

THE FIBONACCI ASSOCIATION: HISTORICAL SNAPSHOTS

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ABSTRACT. The *Fibonacci Quarterly* is now in its 52nd year of publication. V. E. Hoggatt, Jr., was editor for 18 years; G. E. Bergum, also editor for 18 years; and current editor, Curtis Cooper, 1998 to date. Marjorie Bicknell-Johnson was secretary of the Fibonacci Association from its beginning until 2010.

This article gives a short history of the Fibonacci Association and some vignettes to bring that history to life.

1. HISTORICAL SNAPSHOTS AND RAMBLES

The first *Fibonacci Quarterly*, published in February 1963, had a subscription rate of \$4.00 per year, and its Editor, Verner E. Hoggatt, Jr., held that position for L_7 years. Vern's friends told him the *Quarterly* wouldn't last three years. Undaunted, he kept a mental list of "backsliders" who had not renewed their subscriptions and contacted each one personally. He persuaded, cajoled, and implored them so much that, in the end, it was impossible to say no.

Vern corresponded and made friends with mathematicians from all over the world. He once hosted the world-famous mathematician Paul Erdős for a month. Erdős arrived with one small suitcase, filled with silk underwear (because of allergies he was said to have). I met him, but he much preferred to talk to Vern. I found him strange; he had no home, no family, and all of his possessions were in his suitcase. I think he found me strange as well, visiting a college professor with my two little "epsilons," the Erdős word for children. Erdős and Vern worked on dozens of problems during that time and wrote one paper [6] together, which I typed. As many of you may know, it was considered a great honor to have published a paper with Erdős, so much so that on Google, one can find the Erdős number of those who wrote with Erdős: 1; those who wrote with someone who wrote with Erdős: 2; and so on. So, Vern has Erdős number 1, while Jerry Bergum and I each have Erdős number 2.

The Managing Editor, Brother Alfred Brousseau, who was equally positive and enthusiastic about anything dealing with Fibonacci numbers, typed the first issue of the *Quarterly* and kept track of subscriptions and the bank account. He played the accordion and loved to lead group singing. In tune with his personality, he wrote the ballad, "Do What Comes Fibonaturally," to the melody of "The Blue-Tail Fly." Additionally, he compiled a bibliography of 700 Fibonacci references ranging from recreational to serious research, quite a feat in pre-computer times, and collected cones from every species of pine found in California to illustrate the Fibonacci patterns found in spirals of their scales. He inspired Vern to grow a large sunflower, his so-called Lucas sunflower, which had 76 clockwise spirals and 47 counterclockwise ones.

As one of Professor Hoggatt's students, I came on board in 1962. He was well liked by students at San Jose State College; they nicknamed him "Professor Fibonacci," and I soon found out why: he took any and every opportunity to lecture on the Fibonacci sequence. We all loved it.

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Dr. Hoggatt—I called him that as his student—brought unusual problems to us for homework. A *curiosa* in *Scripta Mathematica* [7] claimed that, if the nine positive digits are arranged in a square array, the non-negative determinant values range from 0 through 512 but with a couple dozen missing values. So we were each assigned to write and evaluate 20 such determinants—find those missing values, or show that they were indeed impossible. One student found a “missing value” and another programmed a computer to do the job, but computers were very new and he couldn’t prove his algorithm. I loved to calculate things—no calculator or computer, thank you—but I wasn’t going to do the 5,040 distinct determinants possible. There are $9!$ ways to arrange the nine digits; removing those equivalent by transpose, row exchange, or column exchange, we have $9!/(2 \cdot 3! \cdot 3!) = 5040$. Instead, I considered all arrangements of the form

$$S = a \cdot b \cdot c + d \cdot e \cdot f + g \cdot h \cdot i$$

for the digits 1 through 9 and made a table of the 280 possible values for S . Of course, subtracting two of these values gives a possible determinant value, provided that the two expressions can co-exist in the same square array. Thus, I had every value that could occur as well as one or more determinants yielding that value. This took me all of spring break but it became the first paper [1] I wrote with the master.

After that, he asked me to call him Vern and began sending mathematical correspondence to me, always signed VEH. He kept me busy with proofreading and rewriting papers from foreign authors who had good ideas but no command of English grammar. I helped to package up and mail reprints to authors, refereed articles submitted to the *Quarterly*, and wrote rejection letters, which always thanked the person for his submission and suggested how to rewrite the paper. Hoping I would follow in his footsteps, Vern named me Co-Editor of the journal for the three years 1973–1975, but as a high school teacher, I had few contacts in Academia. When I married Frank Johnson in 1976, Vern said he felt as though his right hand had been cut off, since I changed direction in my life and spent less time “Fibonaturally.”

Since the years 1963–1980 are described in detail [3, 4, 2, 5], I will give one digression and then skip to events following Vern’s sudden death.

Vern preferred to work at home at the executive desk in his book-lined study. He wrote several letters everyday in his big scrawling hand and without making copies. He kept everything in his head: addresses, telephone numbers, and ongoing correspondence with other mathematicians. At one point, he was working on fifteen research papers at once while supervising several graduate mathematics projects and master theses in progress. He carried on such a prolific correspondence on Fibonacci matters that he often wrote fifty letters in one week and typically slept only four hours a night.

I, often with my two children in tow, went to see Vern once or twice a week for fifteen years. I wrote 47 (or L_8 , as he would have counted them) articles with him as co-author, mostly on properties of Pascal’s triangle, convolution arrays, and representations, all related to Fibonacci numbers in some way. I typed all of Vern’s papers and a book manuscript: he never learned to type. As an aside, for all this work, I used an Olympia standard manual typewriter with π on one key, very cool for the time; does anyone even remember manual typewriters?

While I lived only two miles away, each week I received two or three letters, all eight to ten pages long, all handwritten, all on mathematics and signed VEH, because he wanted to put his thoughts on paper. He would call me for feedback, often before I had received the letters.

One letter began, “Dear Marjorie, Of course you remember Hilbert’s Tenth Problem.” Of course I did not—who the heck was Hilbert? I couldn’t look it up on Google in those days.

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It turned out that the famous German mathematician David Hilbert posed a list of twenty-three unsolved mathematics problems to the Paris Conference of the International Congress of Mathematicians in 1900. In 1970, Yuri Matiyasevich utilized a method involving Fibonacci numbers to show that solutions of Diophantine equations may grow exponentially and used that with earlier work by Julia Robinson, Martin Davis, and Hilary Putnam to prove Hilbert's tenth problem unsolvable. Note the key words: Fibonacci numbers.

In 1978, Frank and I found the statue of Fibonacci in Pisa, Italy, per Vern's request. The statue is larger than life-size; Frank climbed onto a rickety 13-foot scaffolding to get a portrait shot. We had it framed and it hung in Vern's office for many years. In fact, it's still there, as well as his built-in walnut bookcases with his collection of math books, because his widow Herta has left it that way. That same portrait graces the Fibonacci Association's webpage. In July 1980, Frank and I took thirty high school students to Europe for a month. I knew something was amiss when I returned to find only two letters in my mailbox. The next morning, I called Vern and learned that he had died the day before. I was shattered; Vern was my mathematical mentor who liked to reflect his ideas off me. It was the saddest time of my life. I felt as though I had lost my father. For months, I could not utter the word Fibonacci without choking up. I kept dreaming that I received a letter from Vern, with the usual cryptic PS scrawled on the envelope, but the envelope was empty.

When Vern died suddenly in 1980, his files were in disarray, and that created a fragile time for the *Fibonacci Quarterly*. Soon after Vern's death, Gerald E. Bergum, then Co-Editor of the *Quarterly*, came to Santa Clara from South Dakota and stayed with my husband and me long enough to bond with my family.

Jerry and I made several visits to Vern's home and cleaned out his desk and his four-drawer filing cabinet. Jerry shipped several cartons of manuscripts home to South Dakota. He wrote to each author because there was no way to tell if the paper submitted was accepted for publication, returned for revision, rejected, or merely ignored. Had Jerry not stepped in and reorganized everything with a strong hand, the *Quarterly* would not be publishing today. Thus it was that, in the fall of 1980, the *Fibonacci Quarterly* moved to South Dakota State University with Editor Gerald E. Bergum for a term of 18 years. His daughters Jennifer and Patty served as secretaries and typists for the *Quarterly*, and his wife Shirley helped with registration at conferences.

2. JUST THE FACTS, MA'AM: A BRIEF HISTORY OF THE FIBONACCI ASSOCIATION

The Fibonacci Association is a nonprofit 501(c)(3) corporation, incorporated in 1962 by Verner E. Hoggatt, Jr., I. Dale Ruggles, and Brother U. Alfred. Dale Ruggles was Vern's officemate at San Jose State; he set up the incorporation paperwork and served on the Editorial Board for seven years. Brother U. Alfred, who changed his name to Brother Alfred Brousseau, served on the Editorial Board, edited and wrote many articles to interest the beginner, and managed subscriptions and association money until his retirement in 1975.

Verner E. Hoggatt, Jr. was Editor of The *Fibonacci Quarterly* 1963–1980; Gerald E. Bergum, 1980–1998; and Curtis Cooper, 1998 to date. Brother Alfred Brousseau was treasurer 1963–1975; Leonard Klosinski, 1976–1979; Marjorie Bicknell-Johnson, 1979–1998; and Peter G. Anderson, 1998 to date. Marjorie Bicknell-Johnson was secretary 1963–2010; current secretary, Art Benjamin, 2010 to date.

The first official meeting of the Board of Directors of the Fibonacci Association was held at San Jose State College on January 20, 1968, with Brother Alfred Brousseau presiding. Other board members present: Verner E. Hoggatt, Jr.; G. L. Alexanderson, Mathematics Department

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Chairman, Santa Clara University; George Ledin, Jr., now Professor of Computer Science at Sonoma State University; and Marjorie Bicknell, Adrian C. Wilcox High School.

Vern and Brother Alfred organized informal half-day Fibonacci meetings once or twice a year from 1962 as well as presenting lectures at all local and state conferences for mathematics teachers. A Fibonacci Open House was held at University of San Francisco on January 18, 1969, with the morning devoted to high school students and the afternoon for Fibonacci aficionados; I arranged for mailing invitations to all high schools within 100 miles of San Francisco. Vern corresponded with mathematicians all around the world and dreamed about having an international Fibonacci conference. Unfortunately, the first conference came too late for him to enjoy it.

In 1984, Andreas N. Philippou organized the Fibonacci Association's first international conference in Patras, Greece. The International Conferences on Fibonacci Numbers and Their Applications have been held biennially for 30 years.

- 1984 Patras, Greece
- 1986 San Jose State, San Jose, California
- 1988 Pisa, Italy
- 1990 Wake Forest, North Carolina
- 1992 St. Andrews University, Scotland
- 1994 Washington State, Pullman, Washington
- 1996 Technische Universität, Graz, Austria
- 1998 Rochester Institute of Technology, Rochester, New York
- 2000 Luxembourg City, Luxembourg
- 2002 North Arizona University, Flagstaff, Arizona
- 2004 Technische Universität, Braunschweig, Germany
- 2006 San Francisco State, San Francisco, California
- 2008 Back to University of Patras, Greece
- 2010 Universidad Nacional Autónoma de México, Morelia, México
- 2012 Eszterházy Károly College, Eger, Hungary
- 2014 Back to Rochester Institute of Technology

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 - [3] M. Bicknell-Johnson, *A Short History of The Fibonacci Quarterly*, Fibonacci Quarterly, 25:1 (1987), 2–5.
 - [4] M. Bicknell-Johnson, *In Memoriam: Brother Alfred Brousseau*, Fibonacci Quarterly, 26.3 (1988), 194.
 - [5] M. Bicknell-Johnson, *The Fibonacci Quarterly: Fifty Years*, Fibonacci Quarterly, 50:4 (2012), 290–293.
 - [6] V. E. Hoggatt, Jr., K. Alladi, and P. Erdős, *On Additive Partitions of Integers*, Discrete Math., 22:3 (1978), 201–211.
 - [7] F. S. Stancliff, *Nine Digit Determinants*, Scripta Mathematica, 19 (1953), 278.
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