I worked with Martin Gardner from 1974 onward. I saw some of what went on behind the scenes. How was he seen by those who worked with him? What resources did he use? How did he do what he did? Here are partial answers to some of these questions.

In 1974. When I went to work for W. H. Freeman and Company, *Scientific American*’s book publisher, Dennis Flanagan sent me to Hastings-on-Hudson to meet Martin. Flanagan was the editor of the magazine. He said columnists freed him to do the trickier parts of his job. Reviewing Martin’s *Colossal Book of Mathematics* in *American Scientist* in 2002, Dennis wrote that Martin’s column “was a big hit with the readers and contributed substantially to the magazine’s success.”

Synergy. What brought Martin and me together was Gerard Piel’s wish for synergy between *Scientific American* and Freeman. Piel was publisher of the magazine and chairman of its board. He hoped Martin and I would work together, and we did — working on books at Freeman and the MAA and on other matters.

An instance of the synergy Gerry had hoped for was Morris Kline’s use of Martin’s columns in his 1977 reader *Mathematics: An Introduction to Its Spirit and Use* — a short, broad, gentle version of his 1968 *Mathematics in the Modern World*. Morris wanted to use Martin’s columns in his 1968 reader but Gerry Piel said that the rights were Martin’s; they were off the table.

In 1977 Freeman was publishing *Scientific American* readers and reprints and handling permissions for the magazine. I was to vet requests for Martin’s material and make sure none were granted without his approval. In 1968 Morris’s request had been a problem for Gerry; in 1977 it was an opportunity for me. I asked Martin, he approved, we agreed on terms, and 14 of the 40 articles in Morris’s 1968 reader but Gerry Piel said that the rights were Martin’s; they were off the table.

In 1977 Freeman was publishing *Scientific American* readers and reprints and handling permissions for the magazine. I was to vet requests for Martin’s material and make sure none were granted without his approval. In 1968 Morris’s request had been a problem for Gerry; in 1977 it was an opportunity for me. I asked Martin, he approved, we agreed on terms, and 14 of the 40 articles in Morris’s 1968 reader were Martin’s. Dennis and Gerry were protective of Martin and his material, but Martin was generous. The words were his, but he counted the puzzles and ideas as part of a common heritage.

*Scientific American* people led me to many books, among them Benoît Mandelbrot’s books on fractals. Philip Morrison, the book review editor, drew my attention to Mandelbrot’s 1975 *Les objets fractal*. I introduced Martin and Mandelbrot. They lived near each other and got together at Martin’s house. A call to Martin when Mandelbrot chanced to be there helped me bring Benoît back to Freeman after Freeman’s president had nixed the book over contract negotiations. I got a book out of this and Martin got two columns (December 1976 and April 1978).

I enjoyed life-long synergy with Martin Gardner, Philip Morrison, Dennis Flanagan, and others. Gerry’s vision succeeded better than he might have imagined possible.

A Bump in the Road. In 2008 Martin asked me to help to sort out questions about *Scientific American*’s licensing of his material without his knowledge or consent. Such use was against the arrangements Gerry Piel and Dennis Flanagan had described to Martin and to me.

I looked into the arrangements with columnists, getting in touch with: Kee Dewdney, Brian Hayes, Doug Hofstadter, Jonathan Piel, Dennis Shasha, Ian Stewart, and Jearl Walker. Their responses were that columnists had unrestricted rights for reuse of material and assurances that republication would require their permission and a share of the royalties. The following from the letter Gerry Piel wrote to Doug Hofstadter in February, 1983, is typical:

> While, technically speaking, we hold the copyright on your columns, our unequivocal understanding with you (and all of our authors) is that we do so as your “trustee,” to police observance of copyright in protection of your interests. Any republication outside the pages of the magazine requires your permission and negotiation of royalties with you.

When Knopf asked for documentation of Martin’s right to reuse his columns in its books, *Mathematical Carnival*, *Mathematical Magic Show*, and *Mathematical Circus*, *Scientific American*’s lawyers created three letters as if they were written by Martin to Gerry, in which Martin grants unlimited rights to exploit his columns to the magazine in return for Gerry having the copyrights to the articles used in these three books transferred to Martin.

The letter below shows the gap between promises made to authors and what the magazine would settle for. It is addressed to Scientific American, Inc. and concerns the columns used in *Mathematical Carnival*. I omit the list of columns.
Dear Sirs:

In order to induce you to assign to me your copyright in the “Mathematical Games” articles which appeared in the [list omitted] issues of SCIENTIFIC AMERICAN magazine (hereafter the "articles"), I hereby agree as follows:

1. Scientific American, Inc. shall have a nonexclusive, royalty-free, irrevocable and perpetual license to print, publish, vend, reprint, copy, and otherwise use the Articles in (a) reprints and Offprints of such articles, (b) compilations of articles and other materials in whole or in part from or based on SCIENTIFIC AMERICAN magazine published with the consent of, or under the license from, Scientific American, Inc., (c) foreign editions or versions of SCIENTIFIC AMERICAN magazine published by, with the consent of, or under license from Scientific American, Inc., (d) reprints, Offprints and compilations, in whole or in part, from or based on such foreign editions or variations, and (e) otherwise.

2. Scientific American, Inc. shall have the right to assign, license or sublicense any or all of the rights granted in this agreement.

I agree to assign to me your copyright in the Articles as listed.

Dated and signed by Martin Gardner, 25 April, 1975.

Accepted and agreed to by Gerard Piel for SCIENTIFIC AMERICAN, 28 April, 1975.

This differs from Gerry’s arrangements as given in his letters to Doug Hofstadter and others. Here, Scientific American agrees to transfer copyright to Martin on the material in specified columns in return for Martin’s allowing the magazine nonexclusive rights to profit from that material without notifying Martin or sharing the proceeds with him.

The agreements with the columnists listed were as described in Gerry Piel’s letter to Doug Hofstadter. The exception is Dennis Shasha’s agreement which mentions electronic rights. The wording is:

You assign exclusively to Scientific American all the rights for electronic publication to each Column (including all photographs and artwork you submit to accompany each Column), in all present and future media and languages, worldwide. The copyrights for books and print anthologies are particularly exempted from this Agreement, and those rights shall remain with you, the author.

There are legal questions here so Martin and I turned to William S. Strong of Kotin, Crabtree, and Strong. Strong was recommended by John Ewing for his handling of IP matters for the AMS. Here is his letter to Bill Strong written August 29, 2008, from Windsor Gardens, Norman, Oklahoma — typeset with minor corrections. I append a PDF of the original because of its directness and charm.

Peter Renz asked me to send you the enclosed documents. They are the only documents related to my Scientific American column that I ever signed.

My understanding with Gerard Piel, owner of SA, was the same as my understanding with many periodicals to which I contributed over the decades. The understanding was that SA was buying only first serial rights, all other rights going to me. Indeed SA had no objection to my reprinting all my columns in fifteen books.

You can imagine my amazement when I learned that SA had recently sold rights to a firm called Pomegranate to produce two boxes of 52 cards each, each card containing a word-for-word copy of a puzzle from my column along with illustrations from the column. I was never sent copies of either box or informed of the sale. Pomegranate produced a third box of puzzles taken from my Dover book Moscow Puzzles. Dover promptly paid me half of the $3,000 they received from Pomegranate.

SA claims that because I was on the staff of SA they own all rights to my columns. I was made an employee only to receive medical benefits. I never worked at the SA office, or appeared on the magazines mast head. Moreover, I was made an employee late in the game. My earlier columns were sold individually to SA.

The puzzles in the two boxes were all reprinted from my Norton book, The Colossal Book of Short Puzzles and Problems, a book consisting of reprints from my column. I am listed on this book’s copyright page as the owner of the book’s copyright.

My contention is that SA owes me at least half of whatever payments they received or will receive from Pomegranate. Although most periodicals do not ask authors to sign contracts, a few do, and the practice is to split subsidiary rights, such as use in games and toys, on a fifty-fifty basis. — Sincerely yours, Martin Gardner

The documents referred to are those related to the transfer of copyright to Martin on the articles included in the three Knopf books. The one for Mathematical Circus was given above.

Gerry Piel was not the owner of Scientific American; he was its publisher and chairman of its board. Martin erred. But Gerry spoke and signed for the company.
Dana Richards looked at the Pomegranate boxes and concluded that the figures had been redrawn, though he was unsure where the text came from, so Martin got this wrong.

The usual split for subsidiary rights is Dover's 50-50. Whatever Gerry promised Martin and others, the Knopf column agreements show that Gerry wanted the right to exploit the material without sharing the profits, and Martin went along with that. These agreements allow both Martin and Scientific American free reuse of the columns. This was not the understanding Martin had, nor that of the other columnists cited, but it is a standoff that allows Scientific American to profit from subsidiary rights sales and allows Martin's successors and the community to go forward with revisions and other uses. In his memory, we should not settle for less.

Your Choice: Skim or Peruse. Morris Kline called me about an error he spotted in a thought experiment Martin described in his April 1975 column, "Six Sensational Discoveries that Somehow or Another Have Escaped Public Attention." The experiment revealed an inconsistency in special relativity. Morris specialized in electricity and magnetism, so this got his attention. I suggested Morris look at the sixth discovery in the column, Dr. Robert Ripoff's psychic motor, popularized by Henrietta Birdbrain. We decided that Martin would handle all questions in the following month's column. (See Chapter 10 of Martin's Time Travel and Other Mathematical Bewilderments for the story.)

Martin's columns rewarded careful readers and skimmers. Morris looked carefully at what was down his alley. He skimmed the rest, and it looked fine to him. Thousands of readers did the same. One "discovery" was that \( e^{\sqrt{163}} \) exactly equals 262,537,412,640,768,744. The numbers match to one part in \( 10^{30} \). Finding the discrepancy by calculation would have been difficult in 1975.

In 2007 I looked through all of Martin's columns finding the illustrators so they could be credited in new editions. This gave me a feeling for the columns: their variety and their ideal length and accessibility. I was reminded of how Martin's problems permeated the atmosphere in the column's heyday.

Editor, Artists, Management. Armand Schwab was Martin's editor at the magazine. The column titles were his. Schwab and the art director lined up the artists, more than thirty over time. They are interesting. Bunji Tagawa, who illustrated the first column, was a Sage fellow at Cornell in philosophy before turning to art. James D. Egleson was an early and frequent illustrator of Martin's columns and was famed for the Hicks Mural Room at Swarthmore as well. Ed Bell worked at Scientific American over 35 years and was its art director in 2010 when I was last in touch with him. He had fond memories of Martin's columns, as did Ilil Arbel, now a successful author, who illustrated many of the later columns.

I have notes on all of the artists and will put these onto spreadsheets and make them available. I encourage you to look at the illustrations in the books and consider how we would approach them now. I give examples below of ones that would be better replaced by photographs or by computer graphics. As work goes ahead on new editions the figures should be reexamined, rethought, and redone. The text as well as the figures will change and digital versions of the books will allow incorporation of such changes.

Scientific American was owned by technological optimists who were committed to reason and progress. Among them were the trio who engineered the rebirth of the magazine in 1947: Gerard Piel, publisher; Donald H. Miller, Jr., general manager; and Dennis Flanagan, editor. Backing them were Bayard Ewing, Leo Gotlieb, Nathan Levin, Frazer McCann, Julius and Lessing Rosenwald, and John Hay Whitney.

In the 1970s the magazine held its summer board meetings in San Francisco, and Freeman editors met with the directors. The directors were as keen about science and technology as they were about profits. They were tech-savvy and essential to the success of the enterprise.

How Martin Did It. Keys to Success. A restless and powerful mind, a superb memory (even into old age), skill as a writer, and wit, and great energy. Scientific American's audience devoured his columns and showered him with material. Many of you read, enjoyed, thought about, and responded to his columns.

How did Martin work? Partly as a reporter, getting his stories from the sources; some examples are John Conway's Game of Life, Mandelbrot's fractals, and public-key cryptography. Sometimes he drew a column from a book, for example, his April 1961 column on H. S. M. Coxeter's Invitation to Geometry. Some columns he drew from many sources; for example, his February 1963 column, "Curves of Constant Width," cites the

This “curves” column ends with the Kakeya problem: What is the least area in which a needle of unit length can be rotated through $360^\circ$? Sōichi Kakeya conjectured that it was a hypocycloid of three cusps, as shown on the left below with the unit needle inside it.

On the right above is A. S. Besicovitch, who showed that a needle of unit length could be turned through $360^\circ$ in as small an area as you wish. This column is Chapter 18 in *The Unexpected Hanging* and in its new edition, *Knots and Borromean Rings, Rep-Tiles, and Eight Queens* (2014).

I was interested in developments in this area because Besicovitch was a teacher of mine and he covered Hausdorff Besicovitch (fractal) measure and the Kakeya problem in class. I wrote up a construction that solves the Kakeya problem for the new edition and added surprising results connected with it. The following quote gives the sense of the story. Progress has been made since, but the problem remains open in 2023.

*Despite its recreational flavor, the Euclidean Kakeya problem is a central open problem in geometric measure theory with deep connections to harmonic analysis (e.g., Fefferman’s result on the convergence of Fourier series in higher dimensions) and other important problems in analysis. Proving the Euclidean Kakeya conjecture (which is widely believed) seems notoriously difficult, and most progress on it is via combinatorial “approximations.”* — from “Kakeya Sets: New Mergers and Old Extractions,” by Zeev Dvir and Avi Wigderson in *The 49th IEEE Symposium on the Foundations of Computer Science* (2008).

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**Lasting Impact, Long Tail.** Recreational problems often tie into deeper mathematics, as the Kakeya example shows. Looking at Martin’s columns, I am struck by their lasting interest. Flexagons, the Game of Googol or Secretary Problem, and the Unexpected Hanging launched small industries after they appeared in the column. We will be chewing on new forms of puzzles Martin popularized for decades. Martin’s trapdoor cipher column altered the cryptographic landscape. His columns on Conway’s Game of Life fired interest in cellular automata. His columns on *Godel, Escher, Bach* and *The Planiverse* helped popularize the work of Douglas Hofstadter and A. K. Dewdney, who went on to become *Scientific American* columnists.

**Sources, People.** Martin mined gold from the New York Public Library and gleaned treasure from visitors and correspondents. Material from more than 1,500 correspondents are in Martin Gardner Papers SCO0647 at Stanford’s library. Stan Isaacs went through the archive and identified each item for the “Guide to the Martin Gardner Papers,” which is now available online. The Papers take up 68 feet of shelves. Look at the PDF to get a sense of who contributed to the column and how Martin organized the material.

There is no log of visitors, but they included Persi Diaconis, John Conway, Benoït Mandelbrot, and Don Knuth. Many of these visits led to columns or items in columns. Don Knuth spent two weeks combing Martin’s files in Hendersonville, North Carolina, and later arranged for them to come to Stanford. There is treasure in the collection.

The Stanford archive has the files Martin kept relating to his column. He discarded more than he kept and his column was just part of his life work. (See Dana Richards’s *The Martin Gardner Bibliography* for his opera.) In 1979 he wrote Don Knuth outlining a typical month when he was doing his column. He allotted two weeks to write his column and reserved two weeks for other projects — ones such as *The Annotated Alice*.

I looked through Stan Isaac’s Guide to get a feel for the material. John Conway, H. S. M. Coxeter, and Solomon Golomb have the most citations. Other groups sprang to my eye. Artists and writers, among whom there were: Isaac Asimov, L. Sprague de Camp, M. C. Escher, Piet Hein, Scott Kim, Gershon Legman, Frederick Pohl, Constance Reid, and Carl Sagan. Other *Scientific American* columnists included were: A. K. Dewdney, Douglas Hofstadter, James R. Newman, Ian Stewart, and Jearl Walker. Some giants I noticed were: P. A. M. Dirac, Oskar Morgenstern, John Nash, Linus Pauling, Roger Penrose, Claude Shannon, John Tukey, Stanislaw Ulam, Marilyn vos Savant, Scott Morris, Will Shortz, and Mel Stover. These are some names that jumped out at me; if you look, you will see others, some expected and some surprising.
Legacy: Continuing Contributions. Thinking and writing were Martin’s joys. He could not rest from them. After his wife died in 2000 he was depressed and told me he probably wouldn’t write any more books. What does the record show? From 2001 on I counted 22 books and 78 articles, reviews, or magic tricks. Dana Richards compiled the complete record.

Martin gathered his Mathematical Games columns into 15 books. These are collected on the MAA CD, Martin Gardner's Mathematical Games. In 2006 he made arrangements for second editions. This is a joint project of the Mathematical Association of America and Cambridge University Press. After Martin's death in 2010, his son James made arrangements with Scientific American assigning the project to be completed by using Martin’s files and contributions from others. David Tranah, editorial director of Cambridge University Press, is spearheading this effort in 2023.

The Gatherings 4 Gardner and Celebration of Mind carry on in Martin’s tradition. Martin’s support of other authors shows in his blurbs and reviews. He defended reason and rooted out folly of every sort. He was my first source for news of political folly and hypocrisy. He crusaded against injustice based on intellectual fraud. See, for example, “False Memory Wars” in The Skeptical Inquirer, reprinted in The Jinn from Hyperspace.

Martin was a Platonist, and he critiqued humanist or relativist views of mathematics. See his review of Philip Davis and Ruben Hersh’s The Mathematical Experience in The New York Review of Books. He also critiqued reform mathematics textbooks in the same publication. Search under “The New New Math.” We disagreed about Platonism, and other things, but his barbs were aimed at my ideas, not my person. Martin harbored no animus against those whose ideas he attacked.

Uri Geller’s October 14, 2019, letter to The New York Review of Books shows how Martin’s targets took his attacks as fair play. Here is the passage:

For many years Martin Gardner published articles and books that were critical of me and of what I do. To the best of my recollection although I may on occasion have picked up the phone to my lawyers, I never responded to his attacks, having always believed in free speech and that a good debate is better than no debate and it is not with the intention of criticizing Mr. Gardner that I am making this communication.

Geller then goes on to complain about Stephen Jay Gould dissing him when he reviewed Martin’s Science: Good, Bad, and Bogus in the same magazine in 1982.

The delight Martin took in intellectual play, his regard for reason, his interest in and sympathy with human foibles, and his skill and productivity as a writer enriched us all these sixty years, and they will continue to do so for decades to come. It was a pleasure to have known him.

The Books. Martin Gardner collected his Mathematical Games columns into fifteen books. The brief titles of these are listed below in the order of the Mathematical Association of America’s CD, Martin Gardner’s Mathematical Games. Brief titles are used and 1/e indicates the first edition title and 2/e the second.


3. 1/e New Mathematical Diversions from Scientific American, etc. (1966); 2/e Sphere Packing, Lewis Carroll, and Reversi . . . (2009).

4. 1/e The Unexpected Hanging and Other Mathematical Diversions (1969); 2/e Knots, Borromean Rings, and Eight Queens (2014).

Suggestions for the books from this point forward are in order as of October 2023. These should be sent to David Tranah at Cambridge University Press.

5. 1/e Martin Gardner’s Sixth Book of Mathematical Games . . . (1971); 2/e Klein Bottles, Op-Art, and Sliding-Block Puzzles . . . Note. There was a short collection of Dr. Matrix columns, The Numerology of Dr. Matrix, before the Sixth Book, but these columns were combined with others in The Incredible Dr. Matrix, which is Book 9 listed below.

6. 1/e Mathematical Carnival (1975); 2/e Sprouts, Hypercubes, and Super Ellipses . . .

7. 1/e Mathematical Magic Show (1977); 2/e Nothing and Everything, Polyominoes, and Game Theory . . .

8. 1/e Mathematical Circus (1979); 2/e Random Walks, Hyperspheres, and Palindromes . . .

9. 1/e The Incredible Dr. Matrix (1978); 2/e Words, Numbers, and Combinatorics: Martin Gardner on the Trail of Dr. Matrix.

10. 1/e Wheels, Life and Other Mathematical Amusements, (1983); 2/e Wheels, Life, and Knotted Molecules . . .

11. 1/e Knotted Doughnuts and Other Mathematical Entertainments (1986); 2/e Knotted Doughnuts, Napier’s Bones, and Gray Codes . . .

12. 1/e Time Travel and Other Mathematical Bewilderments (1988); 2/e Tangrams, Tilings, and Time Travel . . .

13. 1/e Penrose Tiles to Trapdoor Ciphers (1989); 2/e Penrose Tiles, Trapdoor Ciphers, and the Oulipo . . .

15. 1/e The Last Recreations, Hydras, Eggs, and Other Mathematical Mystifications (1997); 2/e Hydras, Eggs, and Other Mathematical Mystifications . . .

What the New Editions Showed Us. Martin Gardner kept files on his columns noting new results. When the columns were collected into books he regrouped his files by book. Not all of these new developments can be handled at the level of Martin’s books, but much can be illustrated or pointed to. The treatment of the Kakeya problem in Book 4 is an example of this. While working on these new editions Martin and I were helped by the Editorial Board listed in the new editions, especially by John Conway, Richard Guy, and Don Knuth.

Computers and the Web changed everything. Curves that artists drew can be explored on screen. Variants of the Soma cube can be 3D printed. Here is an example of computing related to Chapter 16 of Book 3. MacMahon's squares are quartered along their diagonals, and the quarters are colored green, yellow, or blue so that every possible distinct coloring appears once. There are 24 of them. The puzzle is to make a 4 x 6 rectangle so that edges that meet are the same color and the outside of the rectangle is of one color. Here is one solution:

The question is “How many solutions are there?” In Martin’s column he said there was just one, mistaking what MacMahon had said. Readers found other solutions and sent them in. Federico Fink, working by hand in Buenos Aires, estimated that there were 12,224 solutions. This was in 1963. In 1964 Fink got Gary Feldman at Stanford to count the solutions using a mainframe. Feldman found 12,261. This is not the end. In 1977 Hilario Fernandez Long, in Buenos Aires, did a computer count giving 13,328 patterns. This number was later confirmed by John Harris in Santa Barbara. Wade Philipot got the same count in the 1970s using a TRS-80 computer. The Russian proverb quoted by Ronald Reagan applies, “Trust, but verify.”

The Cork Plug, Book 5, Chapter 5, shows what computer graphics can tell us. This plug has a horizontal circular base. Above a diameter of the base there is a vertical square. The figure is filled out by taking the cross sections perpendicular to both the circular base and the vertical square to be isosceles triangles whose bases are chords of the circular base and whose apexes lie on the top edge of the square. The Mathematica™ image below, left, is the Cork Plug. The image at the right is its convex hull, slightly rotated.

Martin asked for the volume of the Cork Plug. There is an Aha! answer. He wrote that this plug is the least convex volume having three orthogonal projections that are respectively a circle, a square, and an isosceles triangle. Using Mathematica™ to check the illustrations, I noticed that Martin’s plug was not convex. Indeed, Irving Geis’s illustration in the column showed that. So what is the least volume of a convex body that has these three orthogonal projections? This question also has an easy answer. Returning to the illustration in the old edition, the figure suggests that the triangular projection is equilateral, but Mathematica™ or thought will show this cannot be. Geis drew the plug correctly, but got the triangular hole wrong.

The artists were not credited on the pages of the columns nor on those of the earlier editions of the books. Martin and I set out to identify them, credit them, and secure permission for reuse. This is a difficult task. For some images replacement was the best option. In the case of the Cork Plug, computer graphics gave a more accurate image, and the software allows readers to explore related shapes. These new editions give us a better appreciation for how good the old illustrations were and how some can be improved.

Another example is the Twiddled Bolts, Book 2, Chapter 5. The photograph following shows the arrangement. The left and right bolts are interchangeable and they can be twiddled in either direction. The question is: When twiddled in the direction indicated will the bolts move together, apart, or keep the same distance? Note that the top bolt is moving toward you while the bottom bolt is moving away. Experiment will answer the question. An Aha! that proves what must be true is given later in this article.
Using photographs or computer graphics invites the reader to engage with the material. As these new editions come along we should expect more readers to suggest such additions. There is room for all sorts of related material on the Web. The Gatherings for Gardner and the Celebrations of Mind are the perfect places to begin the search for such contributions.

In *Origami, Eleusis, and the Soma Cube*, in the second edition of *Martin Gardner's Mathematical Diversions*, Martin included Anneke Treep's version of a polycube puzzle that had a unique solution. Don Knuth checked the uniqueness Anneke's solution. To include her result I built Treep's cube and photographed it. I used wood, you might use computer graphics or 3D-print the pieces.

Anneke Treep's pieces, left: her cube, right.

Chapter 2, “Left or Right” of Book 2, opens showing reflections of a hand in a flat mirror, two mirrors at right angles forming a corner, and in a cylindrical mirror. These are by Irving Geis. Geis was a genius at 3-D drawings, especially of complicated biomolecules. (See the Geis Archives at Howard Hughes Medical Institute.)

Replacements by computer graphics makes sense because that is how such things are done now, and also because the rights to these figures lie with Irving Geis and his heirs. These were licensed through Sandy Geis and are valid for a limited number of copies.

These limitations hold for *Scientific American* illustrations by freelancers. In places this was a factor in deciding to replace illustrations. John Johnson, who illustrated several of Martin Gardner’s MAA books and did covers for others, gave us new illustrations for Chapter 20 of Book 4, “Thirty-Six Catch Questions.” The original John Alcorn illustrations were too pricey and too spicy.

Looking at the original magazine articles you will see that tables are often treated as art. The column was spread over several pages in narrow columns. Tables would be done at one, two, or three columns widths and stripped in as the pages were made up. Tables and layout are done with software today.

The first four second editions were keyboarded by Harold Jacobs — with a grant from Elwyn Berlekamp. Harold did many figures for the existing second editions. Some of the illustrations were routine, others require great skill and flair. Graphic excellence was a key to *Scientific American*’s success. Martin reused the original art where possible and acknowledged the artists.

The list of books is found above. They are all available on the CD, *Martin Gardner’s Mathematical Games*. As of 2023 Cambridge University Press and the Martin Gardner Literary Trust are moving ahead with second editions of the series. They look forward to your contributions and suggestions.

► As for the Bolts. Turn the page upside down. This interchanges the left and right bolt (which are identical), and it leaves the direction of movement of the bolts (together or apart) unchanged. *Aha!* How must the bolts move?

**Wins and Losses.** I sent Doug Hofstadter’s *Gödel, Escher, Bach* to Martin for review. He panned it. Analysis in the 1970s suggested a book price $40. Too expensive for a casual buyer. I should have figured out how to publish it; Basic Books used camera copy from SLAC and priced it at $18.50, achieving wide sales and acclaim. Martin loved the book. Doug became his successor.

In 1994 I sent copies of Jan Gullberg’s *Mathematics: From the Birth of Numbers* to Martin Gardner, Phil Morrison, Harold Jacobs, and Andy Gleason. They liked the book, and its jacket has blurbs from Martin, Phil, and Harold. I was at Academic Press which turned the book down because of doubts about reaching a tradebook market. Joe Wisnovsky at Norton saw the potential. By 2023 sales were near 150,000 copies.

Appended are copies of Martin’s letter to Bill Strong mentioned earlier in *A Bump on the Road* and his letter of Thursday, May 20, 2010, to Lynn Gamwell about her request that he help her polish up her book *Mathematics and Art* for Princeton University Press. Martin suggests that she get in touch with me, which she did. That worked out well.

Unfortunately we were unable to do the second editions of his books at the rate of two a year as he described in this letter. Those challenges and rewards remain for a future generation.
Dear William Strong:

Peter Renz asked me to send you the enclosed documents. They are the only documents related to my Scientific American column that I ever signed.

My understanding with Gerard Piel, owner of SA, was the same as my understanding with many periodicals to which I contributed over the decades. The understanding was that SA was buying only first serial rights, all other rights going to me. Indeed SA had no objection to my reprinting my columns in fifteen books.

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The puzzles in the two boxes were all reprinted from my Norton

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Sincerely yours,

Martin Gardner
Dear Lynn Gamwell:

Thanks for the beautiful book. I am honored by your suggestion I serve as advisor on your math volume.

Let me explain why I am not the right person for this. You need a real mathematician, not a journalist. Because I do my homework, and write glibly, I give the impression I know far more than I do. The awful truth is that I understand math only up to calculus. I took not a single math course at college. My major was philosophy of science.

Allow me to recommend my friend Peter Renz. A former Bard professor, he is now affiliated with the MAA as an editor who works at home. He is, for example, editing all 15 of my book collections of Scientific American columns for a uniform edition. Two books a year by Cambridge. He checks the art, corrects mistakes, and adds fresh material. He has edited many classics, such as Mandelbrot's first book on fractals. His general knowledge of math is far superior to mine.

You can reach him at 101 Colchester St. Brookline, MA 02146. Phone: 617-739-5509. Fax: 617-739-7254.

I enclose a review scheduled for the next issue of a liberal arts journal to which I occasionally contribute. You may find my ending amusing.

All best,

[Martin]