
Legends and Legacies Book Chapters

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Elizabeth A. Grimm, Ph.D.



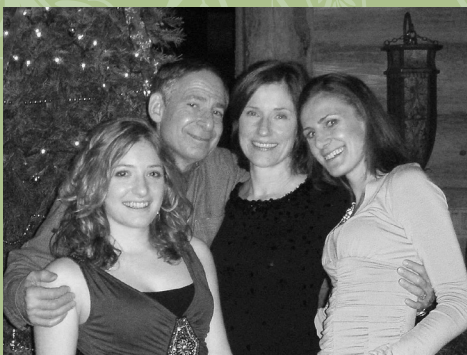
**Professor of Experimental Therapeutics
Francis King Black Memorial Professorship
for Cancer Research**



Elizabeth, left, and sister Susannah played with Freckles in front of the family home in Charleston, West Virginia.



Elizabeth married Jack Roth, M.D., on Nov. 25, 1978, in Santa Barbara, California.



Jack, Elizabeth and daughters Katherine, left, and Johanna welcomed a new year (2006) in Telluride, Colorado.



reflecting on my journey into cancer research, I am struck by how much serendipity, always planning for the future, an impatience for results, and a love of learning have served me well. I wish to share a glimpse of how, in my view, I have been able to achieve beyond my dreams to find success in “everything,” which in the vernacular of my era meant a professional position, a husband and children. First and foremost, I enjoy scientific inquiry and love addressing molecular details. I was fortunate to learn critical hypothesis testing, which remains a key to public success. However, in the field of cancer research, the process is frustratingly slow, so I also take occasional risks by testing big leaps; this usually does not yield useful results, but it does provide some thrill of science. I also enjoy my fellow scientists, with whom I share my days, and thus, most of the time I feel that what I do is a pleasure (grant writing excluded) and a privilege rather than work.

I was born and raised in Charleston, West Virginia, where my father was an attorney and my mother was an English teacher. My mother taught school immediately after she graduated from college until my older brother was born, and then she stayed home and was busy with volunteer work and child care until my younger sister started junior high. When Mom returned to teaching, she quickly advanced to become the head of the English department at the city high school and also finished her master’s degree. Even though many people perceived and still view the state of West Virginia as the illiterate center of the United States, my parents both had graduate degrees, and my siblings and I all knew that we were expected to attend both college and graduate school, which we did. Nevertheless, the field I eventually chose to pursue was new, and my parents questioned whether my Ph.D. in microbiology and immunology might prepare me to work at our local hometown hospital. They were understandably uninformed and uncomfortable as to how a cancer research career might proceed.

As a young child, I was either with my mother, who was usually reading, cooking and knitting, or with babysitters when Mom went about her volunteer and church activities. At an early age, I became my father’s helper in the garden, as Mom was busy with Susannah, who was two years younger. Gardening was a hobby for both parents, as was playing the piano. Dad built a rock garden and a rose garden, tended beds of azaleas, and planted specimen trees. Mom tended flowering annuals and a few kitchen plants (rhubarb, green beans, tomatoes, mint, etc.), and particularly liked pansies. I greatly enjoy nature and outdoor activity, including gardening, and think there must be a “farmer” gene somewhere in me. Although both my parents had “achieved” in music activities in their youth, my Dad exhibited an innate ability not only to read music and play numerous instruments but also to “play by ear.” One idea of childhood fun was for Dad to entertain

the family with a series of medleys of popular music, often just heard that evening on the Ed Sullivan or Lawrence Welk shows. My sister and I would attempt to “sing and dance” on our stair landing as a stage — fortunately, home video equipment was not yet available! I think Dad was happy as an attorney, but I saw him and Mom both relaxed and happiest around the piano. I mention this since enjoyment of music remains a large part of my life, and I consider music one of the greatest cathartics. My childhood was filled with tennis, swimming, dogs, horses, music and many relatives. Although growing up in West Virginia could be considered a challenge from many perspectives, I was blessed to have a happy and stable family that provided me with resources to deal with life’s later stresses.

My interest in science made me the “black sheep” of the family, as my sister (a psychology Ed.D.) calls me, since she and my older brother are both talented in the humanities. I believe that I was always curious about science and suspect that this was innate, as my environment was not structured to stimulate scientific inquiry. I do recall a personal curiosity and energy that led me to engage in early experiments. At the age of three, I escaped from my obligatory afternoon nap to perform a most memorable experiment, which almost set our house on fire. I was “testing whether paper would burn” by sticking a small piece into the pilot of a gas heater in our bathroom. Immediately realizing that paper did indeed burn, I threw it into the adjacent trash can, where it proceeded to set the contents on fire. My mother somehow became aware of this and quickly doused the burning trash can and overhanging curtains with buckets of water from the adjacent bathtub, saving the house and my still-sleeping baby sister. Ironically, my older brother and father were visiting the local fire station as part of a Boy Scout field trip and saw the alarm come in. They arrived at the house with the fire trucks just as Mom had totally extinguished the flames. Mom was the hero, and I was the culprit! Even today, my siblings tease me about this and are still jokingly reluctant to let me light the candles on birthday cakes.

My first trip outside West Virginia occurred when I was 13 and traveled by car with relatives to Myrtle Beach, South Carolina. The automobiles lacked air conditioning, and so six of us traveled with the windows down the entire way. I recall that the trip took a very long time, even necessitating a car repair on the way, so that our entire journey was over 20 hours. My Uncle Elmo did all the driving and must have been very tired. I also remember that our meals were picnics, packed by my mother and my Aunt Sarah, and that we ate lunch on a real picnic table by a stream while the car was being repaired. There was neither consideration to go to a restaurant nor to stop at a hotel or motel during the drive. When we arrived at Myrtle Beach in the middle of the night, I was totally awed by that first encounter with the ocean and have loved it ever since. My first experience living away from

Charleston, other than in the college dorm, was during the summer after my sophomore year in college; that summer I worked in Ocean City, Maryland, as a waitress at the original Phillip's Crab House. My mother and several of her friends came to "visit." Mom seemed to show up every time I had not been home for a few weeks. At the time, I did not read any meaning into her visits other than that she wanted to share in whatever I was doing.

The experiences of growing up in the small and comfortable environment of Charleston came to feel confining by my teenage years and led to my desire to become independent and look for travel, adventure and challenge. I now realize that in contrast to many others, I actively seek the challenge of change rather than being comforted by predictability. Although I am definitely not a thrill seeker by any means, I am rather easily bored and prefer to seek entertainment through active participation or thoughtful activities rather than passive ones.

Beginning with my generation, young women wanted even more than their mothers had experienced, especially the women at Randolph-Macon Woman's College (named change to Randolph College in 2007), from which I graduated in 1971. We were determined to plan for "everything" life had to offer. I am not sure whether it was the women's college environment, the liberal attitude of the early '70s, or sheer naiveté, but my classmates and I sincerely thought we could do anything and everything. One of the phrases popular at the time that (thankfully) I do not hear anymore was that now women could "bring home the bacon and fry it, too." I do think that, especially for my generation, the women's college environment was influential in that it provided us with female role models without the distraction of male competitors at that critical time of maturation. I obtained my degree in chemistry with a minor in music based totally on my interests and with no clear career path. Upon my parents' request that I consider a career as a high school chemistry teacher, I left college a semester early (having fulfilled all chemistry major and music minor graduation requirements) and enrolled in Marshall College (now Marshall University) to take teaching courses not offered at that time at Randolph-Macon, which was strictly liberal arts. I spent a semester "student teaching" and acquired a high school teacher's certificate in chemistry and physics, which was never officially used.

In college, I was attracted to a young man from a nearby university, and, immediately after my graduation in May, we were married (although the union was short lived) and I moved to Boston, where he was in medical school. It was this situation that led me, unexpectedly, to work in one of the best immunology research laboratories at Harvard Medical School; the lab was run by K. Frank Austen. A young female assistant professor in Dermatology, Irma Gigli, hired me as a technician, and this experience "set the stage" for

my future. In my first year of working as a technician, I realized that my undergraduate education had been outstanding and on par with the “Ivy League” standards of those around me; when graduate student coworkers in that same lab encouraged me to consider applying to a Ph.D. program myself, my career direction and goal were finally defined. Meanwhile, the stresses of medical school and residency, along with mutual immaturity and my growing desire to apply to graduate school all contributed to the dissolution of my ill-fated marriage. We were both growing intellectually and emotionally, and I now believe that 21 is really too young for individuals to know themselves. My then-husband became uncertain of what his role would be were I to pursue an advanced degree. At one point, he asked, “Would I have to go to professional meetings with you?”, suggesting that he questioned his status and that I might not be the doting spouse of his parents’ generation. I now realize that this was also a difficult time for young men, as their traditional roles were being altered as well. At Harvard I was profoundly inspired by the realization that I was part of the vanguard of the application of molecular biology to the study of human disease and witnessed the very first attempts at isoelectric focusing as well as other early types of molecular studies.

In 1973, we moved to Los Angeles, where I was fortunate to work another two years while applying to the Ph.D. program of the UCLA Medical School (and finalizing my divorce). I worked in the laboratories headed by Donald Morton, chairman of the UCLA Surgery department at that time, and his junior faculty as they established immunotherapy and melanoma research programs. Although I left the study of melanoma and human cancer research during my Ph.D. dissertation years for transplantation immunology research, I have now returned to a singular melanoma focus and am extremely fortunate that Don Morton remains a world class leader in this area. I continue to apply much that I learned from his group then and now. As a full-time Ph.D. student then, I was most fortunate to have been accepted to do my dissertation research in the laboratory of Benjamin Bonavida, who was then a beginning assistant professor and now continues to be active as a professor at UCLA and is recognized as a world-class tumor immunologist. “Ben” remains a wonderful mentor and role model, not only for science itself, but also especially for his personal caring for students and teaching. I received encouraging awards, such as the UCLA “Graduate Woman of the Year” award, for publishing more papers than any other female Ph.D. candidate.

It was during these years in the lab at UCLA that I also met my wonderful husband, Jack Roth, who had left Johns Hopkins (where he had graduated with his M.D. degree and started his surgical residency) for a junior research fellowship, coincidentally in the same laboratory where I was then working.

Curiously, after we started dating some time later, he decided to stay at UCLA as a surgical resident. Jack shares my love of science and research, and since he was an only child whose Mom had worked full time, he had no problem with my pursuing a career and in fact was quite encouraging — then and now. We were married Thanksgiving weekend in 1978, in nearby Santa Barbara, California, which was as far as we could possibly go and still be back to work on Monday morning. Jack also shares my love of music, and, although we had only 30 guests at our wedding, we splurged on hiring a classical string quartet to play for the ceremony and another live band and vocalist for our dinner and dancing. The next spring, I finished my postdoctoral fellowship at the UCLA Molecular Biology Institute and began my first professional position, at the National Institutes of Health, in 1979. I assumed that I was going to do a second postdoctoral fellowship but quickly learned that I had been hired by Steve Rosenberg as the youngest member of “Cancer Experts” at the National Cancer Institute in Bethesda.

In Bethesda, Jack and I bought our first house and settled into happy years of building our careers, with dinners often at the health club after work and exercise, and season tickets to the National Symphony with the ritual drive down Wisconsin Avenue to the Kennedy Center. In 1982, when I was confident that I had a solid career, we began to consider that our lives might be enhanced by children, and in January 1983, our first daughter, Johanna, was born. I was totally naive about children and did not anticipate how much pleasure she (and later Katherine) would bring to us and our marriage. Jack and I were very fortunate to organize and afford a combination of domestic help, parents, in-laws, and advice from my sister to negotiate the early years of successful baby and toddler care. These were happy and active years during which I was very productive at work, having produced a series of *Journal of Experimental Medicine* papers that were recognized as “Citation Classics.” Our second daughter, Katherine, was born in 1986, during our last months at the NIH, and when she was three weeks old, Jack and I brought her on the plane to Houston for a house hunting trip, as I was still nursing. Jack and I both had been recruited to M. D. Anderson Cancer Center during the previous year, and we finally decided it was time to move to a more clinically oriented cancer center.

While my husband understands the needs of my work and is totally supportive, he is a thoracic surgeon who was often on call and was for 20 years a department chair at M. D. Anderson; thus, he was not able to assume primary responsibility for the house or care of the children. Despite this, he did take his turn driving the kids to school when necessary and was more involved and available than most husbands of our generation. He was always helpful in a most positive manner. As his department grew and the kids were more independent, he did rearrange his schedule often to observe

or participate in many events, especially during their high school years.

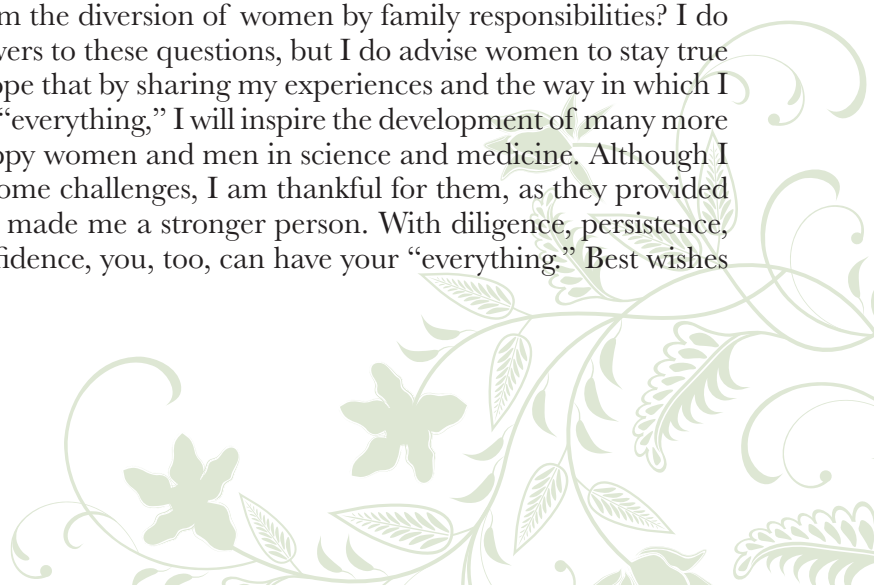
During the years of child-rearing responsibilities, I significantly decreased my travel and speaking engagements and did not pursue several leadership “promotion” possibilities. I admit that for approximately 10 years, I maintained steady forward momentum by keeping my grants, publishing papers, and graduating Ph.D. students but not taking serious risks in these areas. My challenges were in the areas of time and home management. Science advanced steadily but slowly in my lab, and probably not to the levels that would have been possible had I been childless. I now realize that I was distracted often by the daily needs of my family and struggled to compartmentalize home tasks at home and research tasks at the lab. Reading scientific papers at night and writing grants on the weekends had to be carefully planned and involved hiring a regular Saturday morning babysitter, enduring a lack of sleep, and/or skipping badly needed exercise. I did advance from associate professor to full professor and received an endowed Ashbel Smith Professorship during this time, so I was not considered to be slacking from the perspective of many. Now that our house is often empty, I am back in full gear: I’m receiving more local and international speaking invitations than I can possibly accept, serving on numerous study sections and many committees, and have received the first Francis King Black Memorial Professorship in Cancer Research. When I am in town, my daily life is spent in the office managing several major projects, which I supplement with Anusara yoga, pilates and aerobic exercise programs, attendance at concerts, and a variety of other social activities.

Now, Jack and I have had 30 wonderful years of marriage and raised two bright and beautiful daughters who are now young adults. I also must note that I am fortunate to have had several wonderful childcare helpers, including the same housekeeper, Maria Aviles Garcia, for all 22 years that we have lived in Houston; she and her family have become part of ours in many ways and hopefully will remain so. It has helped not only my husband and me but also my children to have an energetic adult who is available after school and whose sole purpose is to provide them with security and attention. According to my daughters, having another loving adult care for them after school has enriched their lives. Both my husband and I have been able to demonstrate to our daughters that with diligence and persistence, both men and women can succeed in their chosen careers *and* have a successful family life. In earlier years, usually when we arrived home, the children had been fed and homework was in the process of being done. In later years, we had dinner together if possible, as I tried to be home by 6 p.m. regularly. Rather than rushing home to cook dinner and get the children started on homework, we instead focused on relaxing with them and enjoying their company, helping with difficult homework problems or music practice, or

attending one of their sports team activities.

In my life, I have consciously chosen to play three major roles. In the order of their development, they are: (1) professional cancer researcher, (2) wife, and (3) mother. My experience in all three of these roles has led me to two major conclusions. First, the early years must be managed optimally to achieve success in one's career. Then, if one chooses to, your life can be adjusted to accommodate marriage and a family. My belief is that the groundwork in the early years is *not* flexible, since periods of intense focus must be spent on obtaining the advanced degree, competing for early faculty positions and obtaining tenure. These tasks are immutable and consuming. The major selection for advancement in the academic field comes during this period. If you lose your focus and competitive position, it is extremely difficult, if not impossible, to catch up. Although I am certain that there are exceptions to this, I know of none. After the first grants and a tenured faculty position have been obtained, both men and women in research have a flexibility to accommodate family life and activities that those in many other professions would envy. Second, it is possible to have "everything" if that is what you want — but not all at once. In my view, it is hard for some young people today to delay gratification in some areas while they are establishing themselves in others. I believe that the only way to have both a family and a professional career is to acquire them sequentially, nurturing each in turn for a series of years before aiming for the next role.

My experience in mentoring also tells me that women, much more than men, strive to achieve the expectations of others. Women are not often aware of how to successfully balance their needs with the needs of the people who are attempting to influence them. Although statistics indicate that more women than men are graduating from college and then from medical and graduate schools, the higher ranks of academia remain filled primarily with men. Is this due to indecision or a lack of commitment on the part of women? Could it result from the diversion of women by family responsibilities? I do not know the answers to these questions, but I do advise women to stay true to themselves. I hope that by sharing my experiences and the way in which I have achieved my "everything," I will inspire the development of many more successful and happy women and men in science and medicine. Although I have had to overcome challenges, I am thankful for them, as they provided opportunities that made me a stronger person. With diligence, persistence, planning and confidence, you, too, can have your "everything." Best wishes to all of you!

A decorative floral illustration in a light green color, featuring stylized leaves and flowers, positioned in the bottom right corner of the page.