GEORGE BERNARD KAUFFMAN (1930-2020): A UNIQUE CHEMIST, EDUCATOR, CRITIC, AND HISTORIAN. AN OBITUARY-TRIBUTE (1, 2)

Jeffrey I. Seeman, Department of Chemistry, University of Richmond, Richmond, Virginia 23173; jseeman@richmond.edu

Supplemental Material

Abstract

An obituary-tribute is presented for George B. Kauffman, noted chemist-historian, memoirist, critic, educator, and social activist. The centerpiece of this paper is an interview I conducted with Kauffman and his wife Laurie Kauffman in 2004.

Introduction

When George B. Kauffman died on May 2, 2020, at the age of 89, he was 50 years past being Chair of the Division of the History of Chemistry (HIST) of the American Chemical Society (ACS) and 42 years past his receipt of HIST's Dexter Award. The Dexter Award, now morphed into the HIST Award, is the oldest and most prestigious lifetime achievement award in the history of chemistry. Kauffman did not rest on those laurels. He continued publishing and even in the year before his death, he published 13 papers.

In addition to HIST's Dexter Award, Kauffman received five ACS national awards: the George C. Pimentel Award in Chemical Education (1993); the ACS Award for Research at an Undergraduate Institution (2000); the Helen M. Free Award for Public Outreach (2002); American Chemical Society Legislative Action Honor Roll (2003); and Fellow of the American Chemical Society (2011).

Along the way, Kauffman published some 2500 papers. He authored or co-authored four books; and he edited 12 books, many of which he translated as well. Although many of Kauffman's publications appeared in the popular press, e.g., *The Fresno Bee*, still, the list of publications includes 357 papers in the *Journal of Chemical Education*, 335 in *The Chemical Educator*, 58 in *Angewandte Chemie, 23* in *Isis*, and eight in the *Bulletin for the History of Chemistry*, though *SciFinder* lists fewer than his listing indicates. I have not endeavored to reconcile the count.

If Kauffman really did publish some 2500 papers, and it does appear that he did (see his list of publications in the Supplemental Material), that would imply three papers each and every month, over his 70-year career. About 170 of those papers were co-authored by his (second) wife of 50 years, Laurie. And sprinkled throughout the list are other co-authors, but most of Kauffman's papers were single-authored. He was particularly fond of writing obituaries and book reviews. Kauffman always seemed to have many good things to say about the books he reviewed. I know that characteristic of Kauffman quite well: He reviewed 13 of the autobiographies in the *Profiles, Pathways and Dreams* series that I originated and edited. He was always complimentary.

With at least one exception. In his 1986 review of the book *History of Polyolefins* based on a symposium hosted by HIST, Kauffman wrote (3),

Table 1. Notable dates and awards and achievement highlights of George Kauffman. The six American Chemical Society awards are highlighted in gray.

Year	Notable dates
1930	Born on September 4, 1930, Philadelphia, PA
1948	Science Talent Search, second place, Philadelphia
1951	B.A. with honors in chemistry, University of Pennsylvania
1952	Married Inge Solomon. Two daughters: Ruth (1958) and Judith (1961)
1956	Ph.D., University of Florida
1955-1956	Instructor, University of Texas
1955	Research chemist, Humble Oil and Refining Company
1957, 1959	Research chemist, General Electric Company
1956	Assistant professor, California State, Fresno
1968	Divorced
1969	Married Laurie Papazian
2002	Emeritus professor, California State University at Fresno
2020	Died (age 89) on May 2, 2020, Fresno, CA
Awards and Achievements	
1970	Chair, Division of History of Chemistry of the American Chemical Society
1973	Outstanding Professor Award, California State University System
1976	Manufacturing Chemists Association Catalyst Award for Excellence in College Chemistry Teaching
1976	Chugaev Medal of the N.S. Kurnakov Institute of General & Inorganic Chemistry, USSR Academy of Sciences
1978	Dexter Award of the Division of History of Chemistry of the American Chemical Society
1990	Kurnakov Medal of the N.S. Kurnakov Institute of General & Inorganic Chemistry, USSR Academy of Sciences
1991	Chernvaev Medal of the N.S. Kurnakov Institute of General & Inorganic Chemistry, USSR Academy of Sciences
1992	Marc-Auguste Pictet Medal of the Société de Physique et d'Histoire Naturelle de Genève
1993	George C. Pimentel Award in Chemical Education of the American Chemical Society
1994	President's Medal of Distinction of the California State University at Fresno, inaugural presentation
2000	ACS Award for Research at an Undergraduate Institution of the American Chemical Society
2002	Fellow of the American Association for the Advancement of Science
2002	Helen M. Free Award for Public Outreach of the American Chemical Society
2003	American Chemical Society Legislative Action Honor Roll
2011	Fellow of the American Chemical Society

> Unfortunately, in addition to the unattractiveness of the combination of various types and formats of the various papers, some of which contain free hand notations, the book is marred by other signs of hasty publication. For example, [Herman] Mark's preface contains no fewer than ten errors, and M. E. P. Friedrich is spelled four different ways on four different pages (two ways in each of two chapters) with only one page cited in the index.

I have been fascinated for several decades by the "George B. Kauffman" whom I had known only by his hundreds of publications and by his legend. So in mid-2004, I contacted George and asked if I could visit Fresno

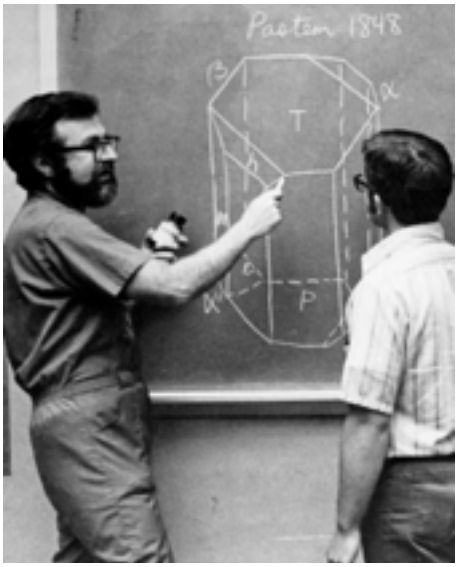

Figure 1. *Kauffman discussing chirality and the crystal structure of one of the diastereomers of tartaric acid. At the top of the blackboard, Kauffman wrote "Pasteur 1848." Courtesy Kauffman family.*

and interview him. That interview took place in his home on November 5, 2004. My vision was to publish the interview in the ACS journal *Chemtech*. But one thing led to another, and before I knew it, *Chemtech* had ceased publication. (A warning to all, especially young authors: delays can be fatal.) That interview rested quietly on my hard drive until I read of George's death. With the compelling awareness of George's attraction to writing obituaries-tributes, a vision immediately came to me. This publication is the consequence of that vision. And this paper is now a debt repaid.

Kauffman was also a *bona fide* chemist, with almost 80 papers in *Inorganic Chemistry*. He was a *bona fide* historian of chemistry. He was a *bona fide* chemical educator (Figure 1). He was also a book critic and an obituarist. His productivity did not diminish, even in his late 80s. Ten of his last 13 papers, all published in 2019, were, in Kauffman's own words, *Obituary-Tributes.* It is thus fitting that this paper borrows from Kauffman's own terminology. It is my honor to write George Kauffman's obituary-tribute.

Kauffman's Chronology

Table 1 lists notable dates and awards in Kauffman's life. Highlighted in gray are the six American Chemical Society awards that he received. These awards are quite substantial.

Kauffman's First and Last Publications and Some In Between

Table 2 lists Kauffman's first and last few publications as well as a somewhat random selection of non-scientific publications during the entire course of his professional career. Some observations are immediately apparent:

- Even during his graduate school years, Kauffman was involved in publishing biographical memoirs

Table 2. Representative publications of George B. Kauffman

Kauffman's First Ten Publications[a]

Year	Journal	Title
1955	*J. Chem. Educ.*	Frédéric Swarts: pioneer in organic fluorine chemistry (4)
1957	*Chem. Eng. News*	Explosion of nitrosyl chloride and acetone in the presence of platinum (5)
1958	*J. Chem. Educ.*	Stability of solutions for the iodine clock reaction (6)
1959	*J. Chem. Educ.*	Sophus Mads Jørgensen (1837-1914)—a chapter in coordination chemistry history (7)
1960	*Chymia*	Sophus Mads Jørgensen and the Werner Jørgensen controversy (8)
1960	*Inorg. Syn.*	Copper(I) iodide (9)
1960	*Inorg. Syn.*	Dipyridinesilver(I) perchlorate (10)
1960	*Inorg. Syn.*	*Tri-n*-butylphosphine (11)
1960	*Inorg. Syn.*	Tris[tetrammine-μ-dihydroxocobalt(III)] cobalt(III) sulfate 4-hydrate (12)
1960	*Inorg. Syn.*	*cis*- and *trans*-Dichlorobis(diethyl sulfide)platinum(II) (13)

[a]From *SciFinder.*

Kauffman's Last Fourteen Publications[a]

2019	*Chem. Educ.*	Aaron Klug (1926-2018), whose 3-D images of biological molecules won him the 1982 Nobel chemistry prize, dies at 92, an obituary-tribute (14)
2019	*Chem. Educ.*	Alfred Bader (1924–2018), Chemist, Philanthropist, and Art Collector, An Obituary-Tribute (15)
2019	*Chem. Educ.*	Sydney Brenner (1927-2019), Decipherer of the Genetic Code, an Obituary-Tribute (16)
2019	*Chem. Educ.*	Paul Greengard (1925-2019), an Obituary-tribute (17)
2019	*Chem. Educ.*	Manfred Eigen (1927-2019), an obituary-tribute (18)
2019	*Chem. Educ.*	Thomas A. Steitz (1940-2018), an obituary-tribute (19)
2019	*Chem. Educ.*	Murray Gell-Mann (1929-2019), an obituary-tribute (20)
2019	*Chem. Educ.*	Less Is More: Samuel Hahnemann, Physician, Chemist, Translator, and the Founder of Homeopathy (21)
2019	*Chem. Educ.*	Products of Chemistry: the Other Wyeth: Nathaniel Convers Wyeth (1912-1990) and the Poly(ethylene terephthalate) Bottle (22)
2019	*Chem. Educ.*	Marcel Delépine (1871-1965): A Versatile, Long-lived French Chemist (23)
2019	*Chem. Educ.*	Dr. Boom: Hurbert Newcombe Alyea (1903-1996), America's Master Lecture Demonstrator (24)
2019	Chem. Educ.	Leo A. Paquette, Master of Total Synthesis (1934–2019), An Obituary-Tribute (25)
2019	*Chem. Educ.*	Kary B. Mullis (1944-2019), an Obituary-Tribute (26)
2019	*Chem. Educ.*	John Robert Schrieffer (1931-2019), an Obituary-Tribute (27)

A Selection of Non-technical Publications from Kauffman's Intermediate Years[b]

1975	*Isis*[c]	Discovery of Optically Active Coordination Compounds—A Milestone in Stereochemistry (28)
1980	*1981 Yearbook of Science and the Future* by *Encyclopædia Britannica*	The Science Year in Review: Chemistry: Applied Chemistry (29)
1985	*Gold Bulletin*	The Role of Gold in Alchemy, Part I (30)
1990	*The Fresno Bee*	Discovery Rich with Drama: Politics, Persistence in Saga of Carbon-14 (31)
1995	*The World & I: A Chronicle of Our Changing Era*	A Giant among Chemists, a Giant among Men: The Only Person to Have Won Two Unshared Nobel Prizes, Controversial Chemist, Humanitarian, Educator, and Pacifist Linus Pauling Is Considered One of the Greatest Scientists of All Time (32)
2000	*The Fresno Bee*	Valley Voices: Former Fresnan [George C. Pimentel] Plays Huge Role in Mapping Mars (33)
2005	*The Fresno Bee*	Valley Voices: Goodyear Patently Improved our Lives (34)
2010	Book: *Great Lives from History: Inventors & Inventions*	Carl Djerassi, Austrian American chemist (35)
2015	*Community Alliance*	IPCC Issues "Final Word" on Climate Warming (36)
2018	*Community Alliance*	Book Review: *Candidate Without a Prayer: An Autobiography of a Jewish Atheist in the Bible Belt* by Herb Silverman (37)

[b]From Kauffman's own list of publications as updated by myself. See the Supplemental Material. The first citation from a non-science community publication was chosen for each time period for this table.

[c]A history journal.

of eminent chemists in the chemical literature, notably in the chemical education literature. Especially in his latter decades, he used the deaths of eminent chemists as the motivation to write necrologies and publish these in chemical education journals.

- In his initial years as an independent scholar, Kauffman continued to publish biographical memoirs as well as short pieces on methods of preparation of important inorganic compounds.
- Kauffman reported on chemists in all subdisciplines of chemistry.
- Kauffman published many news and feature articles and opinion-pieces in the non-technical literature, especially in *The Fresno Bee* and in the *Fresno Community Alliance.* Kauffman's career blossomed as he brought the history of chemistry and chemistry itself to both students and chemistry professionals and to the non-chemist as well.
- With time, Kauffman's interests and thus his publications transmuted from experimental inorganic chemistry to history and education of chemistry and to his political and social activism which was manifested in the popular press.

Kauffman also had a tendency to optimize his outreach and increase his efficiency, which added numbers to his list of publications. He often wrote more than one paper on the same individual or theme. The first instance of this appeared in his fourth and fifth publications (Table 2) on Sophus Mads Jørgensen, one in the *Journal of Chemical Education* (7) and the second in *Chymia* (8). Comparison of these two papers easily reveals significant duplication of text, an example of what is called today "self-plagiarism." Now considered a "questionable research practice" (38-42), self-plagiarism was not judged as negatively in the 1960s as it is today. But in doing so, Kauffman increased the outreach value of his writings.

Interview with George and Laurie Kauffman

Preface to the Interview

On November 5, 2004, I visited Fresno, California, and spent two days with George and his wife Laurie. What follows is a transcription of my notes from an afternoon interview with them.

George is speaking and responding to my questions (which generally do not appear in the interview). When Laurie speaks, her comments are indented and italicized for ease in identification as to who is speaking.

The interview was edited for cohesion.

Kauffman's Youth

I was born on Labor Day, September 4, 1930, in Philadelphia. My parents, ever intelligent, soon were divorced. That was very unusual for that time. I lived with Mom. She was typist with the government. My father was in politics, ran a dry-cleaning store, was into various things. I was an only child. On my father's side, no one had gone to college. On my mother's side, I had three uncles all of whom went to college.

The Kauffmans were of peasant stock, from Poland. The Fishers, my mother's side—not their real names, we have no idea of what their real name was—were from Russia. I am Jewish. Any minority feels different. I grew up in a Jewish neighborhood. Everyone was Jewish. The teachers were Jewish too. I felt different, it was paradoxical, everyone was Jewish. One day, I felt that I was going to do something different, so I went to school on a Jewish holiday. The entire school was bunched in one room.

Laurie*: George was very precocious, that got him into trouble a lot.*

As a youth, I was very studious. The *Studs Lonigan* books where you find dirty words … Paul de Kruif's *Microbe Hunters* … I read *Arrowsmith* as a teenager. On page 144, this book discussed reproduction, *The Science of Life*. Making explosions, the usual pyrotechnics. I often cut school. When I was 10, I was placed in a foster home, as my mother could not control me. After a year, I was back with my mother (Figure 2).

Figure 2*. Kauffman as a young teenager and his mother, ca. 1945. Courtesy Kauffman family.*

In the 11th grade, I discovered Wagner. My grades were going down. I was called down to the counselor's office and was told, "You will never get into college." That frightened me. I studied continually, I was overdone, I worried about entrance exams. I was afraid I would not get into college. I studied instead of doing everything else including girls. "Schmuck!" I used 3×5 cards to memorize. I was 16th in the class, not that good, considering how hard I was working. Laurie says I am brilliant, I could question that. I work hard, which I did, which I do. Nothing came easy.

I've repressed many things. I felt so horrible, rejected … I was thinking about Tyrone Power [the American actor who was typecast in swashbuckler roles and romantic leads] and Jessie James. There were a bunch of us in the foster home. I had siblings for one year. I was a gang leader. I did questionable things, things that today, I would characterize myself as a juvenile delinquent. The foster parents would beat us. It was the only way to have discipline, even if it was being beaten to be controlled.

I found that being contrary is a way of getting attention, acting up, acting out all those years.

Laurie*: No one paid attention to him, everyone just ignored him. He always had this brilliant mind. He was in a special school in Philadelphia but was expelled for acting up.*

I was setting up fireworks in the boys' bathroom. I was antisocial. I still am antisocial. Still am.

Laurie*: Most of George's writings are about dead people. It's easier for George, because there is no interaction. He gets his information from the written word.*

College and Graduate School

I wanted to go to the University of Pennsylvania, an old and prestigious place. I always knew I wanted to be a chemist, from the time at age of 7 when I got the Gilbert Chemistry set.

I earned a B.A. with honors, not a B.S,, in 1951 from the University of Pennsylvania. I got a classical education and three years of German and a year of Italian. I was getting 100s in freshman chemistry, so I went to Lou Baker where I made coordination compounds with lots of colors. I can get them for you. I never liked organic chemistry. I memorized to get through. Inorganic chemistry is where it is at, all these elements and colors, they have unique personalities.

I applied to Indiana University and Purdue University for graduate school, but I went to the University of Florida (Figure 3) and worked with Joe Simons, the eminent fluorine chemist. It was my first time away from home, and I was feeling lonely. I was interested in the guy behind the reactions. His name was Frédéric Swarts, a Belgian chemist, who was the first to prepare a chlorofluorocarbon [CF_2Cl_2]. I studied his reaction. I wrote to Belgium; things were primitive then. I wrote a paper that was published in the *Journal of Chemical Education* (4, 43). It was my initial article, nothing to be really proud of.

Figure 3. *The youthful George Kauffman. Courtesy Kauffman family.*

I married in 1952 in Florida. Inge Solomon was the UF librarian. She was born in Germany, arrived just at the last time, in 1939 at the age of 11. We had two daughters, Ruth in 1958 and Judith in 1961, on Einstein's birthday, March 14th. In 1968, we separated.

I switched advisors to John Baxter, and I've written his obituary (44). Baxter was an educator, and I followed in his footsteps. I had heard he was a real taskmaster, and that's what I needed to get my degree. Neither of us knew much about research. My research data was scanty, and thank God for the literature that my thesis research wasn't published. *Anion-Exchange Studies of Fluoride Complexes* (45).

I was primarily interested in education (Figure 4). After receiving my Ph.D., I first went to the University of Texas as an instructor from 1955-1956. Norm Hackerman was chairman. He wanted just research. Texas was a big university on the way up, and I wanted to do education.

I saw in *Chemical & Engineering News* that Fresno State was looking for a professor interested in education. So I came here in 1956. Everyone was saying that I was going to God's country. I did little travelling. I had no expectation other than teaching inorganic chemistry. There was no interview. I came as an assistant professor. My salary rose from $4500 to $5400, percentage-wise that was a lot.

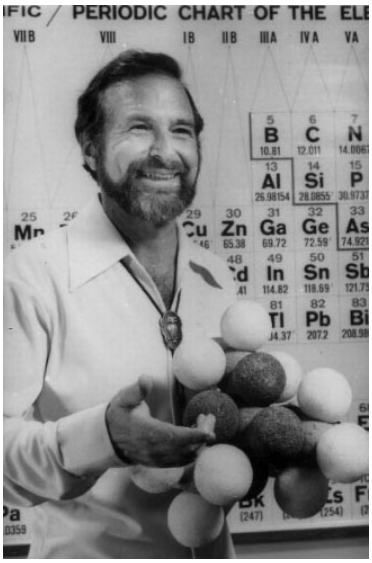

Figure 4. *Kauffman enjoying one of his lectures, ca. 1980. Courtesy Kauffman family.*

Kauffman's Professional Life

The experimental research I did was inorganic syntheses and separations of isomers. All with undergraduates, two M.S. students. Almost all students published a paper. They worked during the school year and during the summer. We were funded by the Petroleum Research Fund and by the National Science Foundation. I did most of the history of chemistry by myself. I had no grand plan, one thing led to another.

Constantly I did research through my students. I received an undergraduate research award in 2002 from the ACS. I had about 58 research grants at Cal State.

I was a scientific dilettante. I was interested in teaching, not so much in research. I did not have any research pressure, in fact, it was the other way. Everyone was jealous, I was the only one doing any research, I was contrary to the system. I was doing whatever I am interested in, flitting from one topic to another, you name it, I've published on it, many of my publications I've totally forgotten.

When I first came here, it was Fresno State. Now it is CSF, California State University Fresno. The first day of every class, I tell the students: I need your help. You perform the lecture demonstration. I give the freshman chemistry course students instructions, whatever they need, and some encouragement and advice. And they follow through and prepare the demonstrations. Sometimes the students provide a draft, and I rewrite it and submit it for publication. These freshmen are co-authors and have a publication before they are even sophomores. This has happened dozens of times.

Laurie*: The satisfaction that George has gotten comes from getting the grants and the accolades. He also found a big kick when his students can perform and get accolades and awards, which they do. He's had great admiration between his students and himself over many years. He feels proud like a parent or a father.*

Writing book reviews keeps me up with all kinds of things, mostly historical (Figure 5). Pick a name or a topic, and I'll have written or reviewed something about it. People think that I know far more about topics than I do. The secret of my success: paper clips. I have an upside-down Mexican hat full of paper clips. I read and write notes, even when walking the dog. There's a belt around Lucky's leash, as I must be careful about falling. Once I bumped into a parked Winnebago. I underline. Once something is read, then I use paper clips to mark papers I want to deal with. When all the paper clips are gone, I am finished. If Beethoven wrote symphonies that way … it works for me.

Figure 5. *Kauffman with two of his heroes, Harry Gray and Linus Pauling (middle), April 12, 1993. Kauffman has written about both Gray (once) and Pauling (over 40 times). Courtesy Kauffman family.*

It's been years since I've been chair of HIST [in 1970]. I'm too busy writing. When you go to a meeting, you kill a week. Laurie likes the socializing, I can take it or leave it. I am not a social animal. Laurie talks with everyone, for example, even when we are shopping. I talk

to no one. We did a lot of things when we were younger. Motivation is practically everything. At one time, travelling was exciting, having symposia was exciting. We are at a different point in our lives, the last 10 years.

When you are too busy, as I am, I frequently wake up with ideas that I have had during my sleep. And I immediately come out to the study and write these ideas down. I have no goal with regard to numbers of papers. Most of the papers just evolved, no grand plan. By being a scientific dilettante, I can drop this and go to that.

Yes, most of my book reviews have been "positive"? Why? Because I realize how much work has gone into them, and I am not trying to catch them [the authors]. If the book is loaded with errors, those I mention. I try to find the positive in everything. I wish it were true in everything else in my life.

What motivates me, personally and professionally? Eighteen hundred, almost nineteen hundred papers. Who's counting? Writing is as natural as breathing. I don't analyze it, I just follow it.

Kauffman and the History of Chemistry

History of chemistry vs. chemistry: I am not an experimentalist, not good with my hands. I became interested in the humanistic aspects rather than the detailed mathematics or underlying chemistry.

Why HIST? I was interested in the history of chemistry and that was the place to go. Still is.

What is the role of history of science in the chemical profession? To add a humanistic dimension to what might be the stereotypical cold, hard science. Most chemists are interested in the history of their subject, but they don't have the time or inclination to put history at a higher priority.

Satisfaction

I do what I want, I enjoyed research. I just like writing about history. Everyone wants to be creative. What are we put on earth for other than to make something that wasn't there before? My students are my legacy. My personal satisfaction … it is like the meaning of life …, having fun. I do not question any further, that's it, that's the meaning of life.

Am I happy, yes. But I don't know why. I don't question things very much. This is not of concern to me because I am living happily. When you are young and have questions about the meaning of life, you are lacking something, I feel that I have it all.

We are very lucky, have all we need. We are having our best years now, we're happy.

Two years ago, I started on the treadmill: 40 minutes every day. My weight was ballooning. So I lost 25 pounds, cut down on food. Laurie works out three times a week at the fitness center. She doesn't like the treadmill.

All I do now is work, write. I have all sorts of compulsive obsessive things. I have a stop clock when I work. I found useful a constant background of TV or music. Lately, with commercials with live TV, I set it for 6 minutes and off it goes, I go back to my work.

When I am not writing, Laurie and I are together. Laurie and I are together talking about ideas and things. All this is documented. I publish everything.

Kauffman's Wife, Laurie

Laurie was born and raised in Fresno. She graduated from CSF magna cum laude in 1971 and has a teaching degree specializing in elementary school education. She was married for 18 years to her first husband, by whom she has three children (one son and two daughters). She was separated in 1961, divorced in 1968, met me in 1968 and married me in 1969. It was just really chemistry. It was just electrical, wonderful. (See Figure 6.)

***Laurie**: I did not take a single chemistry course. George tried to get me to sit in on a class he was teaching, but I found out I had to go back and take remedial math. I just did not want to do it.*

I am always interested in the person behind what he is writing about. I wonder if he was married, had children, why was he interested in this particular thing ... I love to know why they got into this or that ... I started to ask George these questions. George found out that he could use all that information. That is how it began.

I read all the books that George is going to review. Usually I read it first, write up a blurb, mention the pages that I am interested in. George writes the only substantive draft.

George would say, "Why don't you read this and tell me what you think of it?" So, that's how it began. This is the way that George and I deal with our lives. We discuss everything. Our working together is a natural extension of our life together.

For me, my greatest reward has been being a mother of three children. When pregnant, I felt that I was full of miracles. I've been married to George for 35 years, going to bed happy at night.

I converted from Lutheran to Judaism because I felt at the time that he and I should be one religion.

Figure 6. *George and Laurie Kauffman, ca. 1980. Quoting George: "We are completely absorbed in each other." Courtesy Kauffman family.*

I usually give in. Laurie's got better common sense than I do. She keeps me out of trouble. Laurie thinks of things on a different level. She is a much deeper thinker than I am. Laurie will gaze into space and comes up with all sorts of ideas. The human side.

I am more dependent on Laurie than *vice versa*.

Kauffman's Greatest Rewards

Feeling good about myself. Having joy in my life.

What were my most embarrassing moments? I remember several.

- One, when I wrote about Vladimir Prelog, a legend in his own time, and I call him dead -- rather prematurely.
- Another: At the first symposium I chaired, the opening speaker on the program kept on talking and talking. I failed to stop him. I was inept and knew it. The audience finally clapped to stop his talk.
- A third: At a meeting in Davis [California], my slides were not in the right orientation. After 10 minutes, it was clear that I made a poor impression. I didn't have enough time to finish.
- Fourth: I minored in bacteriology in graduate school at the University of Florida. I intended to take a course in pathogenic bacteriology. I saw three people in a room and asked, "I hear that this Emerson is a real bastard." One said, "He's not so bad." On the first day of class, there he was, the professor.

I've interacted with a lot of scientists, so even though I'm not great, I've been close to and interacted with many great minds. Most of these interactions have been positive. I've gotten to know them as three-dimensional human beings. I've been able to see the differences: some were and are warm, open feeling; others maybe more standoffish.

I am always delighted to get feedback. It is the process rather than the product. If I do get feedback, I am always surprised. Usually the feedback is positive. Years ago, I reviewed a book and said good things and the authors still found some fault with my review. I felt they had a lot of nerve, most of it was positive.

Laurie*: George will say, about a new idea, "I can really dash this off." I always ask him, "Do you really want to do this?" Because we both feel like there is a limited number of years left, we have to be selective as to what we do.*

I ask, 'Would I enjoy doing this task, in preference to others?'

Whenever I encountered a new name, I looked for biographical material and this led to articles.

Usually when I start something, I finish.

My advice to young scientists? Motivation is as important as knowledge. Make sure you do a good job on everything.

Laurie*: Take your education seriously but be sure you enjoy yourself on the way.*

Kauffman's Most Important Lessons and His Legacies

Laurie*: I learned to be patient.*

I could use some of that. I interrupt people, before they finish their sentences.

***Laurie**: To realize that life is short, so use it wisely.*

I say: Stay away from toxic people … someone like a vampire, someone who takes your energy or someone who doesn't like you.

Inspiring students. Turning-on students, especially to history through my writings.

***Laurie**: The best thing I've done with my life is to be a helpmate: to my children, my husband, makes me feel good to feel useful.*

We like to leave something behind, hey out there, we were here. To leave this world different, a better place, because we were here.

Perhaps we are trying to show our parents. Neither George nor I was paid much attention by our parents. Get of age, make a statement, "Look what we've done."

[Interview ends.]

Conclusions

Kauffman's early years were not easy. But if we slice away perhaps the first 20 of his years and a divorce a few years later, then George Kauffman lived a life as best as he, himself, could have hoped: A soul-mate marriage of 50 years; close relationships with his two children (Figure 7) and with Laurie's three children; a professional career incorporating his loves—education and pedagogy *plus* history of chemistry—as designed by himself. Reading and writing. Spontaneity with freedom. And awards and recognition, to certify his accomplishments.

Kauffman's mode of operation was unusual, to say the least. He hardly ever published a comprehensive research publication, that is, a full paper! According to Laurie,

***Figure 7.** Kauffman at his 80th birthday celebration with his two daughters, Judith (left) and Ruth, Fresno, 2010. Courtesy Kauffman family.*

> George was always interested in something new and found it more satisfying to have something completed. This allowed him to move on to whatever his next project would be.

George entered academia at a time where there was a lot of support for science education. His move from the University of Texas, a major academic institution in a state that was and is proud of its institutional heritages, to Fresno is an example of great foresight. Not that Fresno State was going to be a national academic force. Rather, George realized that his own passions and professional needs would mesh perfectly with Fresno State's vision and mission; that this new institution was growing, and that he would be unique and a highly valued commodity. He projected that he would have great flexibility and opportunity to teach, and to do so with his particular style that included the history of chemistry. He anticipated that living in Fresno—170 miles from Sacramento, 190 miles from San Francisco, and 220 miles from Los Angeles—would have no negative effect on his ability to make a real contribution *his way*. And he was right in his assessment.

It is a shame that George disengaged from the social aspects of the history of chemistry. In the midst of his career as a chemist-educator and chemist-historian, he seemed to isolate himself from face-to-face contact with the community of other chemists and chemist-historians. For example, he was Chair of HIST in 1970 and received HIST's highest award, the Dexter Award, in 1978. Yet from roughly the 1990s, he was inactive in HIST and the American Chemical Society. Hardly ever did he attend ACS meetings. His lecture entitled "History of Chemistry: A Dexter Awardee's Reminiscences on the 50th Anniversary of the Dexter and Edelstein Awards" (46) was scheduled for September 11, 2006, at the symposium *Fifty Years of the Dexter and Edelstein Awards*. Sadly, the lecture was withdrawn at the last moment due to health complications. And I invited George to participate in another celebratory symposium, this being HIST's 85th birthday at the 233rd ACS National meeting on March 27, 2007, in Chicago (47); he did not accept.

I guess it could be said, truthfully enough, that George's contacts were though correspondence, eventually email, and his reading and writing. Of that, there was much. I even wonder whether his move to Fresno—a rather isolated island in California's central valley—foreshadowed the nature of his future connectivity with the chemistry community. Was it the location that resulted

in that privacy? Or was it the desire for privacy and a measure of peacefulness that led George to Fresno? I believe it was the latter. Nonetheless, George and Laurie did enjoy travelling. But perhaps like so many others, they especially valued their return to home and a quiet daily life in Fresno. They both certainly welcomed me to their home with gusto and warm hospitality. I remember that clearly.

George wrote hundreds of articles published in *The Fresno Bee* and the Fresno *Community Alliance,* often dealing with his concerns about the environment, public policy and health. Nestled among his book reviews was one on Luis Granados's *Twenty Rebels Who Bucked the God Experts* (2018) and another on Herb Silverman's *An Autobiography of a Jewish Atheist in the Bible Belt*, both published in the *Community Alliance* (2018). But also appearing in the *Community Alliance* were articles on Earth Day in Fresno.

As Laurie said recently,

> He never lost his excitement and interest in chemistry, but as he got older he looked at things more globally and saw what was happening to the environment and this concerned him. I know he always wrote a piece for Earth Day every year for the paper. He often wrote letters to the editor about his concerns.

George's essays were always short enough to be tempting to read. They always met his promise to be informative and entertaining. I was never surprised to see his name pop up on a paper, new or old. We now can only rely on his past, but what a past!

Coda

The most vivid memory of my visit with the Kauffman's at their home in 2004 is the stacks of books in their home and especially in their garage. I don't know how many books one can pile up, before this unstable equilibrium causes a disastrous domino effect. But surely George and Laurie were tempting the gods of calamities. I admit that I looked enviously at those hundreds of new books, knowing that I'd love to have more than several of them. Today, I wish I had taken a photograph of that ensemble. Those were pre-smart phone days, and I did not have my camera with me. So I ask you, dear readers, to imagine with me those enticing academic stalagmites.

Kauffman was a hungry professional, as all successful professionals must be in their very own ways. As a capstone to this obituary-tribute to Kauffman, the following excerpt from his review of Alan Mackay and Maurice Ebison's book *The Harvest of a Quest Eye* is presented (48).

> For more decades than I care to admit I have been an avid collector of quotations and aphorisms—scientific and otherwise. And semester after semester, whenever publishers visited my office in search of salable manuscripts, my persistent inquiries about the marketability of a book of quotations—a sort of scientific Bartlett's *Familiar Quotations* always met with a negative reply. Now I am able to report, with an ambivalent mixture of admiration and envy, that not only is such a venture financially feasible but it has actually been done—with considerable success, in my opinion. My professional jealousy of Dr. Mackay for beating me to it is mitigated by the fact that his collection, although duplicating a number of items in my own, differs considerably from mine, thus clearly demonstrating the possibility for additional books of this type …"
>
> —George Kauffman, 1978

Supplemental Material

The following can be found in the Supplemental Material for the Bulletin for the History of Chemistry at the journal's website, http://acshist.scs.illinois.edu/bulletin/index.php:

George Kauffman's list of publications, a working document obtained in 2020 from his grandson Nick Baron who downloaded it from Kauffman's computer. I have updated and organized this list and deleted duplications and never-published manuscripts.

Acknowledgments

I thank members of the Kauffman family for making this paper possible and for providing the photographs. In particular, I thank George and Laurie Kauffman for welcoming me into their home for the interview; George's daughters, Ruth Bryskier and Judith Reposo; George's son-in-law Bob Papazian; and George's grandson Nick Baron for their participation in the development of the paper. I also thank Mary Virginia Orna for indirectly making the visit to Fresno possible. Lastly, I thank Carmen Giunta and several reviewers for helpful suggestions incorporated in this manuscript.

References and Notes

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    > When in a reminiscent mood, Frédéric Swarts loved to tell his colleagues how he had swallowed a few cubic centimeters of difluoroethyl alcohol in order to prove the physiological inertness of this compound. This substance was only one of scores of organic fluorine compounds which Swarts was first to prepare and study with his characteristic thoroughness—compounds through which he became internationally recognized as a pioneer in this field of research.
    >
    > …
    >
    > In reviewing the life and work of Frederic Swarts, one is tempted to draw an analogy between him and his fellow countryman, the composer César Franck. Each devoted himself wholeheartedly to his art; each was a bold innovator and an original thinker; and although each did his life's work in a narrowly circumscribed physical environment, Franck in the organ loft at St. Clothilde, Swarts at the University of Ghent, each is numbered among Belgium's outstanding creative minds.

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About the Author

Jeffrey I. Seeman received his B.S. in chemistry from Stevens Institute of Technology, Hoboken, New Jersey, and his Ph.D. in chemistry from the University of California, Berkeley. He was a research chemist for over 30 years in industry and a fulltime consultant in the field of chemistry for another 10 years. His first career highlight in history of chemistry was the creation and editing of a 20-volume set of autobiographies of eminent organic chemists entitled *Profiles, Pathways and Dreams* which was published by the ACS from 1990 to 1997. In 2007, Seeman accepted a courtesy appointment in the Department of Chemistry at the University of Richmond in his hometown in Virginia. As his work in chemical research decreased in magnitude in the early 2000s, his research in the history of chemistry correspondingly increased to the extent that today it consumes most of his professional time.