

BOOK REVIEWS

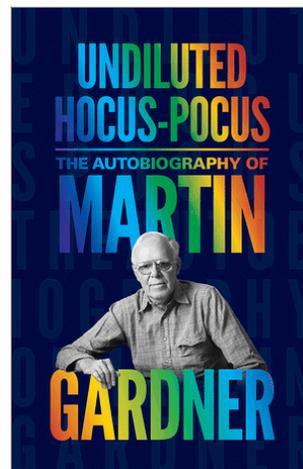
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Undiluted Hocus-Pocus : The Autobiography of Martin Gardner with foreword by Persi Daiconis and an afterword by James Randi
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Mathematicians know about Martin Gardner mainly through his books on games and puzzles – what is called recreational mathematics – and his popular *Mathematical Games* column in *Scientific American*. But this was only one facet of his life and work, for he was passionate about many things besides mathematics : magic, philosophy, literature (fantasy and poetry in particular), religion, and debunking pseudoscience. What is really striking is that, in terms of formal education, he just had an undergraduate degree in philosophy from the University of Chicago, where he didn't take even a single course in mathematics. By his own admission, he didn't know calculus well. How then could he produce such wonderful work and simultaneously earn the respect and friendship of several distinguished mathematicians and computer scientists – John Horton Conway, Donald Knuth, and Roger Penrose, to name a few – and lure youngsters to mathematics and keep them interested? (Along the way, he took under his wing the gifted thirteen-year old Persi Diaconis – he was a magician at the time – and nurtured him to the point of helping him get into graduate school at Harvard.) *How* did he do it? The book under review provides some clues but doesn't completely answer the question. (The book *Magical Mathematics* by Diaconis and Ron Graham does provide some insight.) The title, by the way, refers to his love of magic.

Given his background and his enormous intellectual appetites, the only way Gardner could accomplish what he did was to teach himself what he wanted to write about. Indeed, he was the ultimate autodidact. And, he was indefatigable; he worked full-time for nearly a month on the material for each column, and kept it up for at least 25 years. He says, "I had to struggle to understand what I wrote, and this helped me write in ways that others could understand." It is much like someone learning a topic by teaching a course on it, except that Gardner did it for a long time. Anyway, this explains, to some extent at least, his popularity with young readers. His appeal to professional mathematicians, however, is not so easy to explain. But as noted earlier, his writings did appeal to several of them. Some of them even contributed to his column, and he says that those contributions were far superior to anything



he could write – he may have been modest in saying that – and were a major reason for the growing popularity of the column.

Gardner must have enjoyed the work he put in, given the challenges it posed and the thrills it afforded : he says at the beginning of the chapter on *Scientific American* that his association with it was the second luckiest event in his life, with the first being meeting Charlotte, his future wife. His first contribution to the magazine was an article on a mathematical toy, a large cloth structure called Hexahexaflexagon. The first “hexa” referred to the six inventors, mostly graduate students at Princeton, while the second “hexa” referred to the six faces that could be seen by flexing the structure in specific ways. It was such a hit that the publisher asked him if there was more material like that he could write about. He said yes, and that was how his column was born. As time went on, it became so popular that many of the one million readers of *Scientific American* said in surveys that the column was the main reason they read the magazine.

The article on hexahexaflexagons was followed by ones on Hex and the Soma cube, both games invented by a Danish magician and poet named Piet Hein, except that Hex was independently invented by John Nash also. Gardner talks a little bit about these and some other things he wrote, but refrains from making any boastful claims about his column. However, the entry on him in Wikipedia says that his column provided the first introduction of many subjects to wider audiences, notable among them being Polyominoes, Rep-tiles, the Superellipse, Pentominoes, Fractals, Conway’s Game of Life, Tangrams, Penrose tiles, Public-key cryptography, Hofstadter’s Gödel, Escher, and Bach, and finally the Monster group. Wikipedia also quotes him as saying, “I just play all the time and am fortunate enough to get paid for it.”

Martin Gardner was born in 1914 in Tulsa, Oklahoma, into a well-to-do family. His father was a successful petroleum geologist, and his mother, who had once been a Montessori teacher, loved colors and painted. Gardner shared her love of colors and painting ; he later became a caricaturist, with some of his caricatures appearing in *Phoenix*, the University of Chicago’s humor magazine. His interest in science began with a curious experiment : teaching his neighbor’s dog to overturn a bucket with one of his paws. He loved to read, and grew fond of fantasies – the Oz books by L. Frank Baum, and *Alice in Wonderland* in particular. He loved them so much that he later published annotated versions of them. In fact, he published annotated versions of many books, including *Casey at the Bat*. He didn’t like high school – he felt it was like four years in prison – but that’s where his interest in recreational math through games and puzzles began. He learned some magic tricks from his father and was on his way to creating some tricks of his own. His father let him have a small laboratory at home. Around this time, he fell in love with the writings of G.K. Chesterton, whose story *The Colored Lands* made a deep impression on Gardner because of the role colors play in it. He read quite a bit of poetry and wrote poems himself, some of which were published. His best friend in high school was John Shaw, a Catholic who went to a different school, but who shared Gardner’s love of books, in particular the Sherlock Holmes stories. They

used to play practical jokes on each other. Shaw later became a bookseller.

After graduating from high school, Gardner attended the University of Chicago, where he studied philosophy. The intellectual atmosphere at the university, the personalities involved, and life in Chicago in general affected him profoundly, so much so that he devotes more than four chapters to its description. Two central characters in this narrative are Robert Hutchins, the president of the university, and Mortimer Adler, a friend of Hutchins and professor of philosophy. Among the many anecdotes Gardner tells about them and their activities is an amusing one about the “madman theory,” according to which it is good for a university to have a faculty member who is mad because opposition to his crazy opinions stimulates students into thinking seriously about fundamental questions. Gardner adds that Adler was the University of Chicago’s madman.

Gardner became a co-editor of *Comment*, the campus magazine, and contributed several articles to it. He honed his writing skills there, and that led him eventually to decide to make his living by writing. And he became a prolific writer. Apart from books on math and magic and the annotated editions of fantasies mentioned earlier, he wrote short stories, including children’s stories and science fiction, a novel about religion, books on popular science, books on philosophy, including one co-authored with Rudolf Carnap and variously titled as the *Philosophical Foundations of Physics* and *An Introduction to the Philosophy of Science*, books of essays, and the list goes on. In all, he wrote or edited more than a hundred books including anthologies of poetry and books attacking pseudoscience. And many of them are still in print. He had an impish sense of humor and sometimes wrote under one of three pseudonyms : Armand T. Ringer (an anagram of his name), George Groth, and Uriah Fuller. In addition to all this, Cambridge University Press collected his columns for *Scientific American* and published them in fifteen volumes. In his own estimation, his best books were *The Whys of a Philosophical Scrivener*, and *The Night is Large*, whose title comes from a play by Lord Dunsany, another of his favorite writers.

Gardner was a skeptic through and through, never accepting received wisdom without questioning it. It is this spirit that led him to launch ferocious attacks on pseudoscience. However, being a shy person, he didn’t engage in public debates like William Buckley and Gore Vidal but did it in print instead, where he never pulled a punch. At least one dispute ended up in court, with Gardner winning it. In most cases, the opponents simply slunk away. His targets included, among others, Uri Geller, the Israeli spoon bender, and L. Ron Hubbard, the father of Dianetics and founder of Scientology. He was friends with Carl Sagan, the astrophysicist, whose motto was that extraordinary claims required extraordinary evidence. Together with James Randi, a famous magician and skeptic, and some other friends, Gardner started an organization called the Committee for Scientific Investigation of Claims of the Paranormal or CSICOP. The organization has since shortened its acronym to CSI and publishes a periodical called the *Skeptical Inquirer*. Gardner contributed several articles to it. He held strong opinions in other areas too and never hesitated to express them ; in fact, he could be quite combative. For instance, concerning

Freud, he says that whenever Freud said anything that made sense, it was not original, and when he was original, he spouted baloney. One wonders what present day psychologists and psychiatrists would say about that. Similarly, Gardner says that he would rather read some of the poems he anthologized, which may not be well known, than the “vapid verse” of William Carlos Williams or the poetry of Ezra Pound. He says similar things about modern art.

Despite his avowed skepticism, Gardner believed in God. He says that he and his wife were philosophical theists, meaning that they believed in a personal god, but not of any particular religion, and hoped for an afterlife. He says that it’s a matter of the heart rather than the head and that the belief made him happier. He also believed in something called mysterianism, which holds that just as calculus is beyond the understanding of chimpanzees, whose DNA is very close to ours, there exist truths far beyond our capacity to comprehend. As an example, he mentions consciousness and/or freewill, which have so far defied the attempts at explanation by neuroscientists as well as philosophers. His contention is that a scientific explanation is simply not possible. He says that there are less radical mysterians such as his friend Roger Penrose, who believe that some day scientists will unlock the secrets. Be that as it may, it is remarkable that he felt so confident in expressing his views. Indeed, he remained intellectually alive and alert to the very end of his life, in 2010. After reading this book, one cannot but come away with the impression that his long life was chock-full of ideas and creativity and that he was a popularizer of science and recreational mathematics without parallel.

Wikipedia says that because of his shyness Gardner declined many honors when he found out that a public appearance would be required. However, a puzzle collector named Tom Rodgers persuaded him in 1993 to attend an evening devoted to Gardner’s puzzle-solving efforts, called a *Gathering for Gardner*. Even though Gardner is gone, the gatherings, known as G4Gn, where n stands for the number of the gathering, continue to be held biennially.

