• - Amy Stewart, author of *The Drunken Botanist* • One of the year's best books on gardens and health.

• - Jim McCausland, *Sunset Magazine* • The Hidden Half of Nature reads like a fast-paced novel but tells the true story of the workings of soils, and even our own bodies.

• - Neil Shubin, author of *The Universe Within*

David R. Montgomery is a professor of geomorphology at the University of Washington. He lives in Seattle with his wife, Anne Bickel, and Loki, their guide-dog dropout. Anne Bickel is a biologist and environmental planner. Her career spans the fields of environmental stewardship, habitat restoration, and public health. *The Hidden Half of Nature* is her first book.

This is a more complex book than meets the eye. I thought it would be about the quite recent scientific and medical investigations of the human microbiome, which increasingly looks central to human health. It is that, but this is a highly personal book that mixes health of the earth--soil--and health of a person, sort of an inside soil and outside soil, literally grounded in the authors' garden in Seattle. The book presents equal parts personal experience and hard science, which is described

clearly and should be accessible to readers--both soil and human microbiomes are far, far more complex than most people appreciate. The book starts with a description of the authors' (the authors are married, and both have extensive backgrounds in science) rebuilding poor soil in their Seattle house, to make a garden. To be brief (the book describes this very well and gardeners will like it) it quickly became fertile and growth exploded, as did unanticipated populations of birds, insects and visiting mammals, all stemming from an enriched microbiota (which includes bacteria, fungi and other folks). A healthy soil has a healthy microbiota, every bit as complex as the above ground ecosystem parts; the point is that healthy soil produces healthy food--the book is explicitly advocating changes in farming. This connects with Bikle's cancer and experience. At first this doesn't seem relevant, but it gradually introduces the human microbiome in all its complexity, and its impact on health, and how manipulating it can have good consequences. See the connection between healthy soil and healthy body? Human ignorance of the microbial world has been hugely costly. Recent patterns have agriculture dousing land with pesticides, herbicides and fertilizer, building up resistance in harmful bacteria and impoverishing the soil by cropping practices. And so with dousing patients with chemicals--works wonders but may alter or kill off the microbiota and in the long term do more harm than good. This book makes a very solid case, and also notes that big pharma and agribusiness will fight it, as they always have, because they have so much to lose. Think of this book as an attempt to raise consciousness. If you read it through, your views will change, and if not a convert to the lifestyle advocated, you'll at least have to credit it as having some compelling evidence behind it. So: a healthier future will require much more awareness of microbes and taking them into account as assets in body and soil.

This remarkable and fascinating book really opened my eyes about the significance of a term I had heard before, but didn't fully appreciate-- microbiome. Starting from the story of why composting makes soil healthy, the authors take us to the roots of plants to learn that plants have a way of communicating with the bacteria and fungi in the soil. In this way plants attract the microbes they need to grow and stay healthy. We also learn that modern chemical fertilizers are destroying the soil microbiome so that crops are less nutritious and the soil's ability to produce crops declines. Then we learn about the human microbiome and find that the microbes in our bodies outnumber our own cells by many times, and that our gut is an amazing system analogous to the root system in plants. Our own health is strongly affected by our microbiome, and that antibiotics must be used carefully in order not to decimate our inner allies. Indeed, our outdated view of 'germs' is leading to the rapid evolution of superbugs that can resist most antiseptics and drugs. Many chronic diseases are a

consequence of poorly developed, unhealthy microbiomes. The message of this book is that much more needs to be learned about the hidden world of nature, because even though we can't see it, our lives depend on it.

The Hidden Half of Nature is about microbes; and life, or more accurately about perhaps everything tangible and nothing we can see. For quite some time I didn't view the subject matter as being of great import and cosigned this title to the bottom of my "read one day" list. What a mistake. This book was, without a doubt, one of the most beautifully written, well documented, and enthralling stories I have recently read. I am not prone to hyperbole, but the brilliant blend of scientific fact with compelling personal insight is flawlessly accomplished. Rarely do I feel my scientific knowledge base has significantly expanded in harmony with what I can only describe as a flush of spirituality. My only minor caution to prospective readers is the risk of being compellingly drawn to gardening and the attendant aches that plague the novice tiller of the earth. Otherwise, this is a must read book for lovers of science, discovery and awe at the hidden universe that surrounds us and is the core of life itself.

This is an excellent book! It's in two parts: the husband talks about the soil and the wife talks about the digestive system. They are both excellent authors and each treats potentially dry material in a manner that is interesting. They have each done thorough research and know their topics. I learned more about both my garden and intestinal microbiomes than ever before.

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