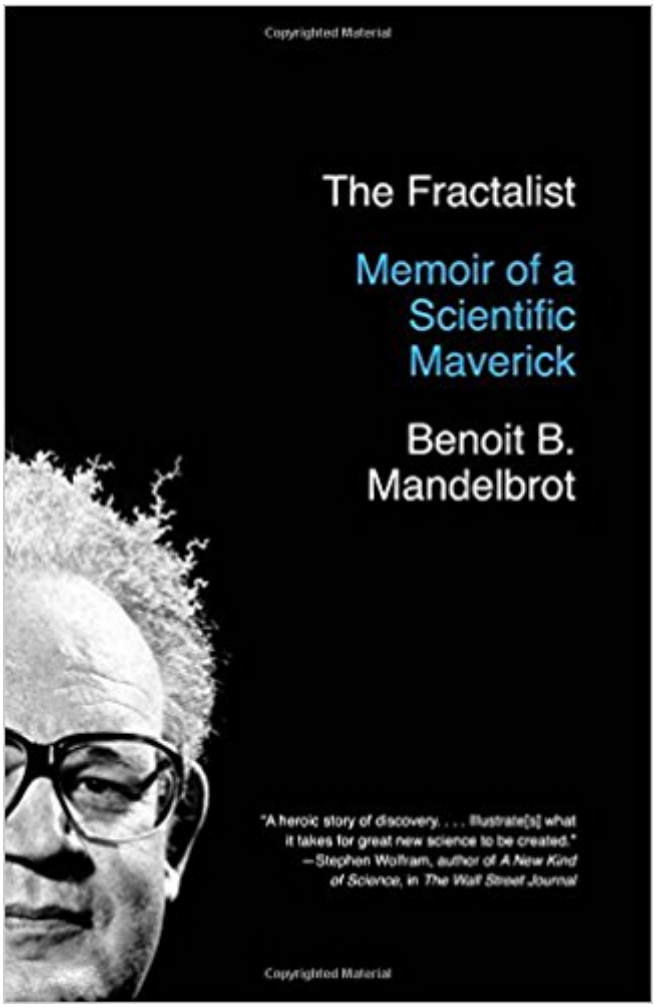
The Fractalist: Memoir Of A Scientific Maverick



Synopsis

Here is the remarkable life story of Benoit Mandelbrot, the creator of fractal geometry, and his unparalleled contributions to science mathematics, the financial world, and the arts. Mandelbrot recounts his early years in Warsaw and in Paris, where he was mentored by an eminent mathematician uncle, through his days evading the Nazis in occupied France, to his education at Caltech, Princeton, and MIT, and his illustrious career at the IBM Thomas J. Watson Research Center. AnÂ outside to mainstream scientific research, he managed to do what others had thought impossible: develop a new geometry that combines revelatory beauty with a radical way of unfolding formerly hidden scientific laws. In the process he was able to use geometry to solve fresh, real-world problems.With exuberance and an eloquent fluency, Benoit Mandelbrot recounts the high points of his fascinating life, offering us a glimpse into the evolution of his extraordinary mind.Â With full-color inserts and black-and-white photographs throughout.Â

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Customer Reviews

Guest Reviewer: Nassim Nicholas Taleb Nassim Nicholas Taleb, author of The Black Swan: The Impact of the Highly Improbable and Antifragile: Things That Gain from Disorder, has devoted his life to problems of uncertainty, probability, and knowledge. He spent nearly two decades as a businessman and quantitative trader before becoming a full-time philosophical essayist and academic researcher in 2006. Although he spends most of his time in the intense seclusion of his study, or as a flÃ¢neur meditating in cafÃ©s, he is currently Distinguished Professor of Risk

Engineering at New York Universityâ ™s Polytechnic Institute. His main subject matter is "decision making under opacity", that is, a map and a protocol on how we should live in a world we don’t understand. Taleb’s books have been published in thirty-three languages. "I have never done anything like others", Mandelbrot once said. And indeed these memoirs show it. He really managed to do everything on his own terms. Everything. It was not easy for him, but he end up doing it as he wanted it. Consider his huge insight about the world around us. "Clouds are not spheres, mountains are not cones, coastlines are not circles, and bark is not smooth, nor does lightning travel in a straight line", wrote Benoit Mandelbrot,Â contradicting more than 2000 years of misconceptions. Triangles, squares, and circles seem to exist in our textbooks more than realityâ ”and we didn’t notice it. Thus wasÂ born fractal geometry, a general theory of "roughness". Mandelbrot uncovered simple rules used by nature (and men) that, thanks to repetition, by smaller parts that resembleÂ the whole, generate these seemingly complex and chaotic patterns. Self-taught and fiercely independent, he thought in images and passed the entrance exam of the top schoolÂ of mathematics without solving equations; he was both precocious and a late bloomer producing the famous "Mandelbrot set" when he was in his fifties and got tenure at YaleÂ when he was 75. Older mathematicians have resisted his geometric and intuitive methodâ ”but the top prize in mathematics was recently given for solving one of his sub-conjectures. Mandelbrot, while a bit of a loner, had perhaps more cumulative influence than any other single scientist in history, with the only close second Isaac Newton. His contributions affected physics, engineering, arts,Â medicine (our vessels, lungs, and brains are fractal), biology, etc. But he was unheeded by the very field he started in, economics, where he proved in the 1960s that financialÂ theories vastly underestimate market risk and need total revampingâ ”in spite of the current crisis. I met him when he was in his late seventies, as he was writing these memoirs long hand. He was the only teacher I ever had, the only person for whom I have had intellectual respect. But there was something else that made him magnetic: he was a raconteur with a profound sense of historical context ... Reading these memoirs put me back in the unusual atmosphere he created around him. The reader is made to feel he are at the center of twentieth century science as it was produced with fields invented almost from scratch: Max DelbrÃ ck with molecular biology, Paul LÃ©vy with the mathematics of probability, Robert Oppenheimer with nuclear physics, even Jean Piaget the psychologist for whom Mandelbrot worked as a scientific assistant. And many more. Finally, the reader will be presented with something that no longer exists in intellectual life: force of character and independence. Enjoy the book. --This text refers to the Hardcover edition.

â œA heroic story of discovery. . . . Illustrate[s] what it takes for great new science to be created.â • â ”Stephen Wolfram, The Wall Street Journalâ œMandelbrot had the kind of beautiful, buzzing mind that made even gifted fellow scientists feel shabby around the edges. . . . The Fractalist evokes the kinds of deceptively simple questions Mandelbrot asked . . . and the profound answers he supplied.â • â ”The New York TimesÂ â œFascinating and engaging . . . A compelling look at one of the greatest multidisciplinary thinkers of the 21st century.â • â ”Wired.comâ œMandelbrot was a spell-worker who saw connections no one else did and united apparently disparate phenomena. The mathematics of fractalsâ ”and pictures of the Mandelbrot setâ ”offered many budding mathematicians their first taste of â ˆrealâ ™ mathematics, in all its beauty, utility and sheer unexpectedness.â • â ”The Economistâ œThe delight Mandelbrot took in roughness, brokenness, and complexity, in forms that earlier mathematicians had regarded as â ˆmonstrousâ ™ or â ˆpathological,â ™ has a distinctly modern flavor. Indeed, with their intricate patterns that recur endlessly on ever tinier scales, Mandelbrotâ ™s fractals call to mind the definition of beauty offered by Baudelaire: Câ ™est lâ ™infini dans le fini.â • â ”New York Review of BooksÂ Â â œIf you love fractals, you will love this memoir. . . . Mandelbrot describes his life and times with both introspection and humor.â • â ”New York Journal of Booksâ œCharmingly written . . . The memoir of a brilliant mathematician who never thought of himself as a mathematician.â • â ”Kirkus Reviewsâ œCaptures the enthusiasm as well as the memories of a visionary who loved nothing better than studying complex multidisciplinary concepts.â • â ”Publishers WeeklyÂ â œ[Mandelbrotâ ™s] work has spread and impacted so many fields that thereâ ™s nobody in the world who is broad enough to appreciate the full impact. . . . [His] mix of gall and genius gave him license to ask the questions no one else did.â • â ”Thomas Theis, director of physical sciences at IBM Researchâ œMandelbrot brings us back to the sense of the wonder of things, without giving up the logic.â • â ”John Briggs, author of Fractals: The Patterns of Chaosâ œWhen we talk about the impact inside mathematics, and applications in the sciences, [Mandelbrot] is one of the most important figures of the last 50 years.â • â ”Heinz-Otto Peitgen, professor of mathematics and biomedical sciences at the University of Bremen

You may have goosebumps reading a quote from Darwin on natural selection. Both fractals and living forms start from primal simplicity going through many interactions to reach marvellous organized complexity. Mandelbrot was such a brave maverick because he had good role models within his family. His close uncle was a known mathematician but he still managed to create his own path, perhaps the hardest one. We are lucky he did it and wrote this book to tell us how things

eventually converged to a breakthrough.

I came to know Benoit Mandelbrot’s work through the writings of Nassim Taleb, little did I know at the time "Mandelbrotian" would play a significant role in changing my life. The day the memoir came out, I finished the entire work and have since reread it again. I lack the words to describe how inspirational Mandelbrot’s work is to followers of his fractal geometry, even if they are not professional mathematicians.For people that have a fear of math - this is a great book. In fact, there is only one equation in the entire book. Instead this memoir gets into the thoughts of one of the 20th century’s greatest minds. Mandelbrot constantly avoided structure, smoothness, and the status quo. In essence, his life was rough and that was exactly the way he liked it. Despite living under constant uncertainty, Mandelbrot never complains or worries over the lack of security he faced, frankly, he realized that he thrived under such conditions.It was refreshing to read a memoir free of over-causation. Often the autobiography of a famous person is filled with causes on how and why they were so successful.. Instead, Mandelbrot writes the major events in his life as best he can remember them (often finding support in pictures or items from his archives) and examines how luck, skill, and perseverance shaped his career. Sometimes choices were made for him, other times he chose an unconventional path on purpose but he never stopped trying to find his "Keplerian" contribution to math. Somehow he grasped at a young age that true discoveries are not gained through climbing the established academic ladder but by tinkering on the verge of such structures.It is impossible to summarize this book into one review (the sign of a good book) yet there are some themes that have powerful messages for people sick of the archaic hierarchy of academia. If you have a stiff upper lip you can make contributions to the world by not climbing ladders. Working outside of established structure is the true mother of invention. Mandelbrot described himself as a "maverick" which I find as a very apt description of his personality; He did not rebel completely from mathematics yet he rarely paid heed to tenured professors. He jumped between many "established" fields such as economics and contributed significant amounts of material to those willing to listen. His maverick lifestyle helped more people than if he had settled for a "secure" professorship in Paris.In closing, I have a hard time writing this review because the memoir does not fit into a standard style of writing; that is why I enjoyed the book. I encourage everyone to read it, if you are a follower of Mandelbrot than I am sure it will be a wonderful experience. If you have never read Mandelbrot or understand the nature of some of his work than I encourage you to read the memoir but keep an open mind and use the book as a starting point to his other works. The world was blessed to have such a bright mind, and hopefully other mavericks have been created by following

his example.

Benoit Mandelbrot was a genius who discovered (or invented) the field of fractal geometry and several other important discoveries in mathematics. His memoir is interesting, especially to those with a scientific bent, but readable and understandable by anyone. The one thing that put me off was his need to continually remind us of how brilliant he was. His accomplishments speak for themselves; the work doesn't need the self-aggrandizing reminders.

Fascinating book.

It si a must! Verte well written and procures lots of insights about one of the most creative minds of the twentieth century

This book is a fascinating dive into fractals. And if you've read "The Information" by Gleick, you will appreciate the references to Claude Shannon of Bell Labs.

Straightforward purchase: timely delivery and the product better than expected.

The Fractalist is the autobiography of Benoit Mandelbrot. Mandelbrot was a remarkable scientist who was a pioneer in bringing fractal ideas from obscurity to the forefront. His ideas are used in a wide range of subjects with further applications being discovered all the time. The Fractalist is the narrative of his life, his influences and the path he followed to take him through his life.The Fractalist is largely chronological starting out in his childhood and the influences from his family and early life in Europe. It contains many details of the author's life but it doesnt particularly flow in a fashion that makes it very enjoyable to read. There are lots of specific details on characters who neither influence the author, nor reappear. Often it seems like the early part is a collection of memory fragments being reconstructed rather than a part of the greater whole he is trying to create. Nonetheless the reader does get a true view of the author's early history.Mandelbrot then discusses his academic career and his success in France as well as the graduate work in the US. He discusses his interests and influences and one starts to get a firmer picture of how the authors wide variety of interests drove his eclectic mathematical investigations. The professional years at IBM and the differences between economics and math department cultures is all very interesting. The author's history and difficulty in finding an academic "home" definitely gives an insight into how

academic culture can be quite different from a professional culture like that of IBM.All in all if one is interested in a detail filled history of the author's life with a focus on influences and anecdotes then this is going to be the best source of information. If one is looking for a more detailed view of the author's works then this is not it. The writing I found to be a bit hard to get through at times as many things dont flow well, but the information is there for those who want to get it.