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On the Way to “Mathematical Games”: Part I of an Interview with Martin Gardner

Don Albers

Don Albers is an Associate Executive Director and Director of Publications of the MAA. Many of his interviews with mathematicians have appeared in this *Journal* and *FOCUS*, and two collections have been published, *Mathematical People* with Jerry Alexanderson and *More Mathematical People* with Alexanderson and Constance Reid.

On October 21, 2004, Martin Gardner celebrated his ninetieth birthday. For twenty-five of his ninety years, Gardner wrote the monthly “Mathematical Games” column for *Scientific American*. His columns have inspired thousands of readers to learn more about the mathematics that he loved to explore and explain. Gardner’s columns have earned him a place of honor in the mathematical community, which has given him many awards. But he has always declined invitations to accept awards in person, on the grounds that he is not a mathematician. “I’m strictly a journalist,” he insists. “I just write about what other people are doing in the field.” His modesty is admirable, but we insist that he is far more than a journalist.

In addition to his massive contributions to mathematics, Gardner has written about magic, philosophy, literature, and pseudoscience. Over his first ninety years, he produced more than sixty books, most still in print; many have been bestsellers. The fifteen volumes collecting his “Mathematical Games” columns have gone through several printings and will soon be made available by the MAA on a CD entitled *Martin Gardner’s Mathematical Games*.

In his ninetieth year, he has returned to Oklahoma, where he was born. He is in good health and full of energy. We look forward to more from him as he begins his second 90 years. What follows is part of an interview done at Gardner’s home in Hendersonville, North Carolina, in 2000 and 2001. [Editor’s Note: Portions of the interview appeared in the November 2004 issue of *FOCUS*.]

Magic

DA: You were born in Oklahoma in 1914. What did your father do?

Gardner: My father was a geologist who owned his own oil company. He was what they called a “wildcatter.” It was a very small company consisting of himself, a secretary, and an accountant. He would go out and look for oil domes. This was before the seismograph. If he found a place that had a prospect of oil, he would hire a drilling company. Most of them were dry holes, but every once in a while he would hit oil.

DA: As a high school student, you were already writing articles for *The Sphinx*, a magazine devoted to magic. Does your interest in magic go back to your father?

Gardner: Magic wasn’t a special hobby of his, but he did show me some magic tricks when I was a little boy. I learned my first tricks from him, in particular one with a knife and little pieces of paper on it. I then got acquainted with a few local magicians in Tulsa, including Logan Waite and Wabash Hughes, who worked for the Wabash Railroad.



Figure 1. The Gardner boys: Jim, Dr. Gardner, and Martin

DA: At what age did this occur?

Gardner: I was a high school student at the time. I've never performed magic; it's just been a hobby. The only time I got paid for doing magic was when I was a student at the University of Chicago; I used to work at Marshall Field's department store during the Christmas season demonstrating Gilbert magic sets. I learned a lot from the experience. That was the first time I realized that you're really not doing a magic trick well until you've done it in front of an audience about a hundred times. Then it becomes second nature, and you know what to say.

DA: What are the elements of a successful magic trick?

Gardner: The most important thing is to startle people, and have them wonder how it's done. Close-up magic that you do on a table right in front of people is very different from the stage illusions that David Copperfield does. It's close-up magic that most intrigues me, especially those that have a mathematical flavor. In fact, I'll show you a little trick here. (He then proceeded to demonstrate a neat topological trick that baffled the interviewer.) In recent years magicians have gotten interested in rubber band tricks that are all topologically based, i.e., they're violating topological laws. There are entire books published on rubber band magic. (He then demonstrated another trick, and another.) I did a book for Dover Publications on mathematical tricks that has a chapter on topological tricks. I did two massive books for the magic profession. The *Encyclopedia of Impromptu Magic*, and *Martin Gardner Presents*.

DA: (Looking at the books.) Massive is right.

Gardner: The first book covers tricks that don't require any special equipment. A lot of them are just jokes and gags of the type 'bet you can't do this.'

DA: Your interest in magic is deep.

Gardner: I waste a lot of time on it. Dai Vernon was one of the great inventors of magic. He was a great influence on Persi Diaconis. Persi traveled with Dai for a long time. I knew Vernon very well. I knew Persi when he was a student at NYU. You probably heard the story of how he got into Harvard.

DA: As I recall, he gave you credit for writing a letter of recommendation to Fred Mosteller, the statistician.

Gardner: Mosteller is a magic buff. When Persi said he wanted to get into Harvard, I wrote to Fred and said that Persi can do the best bottom deal and second deal of anybody I know, and that got him into Harvard. I talked to Fred on the phone about it and he said, “Is he willing to major in statistics?” And Persi said sure he’d major in statistics if that would get him into Harvard. So he went up to Harvard, and they had a session together, probably doing card tricks. Mosteller got him into Harvard.

DA: Well, it was a good move on Mosteller’s part. I’m certainly convinced now that your interest in magic is just not a passing fancy.

Gardner: It’s my major hobby. I’ve enjoyed knowing a lot of famous magicians.

DA: You started talking about Dai Vernon.

Gardner: He was one of the greats—“The Professor” as he was known in magic circles. He taught Doug Henning.

DA: You know Ray Smullyan, too.

Gardner: I first met Smullyan in Chicago through magic circles, long before he became famous as a logician.

I had an interesting experience recently with a magic book called *The Expert at the Card Table* by S. W. Erdnase. If you spell that backwards you get E. S. Andrews. The book is a classic and I had a first edition of the book that I bought for about five dollars when I was quite young. A couple months ago, Richard Hatch, who runs a magic rare book store in Texas, came out to see me to see if I had any books that he might want to buy and then resell. I had a copy of this first edition, which I mailed to him before he came out to see me. He got very excited and angry with me because I hadn’t insured it. I didn’t know it had any special value. So he put it up for auction, and the book sold for over \$2,000, to his surprise and mine. I don’t even know who bought it. But the early magic books are now quite rare.

Tulsa roots

DA: What did your mother do?

Gardner: She was a kindergarten teacher before marriage, but then became a housewife, caring for three children. Her hobby was painting, and I have a number of her paintings hanging in the house. Both of my parents lived into their nineties. I had a brother and sister, both younger, who are deceased.

I learned to read before I went to school. My mother read *The Wizard of Oz* to me when I was a little boy, and I looked over her shoulder as she read it. I learned how to read that way. It was very embarrassing when I was in first grade, because the teacher would hold up cards that said ‘cat’ and ‘dog’ and I was always the first to call out the word. She had to tell me to shut up, to give the other children a chance to learn how to read.

DA: But don’t you think your mother was doing something to teach you to read?



Figure 2. Hot rodder brothers, Jim and Martin, in 1920

Gardner: No, she didn't even know I was learning how to read.

DA: As a kid, do you remember other strong interests in addition to magic?

Gardner: I was very good at math in high school. In fact, it and physics were the only subjects in which I got good grades. I was bored to death by the other classes. I flunked a class in Latin and had to take it over. I just don't have a good ear for languages.



Figure 3. Martin, sister Judith, mother, and brother Jim at their Chautauqua cottage in 1925



Figure 4. Wannabee cowboys—Martin and Jim

DA: How about sports?

Gardner: I played a lot of tennis. My father was fairly wealthy, and we had our own tennis court. I also was on the high school tumbling team. I particularly liked the high bar.

DA: Ron Graham is a good tumbler, too.

Gardner: Oh yes! Once I was meeting him for lunch at Bell Labs. A long flight of stairs led to the front door of building. Ron greeted me by walking down the stairs on his hands! He is also an expert juggler and unicycle rider.

DA: You said that you did well in physics, too.

Gardner: Yes. My goal was to go to Cal Tech. A lot of exciting physicists were there—Millikan for one. But Cal Tech at that time required two years of liberal arts at a college before transferring. So I went to The University of Chicago intending to transfer to Cal Tech after two years, but I got hooked on philosophy, mainly to find out what I believed.

DA: Did you encounter the philosopher Rudolph Carnap as an undergraduate?

Gardner: No, he wasn't there then, but he was there when I returned after my four years of service in the Navy during World War II. Using the G.I. Bill, I went back to Chicago and took a course from him in the philosophy of science. I was so impressed by the course that I later persuaded him to do a book on the subject. His wife taped the lectures, and I edited them into a book. Carnap had a big influence on me. He

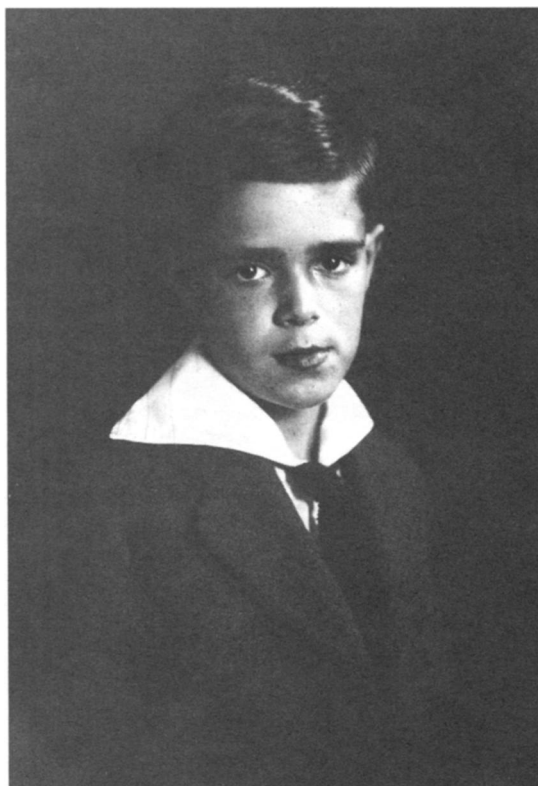


Figure 5. Martin, age 10 $\frac{1}{2}$



Figure 6. Brothers Martin and Jim in rather fancy baseball togs

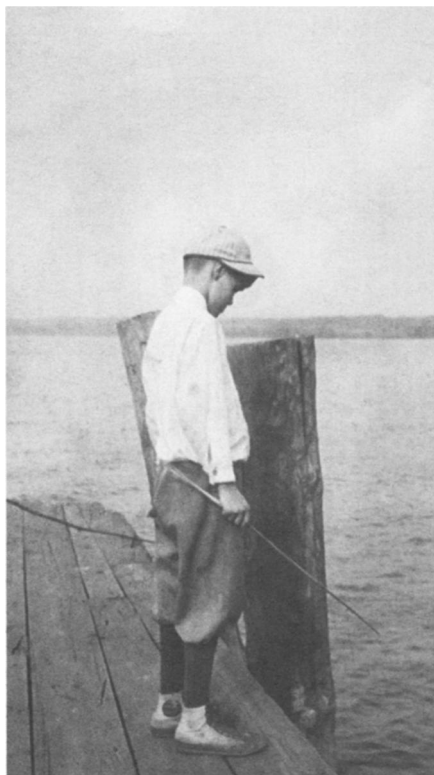


Figure 7. Martin fishing at Chautauqua in 1925

convinced me that questions about metaphysics are meaningless since they cannot be answered empirically or by reason. The essence of Carnap's philosophy is that an assertion has "cognitive content" only if it can be justified by logic or by empirical testing.

DA: You got your B.A. in 1936, then worked briefly for the *Tulsa Tribune* as a reporter, and then came back to The University of Chicago to the PR office writing news releases (primarily science releases), and took a graduate course from Carnap. What else did you do until the outbreak of World War II?

Gardner: I had various jobs. I worked as a caseworker for the Chicago Relief Administration. I had to visit 140 families regularly in what was called the Black Belt. I also had several odd jobs: waiter, soda jerk, etc. Remember, this was at the height of the Great Depression.

Navy service

DA: In December of 1941, the U.S. entered World War II and you enlisted in the Navy.

Gardner: I ended up serving on DE 134, a destroyer escort, in the Atlantic. I was miserably seasick for about three days, and then I was never seasick again. I couldn't wait for the war to end, but later I looked back at it as a rather pleasurable time of my life. You're on a ship, you make friends with your shipmates, you got liberties now and then, and you didn't have to worry about anything.

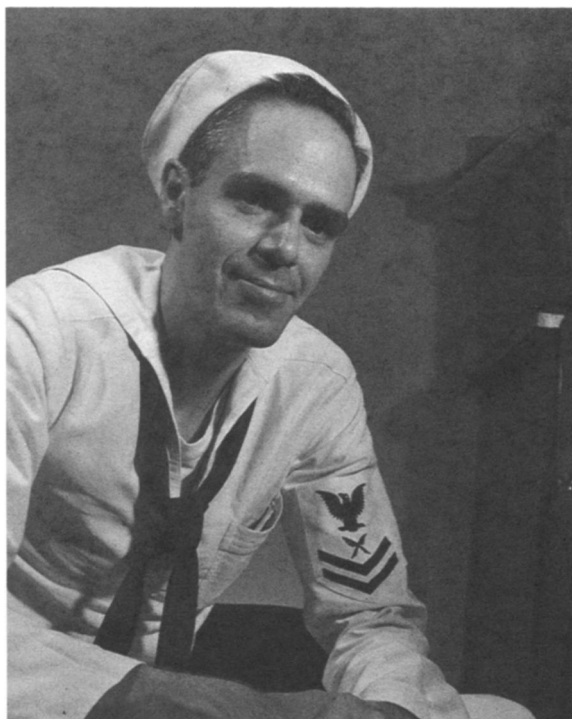


Figure 8. Martin, the sailor, in 1942



Figure 9. Martin (center) at Great Lakes Naval Training Facility

I've had migraine headaches all my life that were fairly severe when I was in high school. When I enlisted in the Navy, I did not list my migraines because I was afraid they wouldn't take me. I feared that I might develop migraine headaches during battle situations. We were part of a so-called "killer group" of six destroyers looking for German submarines. During my four years in the Navy, I never had a migraine. I'm convinced that they're associated with periods of anxiety. When you're in the Navy, you don't worry about what you're going to do tomorrow, what tie to put on, etc. You just follow orders. In a way, you have a big sense of freedom. Otherwise, I have no other explanation.

DA: But when the war ended, you were glad to get out.

Gardner: At the time I was glad to get out. I was the yeoman who decommissioned the ship in Green Cove Springs, Florida. It was what they called a 'Caribou' for six. We worked together, sweeping and looking for German subs. When they were mothballed in Florida there was one missing; it got torpedoed and sunk.

DA: Over what period of time were the six DE's together?

Gardner: The whole time I was on the DE.

DA: Which was how many years?

Gardner: About three years. Before going to sea, I spent about a year at Madison, Wisconsin, which had a radio training school. I handled public relations for the school, and edited a school newspaper.

DA: In 1942, German submarines were devastating allied shipping.

Gardner: Yes, they were. We were very lucky. This happened before I joined the DE, but when I went aboard the sailors were all talking about it. The group actually captured a German submarine early in the war, intact, and towed it back. It was top secret, nobody knew about it. Now that submarine is on exhibit at the Museum of Science and Industry in Chicago. I had the pleasure of walking through it one day when I was in Chicago. But that happened before I was on the ship; I missed that action. But we did take back a German submarine that surrendered to us at the end of the war.

The horse on the escalator

DA: So then you were mustered out, and promptly went back to Chicago.

Gardner: Yes, I went back, and I could have had my old job back in the public relations office at the University of Chicago because there was an understanding that if you enlisted in the service you could get your old job back. But the one reason I didn't go back to the PR office was that I sold a story—my first sale—and it was to *Esquire Magazine*. It was a short story, "The Horse on the Escalator." It was a humorous story, a crazy story. It was about a man who collected shaggy dog jokes about horses, sort of nonsense jokes about horses. The title of the story, "The Horse on the Escalator," came from a joke going around at the time about a man who entered Marshall Field's department store on a horse, and the elevator operator told him he couldn't take the horse on the elevator. And he said, "but lady, he gets sick on the escalator!" That was the shaggy dog joke about a horse. And that was the title of my story. It's a story about a man who collected horse jokes, and his wife didn't think any of them were funny, but she laughed heartily every time he told one to conceal the fact that she didn't think they were funny. So that was my first story, and that was the first time I had gotten paid. I had articles published before in little magazines, but they didn't pay anything.

I decided that maybe I could make a living as a freelance writer, and I very quickly sold *Esquire* a second story, and that was the “No-Sided Professor,” about topology. That’s one I had anthologized a number of times. So all of a sudden I was making pretty good money, and I lived on sales to *Esquire* for a year or two. I sold them about a dozen stories. They’re collected in a book by the way, titled *The No-Sided Professor and Other Stories*. Not all of my *Esquire* stories are in there; a few that I didn’t think were very good were left out. Some of the stories are from other magazines.

DA: Here’s the book, and here’s “The Horse on the Escalator.”

Gardner: That was my first story (laughing). By the way, it includes a long poem in free verse that I wrote about the ship I was on. It’s called, “So Long, Old Girl.” My son Jim called me a few weeks ago to ask if I had ever written a poem about a ship. And I said, “Yes.” He asked, “Did it have something about girls in it?” And I said, “Yes, why do you ask?” He has a son, William, who is interested in dramatics, and who was trying out for a part at some dramatics school. Someone else, who was also trying out for a part, recited that poem. William said, “I think Grandfather wrote a poem about a ship. Somebody recited a poem, something about a ship called girl.” How he ever found that poem I don’t know. He must have picked it up from the book collection.

I’ve written two other books of fiction. You probably know about them.

DA: *The Flight of Peter Fromm* I’ve read.

Gardner: You actually read it? My goodness!

DA: To what extent is it autobiographical?

Gardner: It is partly autobiographical. I don’t resemble Peter, the book’s hero, in personality or looks, but I did put him through changes in my own beliefs because when I was in high school I was converted to a very ugly Protestant fundamentalism, mainly through the influence of a Sunday School teacher who was later a counselor at a summer camp I went to. That didn’t last very long, but it lasted long enough for me to try to figure out some way I could preserve a belief in Christianity. I finally ended up deciding I couldn’t. So I put Peter through changes in my own beliefs, and in that sense it’s autobiographical.

DA: It’s a book you seem especially fond of. What motivated you to write it?

Gardner: I wanted to put into a novel my reasons for abandoning Christianity, but retaining a belief in God. I’m what in academic circles is called a “philosophical theist.”

Learning to read with Oz

The other fiction book I did, you might not know about, is an Oz book that I wrote last year. I grew up on the Oz books, and I was really fond of them. I’ve done introductions to a lot of Dover reprints of books by L. Frank Baum, author of *The Wonderful Wizard of Oz*. My *Visitors from Oz* is an imitation of a Baum Oz book. The Klein Bottle runs all the way through it. In one of Baum’s books, he had Glinda cast a spell over Oz, making it impossible for outsiders to visit again. I argue in my book that the spell that Glinda cast was moving Oz through a higher dimension into a parallel world. I used the science fiction concept of a parallel world, separated though the space of a fourth dimension.

The basic plot of this book is about how Dorothy and the Scarecrow and the Tin Man visit New York City to help publicize a new movie about Oz. In order to get from the parallel world to Central Park, they make use of the Klein Bottle, because it’s open

in the fourth dimension. So they slide through the Klein Bottle, and drop out through the spot where it's going through the fourth dimension. That lands them into an adjacent parallel world, into Central Park. They use that to get to Central Park, then they use it to get back to Oz. The Klein Bottle, by the way, is made by a fellow named Ku-Klip. He's the tinsmith who put the Tin Woodman together after the Woodman chopped his fleshy body to pieces with an enchanted ax. By the way, the book did much better in England than here, which is curious, since Baum is an American author, and the English don't know much about Oz. All they know is the Judy Garland film. This book had very few reviews, and the one review it got in the *Washington Post* wasn't very favorable. The reviewer called it a "poor thing of a novel." On the other hand, the London *Times* gave it a full-page admiring review.

Origin of writing interests

DA: When do you think your writing interests first appeared? Originally you said you were going to do physics, but then you ended up going to Chicago, where you discovered philosophy. Your first job was with the *Tulsa Tribune* as a reporter. When did the writing bug really hit you?

Gardner: Oh, I think not until I got out of the Navy, and that is when I started selling stories to *Esquire*.

DA: But you were writing before then.

Gardner: Yes, news releases and other minor stuff, but nothing of any great importance. I had some fiction published in "little magazines."

DA: This was the Depression, and that had something to do with it. But why would you take a job as a reporter, because that's deadline writing?

Gardner: It just happened to be available at the time; it was an opening. As a low-level job, I think I made \$15 a week.

DA: So you had your own particular passion for writing.

Gardner: No, not especially.

DA: But then you went on to write news releases at the University of Chicago.

Gardner: Yes, the jobs I've had have been more or less accidental. I knew somebody who said there was an opening, and I knew someone in the public relations office who said there was an opening there. I needed a job, so I started work there.

DA: After that first *Esquire* piece, you sold more stories there. That had to give you a lot of confidence, helping to convince you that you could earn a living as a writer.

Humpty Dumpty's

Gardner: That's right, it's not until I started selling stories to *Esquire* that I thought I could make a decent living as a freelance writer, but *Esquire* changed editors after I had sold them many stories. The new editor had a different policy, and he didn't care for the kind of stories I was writing. So I moved to New York City because that's where all the action is for writers. And that's when I got a job at *Humpty Dumpty's Magazine*.

DA: Now that's a curious move.

Gardner: I had a friend who worked for Parents' Institute, and who was in charge of their periodicals for children. They were starting a new magazine called *Humpty*

Dumpty's, and were looking for activity features, where you fold the page or stick something through the page, or cut; where you destroy the page. So he hired me to do the activity features for *Humpty Dumpty's*.

DA: Had you ever done anything like that?

Gardner: No, but I grew up on a magazine called *John Martin's Book*. Everybody's forgotten about it. It flourished in the twenties, and the art editor, George Carlson, did activity features for *John Martin*, where you cut things out of the page and fold them into things, pictures that turned upside down, or you held them up to the light and saw through. I'd always been intrigued by George Carlson's activity features, and so I started out just sort of imitating George Carlson, taking up where he left off, and inventing new ideas of my own. I did that for eight years. I did the activity features, and I did a short story in every issue about the adventures of Humpty Dumpty, Jr. The magazine is supposed to be edited by Humpty Dumpty, who's an egg. The wife of the publisher thought of the idea of having Humpty edit the new magazine. She suggested a series of tales about a little egg, who was Humpty Dumpty's son. I started with the first issue of the magazine, and continued as a "contributing editor" for eight years. The magazine came out ten times a year, so I had eighty short stories about Humpty Dumpty, Jr. that I've never had reprinted. I haven't found a publisher for them yet. Most of the books that come out for children now are done by artists, and they're mainly art books with small amounts of text underneath the pictures. Not being an artist may be one reason I can't sell any of these stories. I worked hard on these stories. I have the rights to the stories but not to their illustrations. I also did a poem in every issue—"Advice from Humpty Sr. to His Son."—Poems of moral advice. They're just jingles, and I did get a book out of them. It was published by Simon and Schuster and titled *Never Make Fun of a Turtle, My Son*. The title refers to a poem about how you shouldn't make fun of people who are different from you.

DA: This must have taken a lot of time to do.

Gardner: Yes, it was my only job. I'd gotten married and we had a son to support, and I couldn't make a living in New York freelancing. I made maybe a sale or two of something trivial, but not enough to live on. So I jumped at the chance to work for Parents. I worked at home. There was a short period where I went to the office and



Figure 10. Martin and Charlotte

edited a magazine for girls called “Polly Pigtales.” I was Polly Pigtales. I wrote a letter for each issue from Polly Pigtales to her readers. It later changed its name to “Calling All Girls.” I think it’s probably still published, but I’m not sure.

DA: So you actually edited a magazine aimed at girls.

Gardner: Yes, I did that, for maybe the first six issues. I also started another magazine, *Piggity*, that lasted only three issues. For that I did a short story in each issue about a little pig. I also had some good ideas on activity features. Are you familiar with the “Klutz” books?

DA: Yes.

Gardner: Well the fellow who puts those out, John Cassidy, is a friend. He’s been out to see me a few times, and I’ve given him material for several of his books. He was out to see me just last month, looking for activity features for a book he is going to bring out. So I photocopied about 50 activities features for Cassidy. And he bought them all. I don’t know how he’s going to use them. I don’t know how he’s going to redo the art. So I did get some extra mileage out of those issues. I had some novel ideas. For example, one feature was called “See Tony Eat Spaghetti.” You’d punch a hole in Tony’s mouth, and there was a plate there. You take a white piece of string, and push it from the back of the page through his mouth, and then you pull the string out of the mouth and you go “ssslurp.” You pull it from the back, so you see Tony slurp up spaghetti. Shari Lewis’s father was a magician. I knew him, and I knew Shari slightly when she lived in New York. She copied Tony’s picture on a big piece of cardboard and demonstrated it on her television show. She was a fine ventriloquist, one of the best, using a hand puppet called Lamb Chops.

DA: She was very popular for a long time.

Gardner: She was a wonderful ventriloquist. Her father performed magic, under the name of Peter Pan. Occasionally Shari would do a little magic trick on her show. She was quite young when she died.

DA: Your work with children’s magazines continued to the mid-fifties. By 1957 you were at *Scientific American*. So there was not much of a hiatus between *Humpty Dumpty’s* and *Scientific American*.

Gardner: No, I stopped working for *Humpty Dumpty’s* to start “Mathematical Games” at *Scientific American*.

The interview will continue in the September issue with Gardner telling more about “Mathematical Games,” some of his other writings, and his views on education and religion.