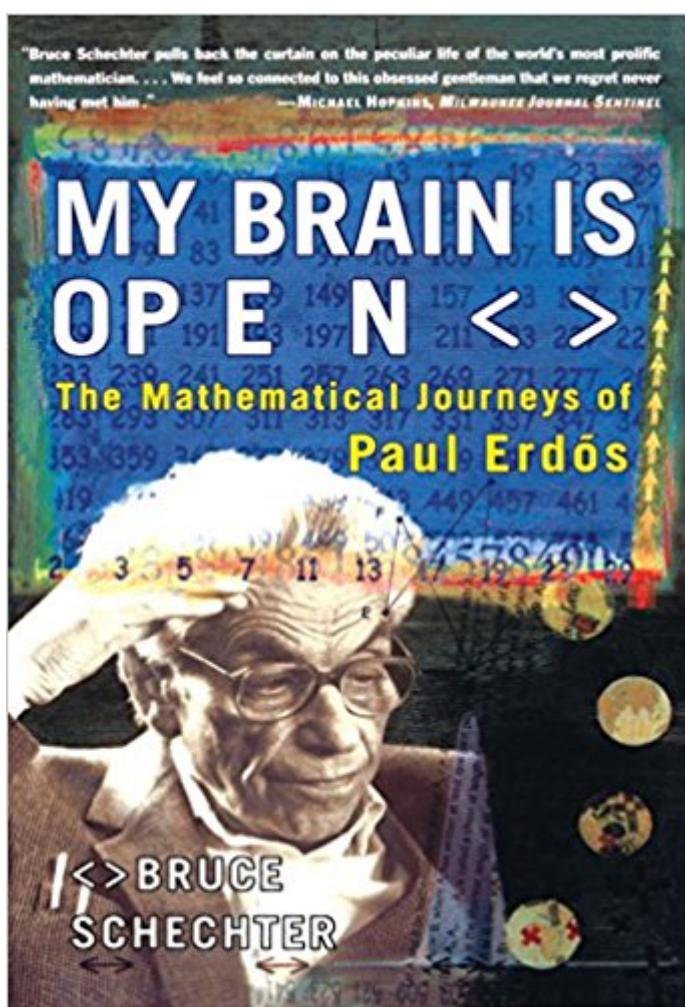


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# MY BRAIN IS OPEN: The Mathematical Journeys Of Paul Erdos



## Synopsis

Paul Erdős, one of the greatest mathematicians of the twentieth century, and certainly the most eccentric, was internationally recognized as a prodigy by age seventeen. Hungarian-born Erdős believed that the meaning of life was to prove and conjecture. His work in the United States and all over the world has earned him the titles of the century's leading number theorist and the most prolific mathematician who ever lived. Erdős's important work has proved pivotal to the development of computer science, and his unique personality makes him an unforgettable character in the world of mathematics. Incapable of the smallest of household tasks and having no permanent home or job, he was sustained by the generosity of colleagues and by his own belief in the beauty of numbers. Witty and filled with the sort of mathematical puzzles that intrigued Erdős and continue to fascinate mathematicians today, *My Brain Is Open* is the story of this strange genius and a journey in his footsteps through the world of mathematics, where universal truths await discovery like hidden treasures and where brilliant proofs are poetry.

## Book Information

Paperback: 224 pages

Publisher: Simon & Schuster; First Touchstone Edition edition (February 28, 2000)

Language: English

ISBN-10: 0684859807

ISBN-13: 978-0684859804

Product Dimensions: 5.5 x 0.7 x 8.4 inches

Shipping Weight: 14.4 ounces (View shipping rates and policies)

Average Customer Review: 4.7 out of 5 stars 48 customer reviews

Best Sellers Rank: #222,753 in Books (See Top 100 in Books) #197 in Books > Science & Math > Mathematics > History #384 in Books > Science & Math > Technology > History of Technology #501 in Books > Biographies & Memoirs > Professionals & Academics > Scientists

## Customer Reviews

Physicist and science writer Bruce Schechter's biography of legendary Hungarian mathematician Paul Erdős is an engaging portrait, warm and intimate, bringing this strange, happy man to life. Schechter's focus is quite a bit tighter, and more traditionally biographical, than Paul Hoffman's in *The Man Who Loved Only Numbers*. Here, we get to see Erdős's brief childhood transform quickly into a carefree adolescence of solving difficult math problems with his circle of brilliant

friends--uniquely encouraged by a country that valued the contributions of mathematics in a way that has never been equaled. Fleeing the Holocaust, Erdős never settled down, instead traveling from place to place, showing up on the doorsteps of other mathematicians with his few possessions and an open mind. During his career, Erdős published more papers than any other mathematician in history. Most of the papers were collaborations: For Erdős, the mathematics that consumed most of his waking hours was not a solitary pursuit but a social activity. One of the great mathematical discoveries of the twentieth century was the simple equation that two heads are better than one.... That radical transformation of how mathematics is created is the result of many factors, not the least of which was the infectious example set by Erdős. Schechter spoke with many of Erdős's collaborators to complete this biography, which reveals the odd mathematician as charming, opinionated, and completely dependent upon the kindness of others. Schechter not only tells his fascinating story, but introduces some intriguing mathematics problems (with easy-to-understand explanations) to show readers why Erdős loved the elegance of numbers more than anything else in the world. --Therese Littleton --This text refers to an out of print or unavailable edition of this title.

Schechter's biography of mathematical wizard Paul Erdos, who died in 1996, follows closely on the publication of one by Paul Hoffman (*The Man Who Loved Only Numbers*, Forecasts, June 8). Curiously, both biographers were associated with *Discover* magazine?Schechter as a staff writer and Hoffman as editor-in-chief. Like Hoffman, Schechter adeptly portrays both the quirky Erdos and his daimon, the pure, abstract universe of numbers. Schechter's explanations of number theory are better suited than Hoffman's for readers not in technical or scientific professions. He doesn't delve into subjects like Ramsey theory in quite the detail that Hoffman does, and his digressions tend to be more relevant to Erdos's life. Hoffman, for example, goes into the story of Fermat's last theorem, which played almost no role in Erdos's career. And Schechter seems more evenhanded in his account of Erdos's controversial contribution to the solution of the Prime Number Theorem. Although Schechter didn't know Erdos personally, as Hoffman did, and although his account lacks some of the other's humanizing vignettes, readers will be engrossed by his well-crafted chronicle of the eccentric Hungarian and of the mathematical worlds he traversed for eight decades. Copyright 1998 Reed Business Information, Inc. --This text refers to an out of print or unavailable edition of this title.

A superb biography of a brilliant man. I wonder what Erdos number the author has.

Shurik, a friend of mine I used to share student dorm with, was a mathematician. Algebraist, to be precise. We talked a lot discussing multitude of topics, not necessarily mathematical ones. In those days hot water was customarily shut off across campus during summer season so students could prepare for exams without such a distraction as hot showers. That fact prompted me to comment that our lifestyle, while notably different, still somewhat resembles what a lifestyle in Upper Paleolithic might look like. Shurik was digesting my remark for a few moments with the stamp of intense thinking on his face (his Calculus test was next day), then said excitedly:- Dude, you know why there was no hot water in Upper Paleolithic? That's because the water pressure was not strong enough in the Lower Paleolithic!That insignificant episode from my student years characterizes true mathematicians very eloquently. They are quite unusual breed of humankind with extraordinary abilities to locate not very obvious properties and relations in seemingly regular objects and notions. Having been exposed to interaction with mathematicians for sometime I, by the time the book of Mr. Schechter was read through, felt I knew Paul Erdos almost personally. Very light and elegant writing style of the author was a contributing factor as well.Mathematicians rarely can be aggressive. Usually, they are very sensitive and kind people. In this regard the portrait of Paul Erdos by Mr. Schechter goes along quite naturally with my experience of dealing with them. At the same time that portrait leaves a very sad impression of the true inner nature of Erdos - depressingly lonely person, with no family and no home. The deep tragedy of the Erdos family with Paul's siblings gone by disease, father's suffering in Russian exile, terrible WWII ordeals - all that makes you wonder how Paul and his parents can continue "to prove and conjecture" so successfully under such horrendous circumstances? Author partly explains this phenomenon very brightly describing the scientific and especially educational traditions in Hungary before the war. Indeed, the density of incredible talents generated in this small central European country somewhat shocking. It underscores how important the role of truly good teacher in elementary school can be. Taking into account all that and also the fact that both parents of Erdos were superior math teachers in high school themselves a reader can see the roots of the enormous productivity of Erdos, who published more math papers in multiple branches of it than any other scientist in history. But it also can be a city of Budapest whose streets, as per Mr. Schechter, are very inviting for any kind of scientific reasoning - although not a scientist myself, I did experience the same when I was roaming with friends along Duna shores in Buda one summer.The mathematical content of the book is very engaging for non-mathematicians. It is explained almost with no formulas but Mr. Schechter manages to convey the depth of the mathematical ideas very well without them. It is especially applicable to the chapter about prime

numbers. The primes, although endless in the set of integers, do have very strange properties. Take the theorem proved by Chebychev first and re-proved by Erdos by elementary means - between  $N$  and  $2N$  there is always a prime. At the same time we know that the intervals without primes can be as long as one would wish. At first glance two facts seem to contradict each other but they do not. Facts like that are abundant in the Numbers Theory with most enigmatic one as a problem of primes distribution and Riemann function. Mr. Schechter does a good job providing historical background of the Numbers Theory, its evolution, contributions of Paul Erdos and controversy of Erdos and Selberg. I have to admit the author did a brilliant homework researching all kinds of details pertinent to mathematics and its origins. I did enjoy pages about clay tablet Plimpton 322 with its incredible content of Pythagorean triplets as well as multitude of other stories like most bizarre "application" of Numbers Theory when close collaborator of Erdos avoided deportation to Gulag just because he happened to have his publication on the subject in Russian mathematical magazine with him. In this regard, the book of Mr. Schechter can be considered as not so much as biography of Paul Erdos but as biography of mathematics as a scientific discipline. Humor, albeit sometimes very dark (for example, about math students, who were "studying" Jordan theorem being confined to "inner area", id est being imprisoned) sparking the text regularly and appropriately. Mathematics is somewhat similar to soccer. While everybody can perceive the beauty of ball handling by say Riquelme or Robinho, very few of us can do the same on the soccer field. In math, formulation of the conjecture can be deceptively simple and elegant, and most of us can understand it well. At the same time, it is very different story once you start thinking about trying to prove that conjecture. In many cases it might require years of learning and tons of exercises. But even that no guarantee to success. The inclination to a special way of thinking is required. In this regard, magic of Riquelme on the stadium is direct equivalent of wizardry of Erdos in Numbers Theory. The books similar to Mr. Schechter facilitate our comprehension of the conjecture beyond mere formulation, opening the curtain after which the proof is hidden. On the other note, I can't stop thinking of what kind of future European science might have had if its development was not brutally aborted by sad realities of Second World War. True, many of bright Hungarian (and other) minds escaped from the inferno of warfare and extermination campaigns; true, many of them intensified their research in military related directions and achieved significant results. Still so many perished needlessly making a good number of famous European scientific centers empty and forgotten for a very long time. It seems incredible that one person's paranoia can mercilessly terminate so much in such a short period of time. Let's us hope the future Erdoses will never be forced to travel so intensively against their wills even with their brains open so widely.

This beautiful book is an intellectually rich biography of one of the world's most prolific mathematicians. Amusingly, inoffensively and highly idiosyncratic, Erdos worked on hard problems in apparently simple fields, taking rather easily explained concepts and forging powerful new results and tools with a speed which astounded professional colleagues. Bruce Schechter does a magnificent job of clearly explaining what Erdos did and the many connections between his work and other areas of mathematics and, more generally, science. Through frequent digressions he paints both a humane portrait of a uniquely caring individual and a thumbnail sketch of western political oppression around the world during the first sixty years of this century. This book also will introduce readers, in a gentle and interesting manner, to the world of numbers and mathematics. The nature of prime numbers and how they are distributed, famous conjectures such as Goldbach's, topics in graph theory and combinatorial mathematics, and more are made accessible to the reader. The account of the controversy surrounding the "elementary" proof of the Prime Number Theorem benefits from the author's access to newly available material, and will be of interest to both laypeople and mathematicians. Other topics, introduced through natural association with the subject at hand, include Godel's Theorem, Russell's paradox, the Monty Hall problem (made famous by Marilyn vos Savant), the nature of infinity, proving theorems by contradiction, and the normal distribution. Though Erdos is known to many for his unusual life style and behavior, this book does not dwell on the bizarre but weaves such facets of his life into the more exciting mathematical development of the person. This biography ranks among the very best of the numerous works about mathematicians which I have read over the past 45 years. Arguably, more has been written about Erdos in the past decade or two than about any other mathematician. Despite this, Schechter's new contribution is an outstanding addition to the literature

There is at least one other book about Paul Erdos called *The Man Who Loved Only Numbers* and that one is pretty good, but this is even better. The author does an excellent job of capturing the personality of this brilliant but really very peculiar mathematician. He even makes a believable stab at explaining some of the mathematics to the general reader.

Trying to open my brain in Math classes

Mathematical geniuses are a bizarre lot, to say the least. Erdős certainly is in the forefront of the most eccentric and most colorful. Yet, he is also one of the most humane. Schechter limns his

character and humanity while relating many anecdotes warmly and clearly.

It's a delicate balancing act when writing about genius, either giving way to a gossipy hero-worshiping mysticism or adhering so closely to the technical details that all but the those in that field are lost. This book succeeds in depicting the things that made Paul Erdos a publicly interesting figure, but also shows, rather than tells, how simple and brilliant his theorems and proofs could be. It's a quick read and difficult to resist trying variations on his graph theory problems!

Delivered on time. Book quality as advertised.

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