

Other

Frederick T. Kraus, MD: An Interview With Thomas M. Ulbright

Frederick T. Kraus, M.D. and Thomas M. Ulbright, M.D.

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Frederick T. Kraus, Fred to his many friends, is a still-active pathologist at the age of 86yr with a special interest in gynecologic and placental pathology. He has practiced his entire career in the environs of St. Louis, Missouri, both at Washington University and at 2 large private hospitals. For those of my generation, his book, *Gynecologic Pathology*, published in 1967, clarified what at that time was an especially confusing area of pathology that had hitherto been mostly in the province of gynecologists with limited experience in pathology. It remains a fine example of lucidity and clinicopathologic correlation. Early in his career Fred worked as a faculty member at Washington University in the illustrious Division of Surgical Pathology headed by Dr Lauren V Ackerman. He later moved to the private sector but carried on his academic interests, with publications and participation in teaching courses for several national pathology societies. His career illustrates that the “divide” between private practice and academic pathology is one that can be bridged to the benefit of both. He initiated one of the earliest fellowships devoted to the training of pathologists wishing for in-depth exposure to gynecologic and obstetric pathology. Many of his former fellows went on to successful academic careers at a variety of

institutions. He developed an extensive consultation practice in the St. Louis area, not only for lesions related to gynecologic pathology but also covering numerous areas of surgical pathology. His diagnostic acumen and understated, modest demeanor made him a sought-after advisor for members of that pathology community but his influence has been felt much further afield. I first became acquainted with Fred when he willingly gave teaching conferences to residents in pathology at Washington University, probably about 1976. These were challenging affairs, requiring not only knowledge of the morphology of various lesions but their clinical significance and differential diagnosis. I remember thinking that this is a person I can really learn something from, and I happily was able to do just that during my subsequent fellowship with him. Today, 16yr after his formal retirement, Dr Kraus continues to study placental pathology, returning once more to Washington University. He is an author of the AFIP nontumor atlas devoted to placental pathology. I am sure readers of the journal will enjoy the reminiscences of this superb pathologist and fine gentleman whose career spans many years from the days when surgical pathology was largely dependent upon hematoxylin and eosin–stained slides and a few other histochemical stains to the modern era in which a number of other sophisticated modalities are available. – T.M.U.

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T.M.U.: *As I recall you are originally from Oklahoma. Could you tell us a little about your family background and early life and particularly what influences may have caused you to attend*

medical school and later choose to train in pathology?

F.T.K.: My paternal grandfather had learned the trade of making jewelry in Germany, and emigrated around 1880 to avoid military conscription. He arrived in Pittsburgh Pennsylvania to find a flourishing community of German immigrants, where he founded a jewelry manufacturing company, and married a young lady with a similar background. Soon after, my father was born in Pittsburgh and went on to study geology and petroleum engineering at the University of Pittsburgh and at Carnegie School of Technology. My mother's family, who had Scots-Irish origins, had settled in western Pennsylvania in the late 18th century. My mother was also born in Pittsburgh and graduated from the Pennsylvania College for Women, now called Chatham College. The 2 families became neighbors. After their marriage, my parents moved first to California and then to Oklahoma, where the discovery of vast oilfields was changing the country.

I was born in interesting times in Oklahoma City on the first of May, 1930, where my father was a petroleum engineer working in the oil industry. About the time I was born the famous "Mary Sudik" oil gusher blew, spewing tons of oil more than a quarter mile into the air for many days, making national news and entertaining my mother, who could watch the towering smoky spectacle from her window in the hospital even though it was a few miles away. (She claimed that this dramatic event might have portended potential accomplishment for her little baby.) My mother did social work assisting migrant workers headed for California, as Steinbeck described in *The Grapes of Wrath*. Oklahoma was a colorful place in those days, full of exciting things for children to see. My parents took us to visit cattle ranches and Indian reservations for rodeos and Indian dances. My younger brother and older sister and I grew up mainly in the town of Bartlesville, Oklahoma, headquarters of the Phillips Petroleum Company. My brother and I spent many hours riding our bikes all around the countryside, playing cowboy. I also enjoyed making rubber band-powered model airplanes, which I flew around the neighborhood and also at our small local airport.

About the time I was 13, my parents prompted me to take my idle hands to work at a Saturday job washing the crockery in the pathology laboratory at the local hospital. The hospital actually had a pathologist, unusual for such a small town in those

days. Her name was Dr Elizabeth Chamberlain, recently retired from the faculty at the Women's Medical College in Philadelphia, and also a good friend of my mother. I was very curious to know what she did and why, which she took time to explain very well. She also regaled me with stories about her pathology studies at Johns Hopkins under the famous William H. (Popsie) Welch and lent me her copy of "*Miss Susie Slagle's*," a popular novel about the education and boarding house lives of medical students at Johns Hopkins around the time of World War I. I was thoroughly entranced and inspired to follow the track to become a pathologist. Other books that further stimulated my interest in medicine during my high school days included *The Microbe Hunters*, by Paul De Kruif, *The Life of Osler*, by Harvey Cushing, and *Arrowsmith*, by Sinclair Lewis. I enjoyed school, including several years of Latin, and played the oboe in the high school orchestra.

I attended the College of William and Mary in Williamsburg, Virginia, where my science interests involved especially a major in chemistry, but included several courses in biology, physics, and mathematics. As long as I was there I took languages, including French and German, but also ancient Greek and as many courses in English, economics, and art history as I could get into. This took the usual 4yr, but I spent every summer there as well. You could say that I really did like school!

While I really enjoyed to the fullest all the educational steps along my way through college and medical school, my pathology-oriented goal never changed. This focus may have been a compelling factor in the success of my medical school application, which included my enthusiastic determination just as I tell it now. My admission to Washington University in St Louis was accompanied with a Jackson Johnson Scholarship, for which I will be forever grateful.

Washington University and its pathology department turned out to be a wonderland for me. Our professor and chairman during my student years was Robert A. Moore, whose lectures told an interesting, well-organized, and authoritative story about lesion after lesion while he puffed on one cigarette after another. His *Textbook of Pathology* provided a thorough grounding in general pathology. By the time my residency began, we had a new chairman, W. Stanley Hartroft, known especially for his studies of nutritional injury to the liver. The major highlight of learning during my pathology residency was Margaret G. Smith, an outstanding, almost magical, gross

pathologist and teacher. Dr Smith managed to make her extremely detailed gross reviews of my autopsies so richly educational for me that I spent an extra year, doing autopsies as well as supervising junior residents, in a newly created office of chief resident. A talented virologist, Dr Smith also cultured the virus for St Louis encephalitis and identified its curious multi-generational chicken mite reservoir, a tour de force of virologic investigation (1). She was also the first to propagate the cytomegalic inclusion disease virus in tissue culture explants. We residents, including me, who collected the submaxillary glands from newborn/infant autopsies for culture, called it "salivary gland virus" in those days. At Dr Smith's suggestion, I made a point of reading the original descriptions of the major diseases displayed in my autopsies, which the marvelous open library stacks of the Washington University library made so easily accessible, even in 19th century French and German journals as well as those in English. Dr Smith was often around the office area evenings after supper. Sometimes she sat down in my office area and read a paper she was preparing to deliver. I felt hugely flattered by this attention, until I ultimately became aware that my presence merely allowed her to avoid the appearance that she was talking to herself had she stayed alone in her own office.

Other important teachers included Dr Sara A. Luse, a neuropathologist, who also stimulated us to learn details and techniques of the emerging field of electron microscopy, and Dr Paul E. Lacy, who was deeply involved with the ultrastructure and functional biology of the pancreatic islets. Dr Lacy followed Dr Hartroft as the next Department of Pathology Chairman, and was a friend and very instrumental in keeping me involved in the Washington University pathology department.

Some fundamental writings I remember included especially *The Pathogenesis of Tuberculosis* by Arnold Rich of Johns Hopkins, *Pathology of the Fetus and Infant* by Edith Potter, and *The Borderland between Embryology and Pathology* by Rupert A. Willis. In time my favorite pathology text became *Pathology*, a new, more encyclopedic successor to Dr Moore's textbook, edited by W.A.D. Anderson. Several years later, I found myself honored to follow Arthur T. Hertig as author of the chapter on *Female Genitalia* after Dr John M. Kissane took over the editorship of later editions of *Anderson's Pathology*.

T.M.U.: *You trained under Dr Lauren Ackerman in the middle of the "Ackerman era" at Barnes Hospital. It seems like anyone who trained with*

Dr Ackerman has some favorite anecdotes concerning him. What are your most vivid memories of Dr Ackerman during this period, or even later in your career?

F.T.K.: Dr Ackerman was a strongly charismatic teacher and leader. The learning day began at 7 AM. There would be case presentations with all of the staff and residents present, each of us waiting in a state of high alert to answer his questions, delivered like a lightning strike from the end of his roving pointed finger. The scope included recognition of lesions on projected slides, all significant details of patient, pathology, prognosis, pathogenesis, knowledge of recent relevant publications, and their authors. It was strenuous and exhilarating. After this, the long hours of relative quiet dissecting tissues, reading slides, and making reports were almost relaxing. Our preparation for these Socratic excursions involved extensive reading; we regularly followed, with expectation of eventually quoting, especially articles in *Cancer*, *The American Journal of Surgery*, and all the major American and English pathology journals, careful not to miss publications by Cushman D. Haagenson, Arthur Purdy Stout, Fred W. Stewart, among many others. We also gave special attention to the tumor fascicles published by the Armed Forces Institute of Pathology as a gold mine of useful information for surgical pathologists.

Dr Ackerman generously did not confine his pedagogic approach to surgical pathology. Each year he took the current crop of fellows to his club for lunch where he began our introduction to the appreciation of fine French wines. His office walls were decorated with signed lithographs by well-known painters, mainly French impressionists, and he firmly implanted into us the idea that our education included visits to art museums to widen our knowledge of modern art and artists. I stared so much at a Raoul Dufy lithograph mounted above his microscope that he ultimately gave it to me as thanks for my assistance with revisions of his books. It remains visible today on my wall at breakfast, a treasured remembrance of our friendship.

T.M.U.: *I have to take note of a wonderful photograph that is published in the book edited by Dr Juan Rosai, *Guiding the Surgeon's Hand*. It is Fig 7-14 in the chapter authored by Drs Louis Dehner and John Kissane concerning surgical pathology at Washington University and Barnes Hospital and it shows you in a group of fellows and staff for 1958-1959, specifically mentioning you as*

one of the “wunderkinder.” Would you like to elaborate a little on that photo and comment?

F.T.K.: The staff photo to which you refer (Fig. 1) includes the 4 of us Surgical Pathology fellows in 1958–1959. To my knowledge the term “wunderkind” was never applied to any of us until it appeared in “*Guiding the Surgeon’s Hand*.” However, our heady self-confidence may have attracted some attention, because Dr Ackerman never missed a chance to take us down a peg. When he caught us unprepared on any subject – and of course this did happen – we bounced back, eager for more. Visiting professors were routinely requested to ply us residents and fellows with detailed questions about their topic because as he often told them, in our hearing, “They think they know everything, but they don’t.” The constant challenge was exciting and it stimulated us to keep up with current literature. I always tried to read up as much as I could about any visiting professor’s publications before they arrived to speak, if possible.

One of the Fellows, Jules Kernen, who was *summa cum laude* in his Harvard undergraduate class, was the brightest of us all. He is the Surgical Pathology Fellow to the right of me in Figure 1. Jules and I kept up a constant barrage of questions aimed at each other on obscure subjects, in constant hope of eliciting an anguished cry of defeat. Expressions of annoyance from our colleagues never improved our manners. Gene Foster, to the right of Jules Kernen in Figure 1, entertained us all with his astounding array of variations on the “Trout” motif from the Schubert Piano Quintet, which he loved to whistle for us at odd moments. Tom Hunt, the remaining Fellow in our group (second from the left in the first row) graced us with his unfailing optimism and good humor.

That group picture (Fig. 1) also includes at least 3 surgery residents, including Dr Lynn Krause (far left, front row), who remains a friend to this day. The surgery residents all had a required rotation in surgical pathology as an integral part of their training in those days and for many years thereafter. A profound appreciation and respect for each other’s role in the care of the patients came out of this long, close contact between these specialties as we worked together in our later years of practice.

T.M.U.: *Who were other important figures in your pathology training and could you elaborate a bit concerning their personalities?*

F.T.K.: The most senior member of Dr Ackerman’s surgical pathology department when I started

was Harlan J. Spjut, a calm, steady and very effective teacher, much less scary than Dr Ackerman could be. Two more junior faculty, Walter C. Bauer and Malcom H. McGavran (Fig. 1), had graduated from Washington University and finished the residency the year before Jules Kernen, Dave Edwards, and I, but they were frighteningly competent and already well settled into teaching and always ready to help. Malcolm was focused on skin and Walter on prostates and ENT. Walter, of course, followed Dr Ackerman as Chief of Surgical Pathology. Walter was a notable polymath who took singing lessons from a professional and gave truly excellent recitals, singing such memorable operatic works as the “Winterstürme” aria from “*Die Walküre*”. Walter also had a large metal working studio where he produced interesting molded, curved, and welded works of art. He did not advertise his productions widely, but I often managed to find out about them.

T.M.U.: *Do you have any other memories or anecdotes concerning your fellow trainees at Barnes?*

F.T.K.: During the first couple of years on the autopsy service the one first up on the rotation would often comment to the others about feeling sick – to zero sympathy and to no avail. We performed the autopsies immediately after the permission was signed, at whatever hour, day or night. Each of us got a pair of rubber gloves on the first of July; they had to last a year. Of course they did not, and were soon full of holes. The notion of becoming infected by contact with infected tissues was not ignored; it was assumed we would avoid it by washing our hands after completing the dissection. Sidney Saltzstein, my roommate, actually constructed a tiny sailboat in our room and launched it in one of the ponds in nearby Forest Park. In the evenings, the unmarried group, Sidney Saltzstein, Carlos Perez-Mesa, and I, would hang around finishing up autopsy reports until about 9:30 and head to a nearby bar, the *Martinique*, for a beer.

Our surgical pathology group adopted the habit of taking a 10:00 AM coffee break, usually attended by 4 or 5 of us, including Barbara Rosenberg, Bob Ahlvin, Sidney Saltzstein, Jim Pitcock, and Gene Foster. We all expressed, vehemently, our conflicting views on current politics, the baseball Cardinals, and the state of the world for about 15 min, defiantly resisting any hope of consensus.

T.M.U.: *I know that for a period of time the gynecologic pathology at Barnes Hospital was performed by members of the Department of*



FIG. 1. Surgical pathology staff and fellows, 1958–1959. Front row, left to right: Dr Lynn Krause (surgical resident), surgical pathology fellow Tom Hunt, Dr Malcom H. McGavran, Dr Ackerman, Dr Walter C. Bauer, surgery resident. Second row, surgery resident, Surgical Pathology fellows Frederick T. Kraus, Jules H. Kern, Eugene Foster, and Carlos Perez-Mesa.

Obstetrics and Gynecology. How was it arranged that you were exposed to this material and became interested in gynecologic pathology? Was there someone in particular who was key to your interest in gynecologic pathology?

F.T.K.: In the first half of the 20th century, even in most university hospitals, the biopsies and organs resected by the individual surgical specialties (General Surgery, Obstetrics and Gynecology, Neurosurgery, etc.) were examined by members of the surgical specialties themselves. The academic pathology departments confined their scope to the autopsies and to basic research. Surgical specimens from OB/GYN were delivered to a pathology laboratory in Maternity Hospital where 1 of us 4 surgical pathology residents did gross dissections, microscopic descriptions, and signed out the cases. We were

supervised by and consulted with John E. Hobbs, MD and Seth Wissner, MD, both gynecologists with considerable training and experience in GYN pathology. Gynecologists in those days were very proud of their knowledge of pathology, a required subject for their residencies, and many of them spent 1, or often 2 yr studying GYN pathology, either at Johns Hopkins, or in Boston with Arthur Hertig at the Free Hospital for Women.

T.M.U.: *I know that you spent a period of time at the AFIP. You wrote some excellent papers with Dr Robert Neubecker, who was chief of gynecologic and breast pathology there in early years. He is someone who is not much known by younger pathologists. Can you share a few words about him?*

F.T.K.: Just after I completed the year of surgical pathology with Dr Ackerman, the firm hand of the

US Army clamped on my shoulder; I had been deferred temporarily on the Berry plan to complete my pathology residency, but now my 2 yr of active duty in the army began. I was actually stationed a few miles away from the AFIP, in the Second Army Area Pathology laboratory, in Fort Meade, Maryland. I went to the AFIP just to see the place in my spare time one day. As a US Army pathologist, the AFIP also served routinely as my consultant. I was welcomed courteously, shown around, and introduced to some of the available staff pathologists. They were well aware of my teacher, Dr Ackerman, by then an author who contributed to the AFIP tumor fascicle series, which may have given me some added degree of credibility. I announced my hope to have a chance to work on some project there. Lo, it happened! My commanding officer, Colonel Robert L. Cavanaugh, MC became aware of my academic interests and allowed me one afternoon a week to go there to work on projects. The AFIP was a wonderland with outstanding photographic and clinical follow-up facilities. Because of my inchoate interest in breast and gynecologic pathology, I gravitated toward Dr Neubecker ("Newby"), and asked him what I could do with him. This led first (his choice) to an article demonstrating that the luteinization of the ovarian theca in infants and children was a normal process, in contrast to prior concepts (2). Next, my choice, was to use the combination of the AFIP's large collection of breast lesions and superb follow-up services to develop some logic to distinguish benign from malignant papillary lesions of the breast, which turned out to be the first significant surgical pathology paper with my name on it (3).

T.M.U.: *Was it at the AFIP that you first became acquainted with Dr Herbert Taylor, who has been the subject of one of the historical essays in this journal? Could you tell us a little concerning your experiences with Dr Taylor and other notable figures at the AFIP while you were there?*

F.T.K.: Yes, Herb Taylor was in the Skin and GI branch, headed by Elson Helwig at that time. Herb had a magnetic personality with an encyclopedic knowledge of pathology in general and was always willing to talk, answer questions, and, like Dr Neubecker, generally made me feel welcome. Soon after we completed our collaborations my army service ended and Dr Neubecker moved to the Marshfield Clinic in Wisconsin. Herb Taylor then took over as chief of the Breast-OB/GYN branch. I stayed in contact with him and a year or so later

asked him to review some chapters of my developing *Gynecologic Pathology* book (Fig. 2) for the publisher, C. V. Mosby Co. Thanks to his approval the publisher took me seriously and the book was under way. I was very glad to welcome Herb to St Louis when he came as professor of surgical pathology at St Louis University. Herb was witty, wise, and a very good friend. We began to collaborate on a second edition to my *Gynecologic Pathology* book. Sadly, his decline in health and premature death did not allow the project to proceed very far. I was very much affected by Herb's illness, became seriously depressed, and lost interest in the revision of the book; indeed I avoided it.

T.M.U.: *When I was a resident in pathology at Washington University, I "discovered" your textbook, Gynecologic Pathology (4), in the departmental library. In the mid to late 70s it was one of the few available texts in gynecologic pathology and, in my opinion, it was the most accessible, so I read it from cover to cover. It first stimulated my own interest in this area, so I am curious what induced you to undertake its writing.*

F.T.K.: The idea that I could even do a book began with the happy invitation to work with Dr and Mrs. Ackerman on revised editions of his books. When I returned from my US Army duties in 1961 as Assistant Professor of Surgical Pathology, I embarked on the task of helping revise the GYN pathology chapters in Dr Ackerman's *Cancer* and *Surgical Pathology* books. This was a delightful experience. Approximately 1 night a week at 8:00 PM sharp I arrived at the Ackerman residence with my suggestions and proposed photographs for the relevant chapters and we worked steadily for 2 hr with Mrs Ackerman (Elizabeth) at the typewriter preparing the typed inserts, the final wording by Dr Ackerman. This was great fun, interspersed with his witty comments. If an illustration I had prepared did not meet his standard, he immediately tore it in half, to ensure that he would "never see it again." We stopped immediately when the clock struck 10:00. The coffee pot was rescued from the declining embers in the fireplace and I was supplied with a small glass of wine. In this pleasant way I began to learn how to go about doing a pathology book. We returned to this process through some later revised editions of his *Surgical Pathology* book after I moved from Barnes Hospital to work at St Luke's Hospital in July, 1963. It was also the basis for our collaboration on a series of articles on tumor pathology that were published in

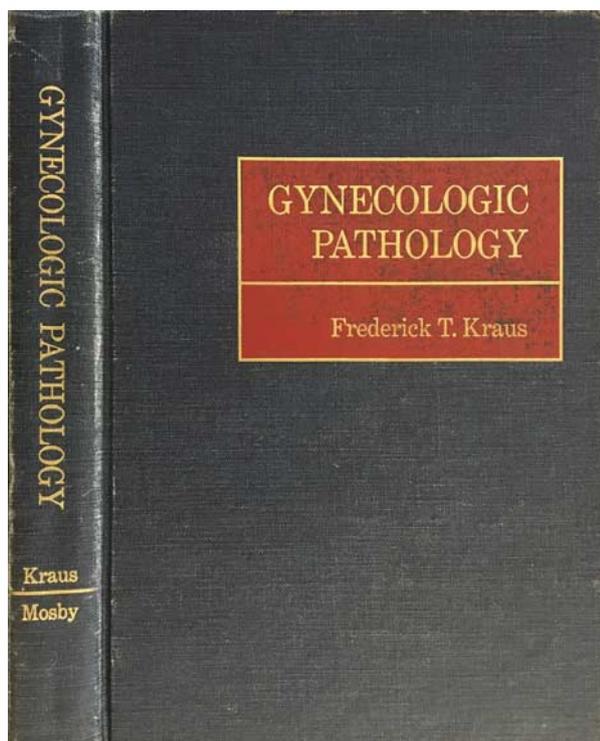


FIG. 2. End view and front cover of the textbook, *Gynecologic Pathology*, by Frederick T. Kraus.

1962–63 in *CA: a Cancer Journal for Clinicians* (Fig. 3) (5–9).

My concern about the state of gynecologic pathology itself began during the surgical pathology residency period allotted to gynecologic/obstetric pathology, which at that time, as noted earlier, was performed in the OB/GYN Department at Barnes. I became aware that clinical-pathologic correlations were not as well developed in the existing books as I thought they should be, so I determined to tackle the subject myself, beginning after my army service. I also felt the need to straighten out certain ill-defined concepts like pregnancy-associated changes in the endometrium, misapplications of the term “mesonephroma,” lack of awareness of the contributions of such European pathologists as Magnus Haines, Harold Fox, and Fred Langley in England, Lars Santesson in Sweden, and Gunnar Teilum in Denmark, in the early 1960s. The illustrations of my book, *Gynecologic Pathology* (4), were mostly from specimens I had dissected, with gross and microscopic photographs taken by a professional photographer, Mr K. Cramer Lewis, at Washington University.

T.M.U.: *I know that you have always been devoted to excellence in teaching. When and how did*

teaching become a component of your professional life?

F.T.K.: Teaching at Washington University began for me during my third year of residency there, even before I started surgical pathology. My first lecture was on bone pathology given to the second year pathology class. I prepared like crazy and enjoyed it all. Even after I moved to St Luke’s Hospital in 1963, I was kept on as a lecturer and laboratory demonstrator to the second year students for the next 27 yr. In this sort of teaching appointment I became ultimately titled as a “Clinical Professor.” I regarded myself as a member of the team of teachers for the second year pathology students and enjoyed the connection thoroughly. I specialized in gynecologic pathology during these years. I also had teaching responsibilities to prepare for the OB/GYN residency programs, both at Washington University and St Luke’s Hospital. So back in those days I continued to maintain regular and very cordial connections with Washington University. This relationship continued after I moved from St Luke’s to the position of Pathology Chief at St John’s Mercy Medical Center in 1974.

Most enjoyable and professionally rewarding of all was the opportunity for pathology teaching, as Program Director of the Pathology Residency at St John’s. I tried very hard to imitate and follow the regular academic surgical pathology teaching conferences that I had experienced under Dr Ackerman. This program expanded to include my fellowship in gynecologic pathology, and later fellowships in dermatopathology under the direction of Dr Daniel J. Santa Cruz and renal immunopathology under Dr Frederic G. Germuth. We had a lot of bright and interesting people around, a truly rewarding experience.

T.M.U.: *After some years at Barnes you moved into the private practice setting, first at St. Luke’s Hospital in St. Louis and later to St. John’s Mercy Medical Center. What prompted these moves and what are your reflections on the differences for pathologists in the private practice and academic settings?*

F.T.K.: Research involving experimental animals was always promoted at Washington University. Even before graduation I participated in a study involving the beneficial effect of shielding the spleens of radiated mice before exposing them to an infection challenge with *Escherichia coli*. Another involved the autopsy component of experimental aortic coarctation in dogs. Most embarrassing was a failed study of rats with experimentally induced liver cancer in

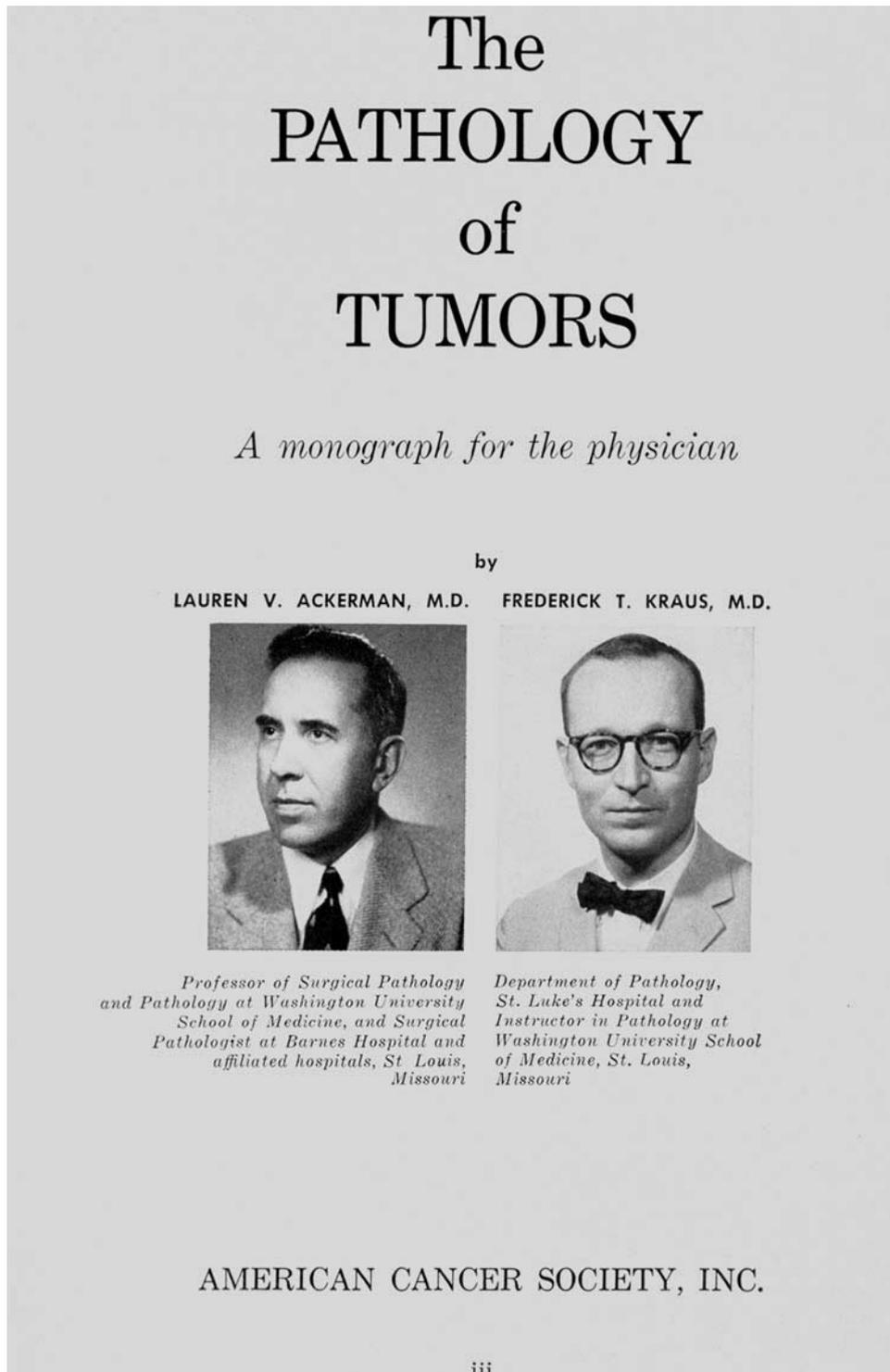


FIG. 3. Frontpiece at the beginning of a series of articles on tumor pathology coauthored by Drs Lauren Ackerman (left) and Frederick T. Kraus (right) for *CA: A Cancer Journal for Clinicians*.

whose serum I planned to seek evidence of a substance that might promote regeneration. I weighed them with bare hands, because the heavy gloves upset them, and actually seemed to develop a friendly relationship. This made the time I ultimately had to kill them especially traumatic – not just to the rats, but to me! I had concluded that I could never do research happily with experimental animals. What I did want to do was patient-oriented surgical pathology. Both St Luke's Hospital and, subsequently, St John's Hospital, were teaching hospitals with opportunities for teaching pathology residents, writing a book (at St Luke's), and conducting clinicopathologic studies bolstered by electron microscopy and immunohistochemistry (at St John's). These opportunities seemed to provide the type of life I wanted.

At the time of my move to St Luke's I had finished 2yr of Army service and was back as an assistant professor in the surgical pathology department at Washington University. Dr Ackerman had an outstanding associate, Harlan J. Spjut. As competition at the next level were 2 superb surgical pathologist-teachers, Walter C. Bauer and Malcolm H. McGavran (Fig. 1), both securely ensconced in dermatopathology and ENT Pathology, respectively, and with the clinicians in those services. Senior to me also at this time were Sidney Saltzstein and Barbara Rosenberg. They were all valued friends, only 1 yr ahead of me in training, and I could see no realistic expectation for a long-term place in surgical pathology at Washington University for me. Furthermore, my lack of interest in a basic research career, especially involving animal experimentation, made my academic future less promising at Washington University. Nearby at St Luke's Hospital, Robert W. Ogilvie, an earlier Ackerman trainee whom I already knew well, had become head of the pathology department and offered me a position as associate pathologist, with a major time commitment to surgical pathology. Many of the surgeons and internists there were either current or former staff I had met at Barnes Hospital. Dr Paul Lacy, then Chairman at Washington University, appointed me to continue duty as a teacher (female genital tract) of the second year pathology course at Washington University, and there was no dilution of pathology standards; so it did not seem to be such a total departure. Bob Ogilvie and the St Luke's staff were quite pleased to find that I was starting to write my gynecologic pathology book. By 1967 the book was published. I continued to maintain my appointment on the "Visiting Staff" in the pathology department at Washington University. This move made sense to me.

I should emphasize that I have always felt myself somehow to remain connected, however informally, with Washington University School of Medicine. Over the years I have maintained my acquaintances and continue to feel welcome whenever or wherever I have turned up. It has been like family: no red tape, ever.

Almost all the gross and photomicrographic Illustrations published in my articles as well as in the *Gynecologic Pathology* book were taken with the assistance of Mr K. Cramer Lewis in the Photography Department. I made appointments and walked in with my slides. When I wanted to include some ultrastructural observations on radiated uteri for the study I reported in the USCAP Long Course in 1971 (10) I took my tissues from specimens I dissected at St Luke's over to friends in the anatomy department. With some refreshed direction from colleagues there, mainly Dr Allen Enders, I took my EM pictures. I had frequent invitations to present pathology lectures to the residents and fellows in the OB/GYN department. However, my teaching at Washington University pathology course came to an end in 1990 as my wife became terminally ill, and I needed to reduce my activities as much as possible. After this time, I ceased being a part of the department, the existence of a "Visiting Staff" had become anachronistic, and the new Chairman of the Department of Pathology and Immunology, Dr Emil Unanue, eliminated it. When I retired from practice at St John's in 2000 I was approached by Dr Michael Nelson, the head of Maternal-Fetal Medicine at Washington University, to assist in departmental research projects involving placentas. So now, I am an Adjunct Professor of Obstetrics and Gynecology at Washington University. Happily, I am still there, in the "Nelson Lab," every day.

T.M.U.: I consider myself one of the great beneficiaries of your fellowship program in gynecologic pathology that you ran while at St. John's. I have to believe this was one of the very earliest of such fellowships. Would you care to tell us how it began and also mention those who were your fellows.

F.T.K.: When I assumed the Pathology Directorship at St John's in 1974, I was encouraged and supported from the start to develop the pathology residency to include appointees in every year of a standard 4-yr program. Before that year ended, I was approached by a young woman who was just completing her pathology residency at Washington University; she requested that I admit her to a fellowship in gynecologic pathology, under my

direction. I responded that there was no such fellowship, to which she replied, "So start one." I went to the Hospital President, Sister Mary Roch, who said on the spot, "Do it." At which point I told my first applicant, Fattaneh (Tanya) Tavassoli, "We start on July 1." Together Dr Tavassoli and I published a study of 48 consecutive patients we identified with atypical hyperplasia of the endometrium treated by hysterectomy, with a critical evaluation of the lack of significance of focal carcinoma in 12 of the subsequent hysterectomies (11).

Tanya was followed by a remarkable series of talented young people, most of whom, like Tanya, who is now at Yale, and of course, you, Tom, are now professors at various institutions. All of the fellows authored one or more publications in peer-reviewed pathology journals; actually, so did nearly all of our pathology residents. Beverly Kraemer also wrote a book; Helen Michael, Michael Mazur, Greg Spiegel, and Scott Martin became professors, and Scott returned to follow me as Chief of the Pathology Department at St John's. I can be proud of all of them. Figure 4 is a representative photograph of some of the St John's pathology staff in 1980, including Dr Thomas Ulbright during his year as Gynecopathology Fellow (back row, center) with a few other residents and pathology staff.

T.M.U.: *I know that over the years you have participated in a number of educational programs for organizations such as the ASCP and IAP (later termed "USCAP") and others. I believe you had major responsibilities for at least 2 of the "Long Courses" of the latter society. Who did you enjoy working with on these activities?*

F.T.K.: My introduction into the IAP educational programs was promoted by Dr Ackerman. He sought to convince me that I would flounder hopelessly after finishing my gynecologic pathology book if I did not immediately embark on some new projects. Thus, he induced me to submit a Short Course on "Vulva, Vagina and Cervix," which I presented for several years at the annual IAP meetings. This course lasted far too long, such that I became sick of the subject. Jason Norris, by this time head of the AFIP Breast and GYN branch, took charge of organizing the annual Long Course dealing with the uterus in 1970, as well as editing the resultant monograph based on the course. He asked me to contribute a couple of talks to be presented at the 1970 meeting. These eventually took the form of chapters, one on the biology of carcinoma *in situ* and microinvasive

carcinoma of the cervix (12), and another an ultra-structural study of irradiation changes in the uterus (10). Almost 20 yr later I found myself editing, with Dr Ivan Damjanov, the USCAP Long Course which was titled *The Pathology of Reproductive Failure* (13). As a highlight of this course presentation, we made a special point of honoring Dr Hertig, still quite hale and hearty and in attendance at the meeting, as we showed some of his remarkable early ova. His cheery response brought loud applause.

In addition, other friends and mentors included me in the conduct of CME courses in gynecologic pathology. The first was Frank Vellios, a surgical pathology trainee of Arthur Purdy Stout, who had by this time become editor of the *American Journal of Clinical Pathology* and professor at Indiana University. Frank organized a CME gynecologic pathology course for the ASCP, and asked me to join his faculty group, comprised of Robert Scully (Harvard), William Christopherson (Louisville), and James W. Reagan (Case Western). Needless to say I was immensely flattered to be included with this set of eminent surgical pathologists and threw myself into it. The ASCP experimented with my pictures of vulva, vagina, and cervix to do a prototype atlas illustrating the pathology of these organs based on my part in that course. This course lasted 4 or 5 yr, during which I learned a lot from all of them and thoroughly enjoyed our developing friendships. About this time the Arthur Purdy Stout Society decided to enlarge its membership from Stout associates and trainees to include well recognized surgical pathologists as a group. Each existing member selected one new member; I was thrilled to find that Frank Vellios selected me. We had our first meeting in New York at which I, as well as some others, was required to present an interesting case. For a few years I was Chair of the Admissions Committee. Since that time the Arthur Purdy Stout Society of Surgical Pathologists has expanded tremendously.

The ASCP course was followed by an invitation by Steve Silverberg to participate as a teacher in a similar course sponsored annually for several years in July by the University of Colorado at the Given Institute in Aspen, Colorado. The summer trips to Aspen were a major treat, allowing me to indulge in fly-fishing on the Roaring Fork River and explore the many hiking trails there. Later, I took part in a series of courses on placental pathology organized by Douglas Shanklin, first at the University of Chicago, and later at Woods Hole. In addition to the usual



FIG. 4. A portion of the pathology staff and residents at St John's Mercy in 1980. In the front row are Drs Tomas I. Aquino, Andres J. Valdes, Nissi Varki, John Chumas, and Donna Weise. In the back row are Drs Phillip Burch, Thomas M. Ulbright, and Frederick T. Kraus.

slide presentations, Doug managed to have fresh placentas around, which he presented bare-handed, assuring us that it was very good for improving one's skin complexion.

In more recent years I enjoyed some itinerant trips as visiting professor to give lectures on gynecologic pathology topics as the guest of Dr Vincenzo Eusebi at the University of Bologna (1997) and at the University of Rome (Tor Vergata) in 1995 as the guest of Dr Giuseppe Santeusano and Professor Luigi Spagnoli in the company of Robert R. Pascal, a well-known member of the Arthur Purdy Stout trainees at Columbia University.

T.M.U.: As noted earlier, in your "retirement" you have moved back to Washington University and now occupy a position in the Department of Obstetrics and Gynecology where you study placental pathology. Even when I was a fellow I saw that you were quite interested in the placenta, so I would like to know what stimulated this interest to the extent that you have devoted the latter portion of your career to it.

F.T.K.: Ah, placentas! Placentas were rarely sent to pathology during my residency days at St Louis Maternity Hospital. My interest became known, and I started presenting pathology to the local/regional maternal mortality conferences. If placentas were very remarkable in some way, they would be brought to the lab to be looked at by a cluster of interested obstetricians. But I was always interested and after I moved to St Luke's Hospital in 1963 my OB friends would sometimes send an unusual one, as a personal present, something I could photograph for the book. No one expected a report and certainly there was no bill from the pathology department. Several years passed and then the lawsuits on obstetricians began to pile up. Not too long after I moved to St John's Mercy in 1974, the OB Department there set standards for submission of clinically indicated placentas to be sent for pathologic study. Placenta submissions increased, especially if there was any indication of trouble, and the value of these examinations soon became apparent, especially in the event of a lawsuit. These provided the pathologic basis for our articles

on such subjects as chorioamnionitis (14), fetal thrombotic vasculopathy (15,16), hemangiomas (17), and other vascular lesions. I am especially pleased by an autopsy series that demonstrated cerebral and other visceral thrombi and infarcts in newborns with fetal thrombotic vasculopathy in the placenta (15).

I was pleased and flattered by the fact that some of the obstetricians would often attach a note indicating "Attention Dr Kraus" to the placentas from their patients. Pathologists generally did not seem to share my infatuation with placentas. I have heard it said that on a busy day some of my pathology colleagues might have been tempted to add themselves a note of "Attention Dr Kraus" to placenta specimens intended for their day's work. If so, I never noticed.

I have been extremely fortunate to be able to assemble a remarkable pathology staff at St John's Mercy Medical Center. We were good friends, competent pathologists, and all motivated to achieve excellence in teaching, and the practice of pathology in a tertiary care environment. Pathology subspecialties represented included neuropathology, renal immunopathology, clinical chemistry, microbiology and virology, hematopathology, dermatopathology, gynecologic and perinatal pathology, and blood banking.

When, in 1991, I stepped down as chief of the pathology department at St John's Mercy, and I asked to be allowed to take over the examination of *all* of the placentas and *all* of the perinatal autopsies, the request was definitely greeted with smiles from everyone. When I ultimately retired in July, 2000, it was because the effort to examine as many as 20 – or more – placentas a day had become too much for my back, not from any ebbing of interest. At this point I must add that my placental work was made lighter by the devoted assistance of Doctor Ackerman's younger daughter, Jennifer Ackerman Arndt, who for years weighed, measured, and organized my examination of the placentas. She also organized the photography setup for many gross photographs selected by me and for all of the pathologists and residents in the gross room.

T.M.U.: During your long distinguished career you have seen many changes in the field with the advent during the time of electron microscopy, immunohistochemistry and molecular pathology. Much as the new techniques may contribute I think it fair comment that some senior pathologists have concerns that it can lead to a trend to de-emphasize all the "old" important aspects such as clinicopathologic correlation and gross features of specimens.

Do you have any reflections on what I am raising and indeed on the overall course of pathology as you see it today?

F.T.K.: Surgical pathology has undergone remarkable changes in the past 65 yr. I believe that the impact of all these new techniques has been consistently positive. The main contribution of immunohistochemistry, electron microscopy, and molecular pathology has been to confirm, refine, and sometimes correct the diagnostic information that microscopic study of cells, tissues, and tumors conveyed to us by the simple hematoxylin and eosin-stained slides when I graduated in 1955. As of today, pathologists continue to do much, or even most of the definitive significant diagnostic surgical pathology interpretations with the same hematoxylin and eosin slides and microscopes as used when I started. The pathologist now has a better-informed brain and the ability to confirm opinions that were less certain in years past, by applying these new techniques.

T.M.U.: I know your daughter, Madeleine, has gone into pathology and, like many, you have had a very supportive spouse. Would you care to share with the reader any reflections on the strong happy family environment (Fig. 5), which I am sure contributed to a positive outlook at work?

F.T.K.: Yes, Madeleine got her pathology start at Brigham and Womens, where she branched into Hematopathology under Geraldine Pinkus. She followed my steps in medical school at Washington University School of Medicine and even, for a short period, at St Luke's Hospital. She is now head of hematopathology at the Nemours Children's Hospital in Orlando, Florida.

Her younger sister, Caroline, has developed a career as a writer and documentary film maker, with a focus on human-animal relationships. Her current documentary in preparation is titled *Moments of Truth Project*. Her first book was a memoir entitled *Borderlines*, published by Random House.

My son, Grant is an attorney employed as senior counsel by the National Labor Relations Board. In this way he fulfills his personal goal to improve labor-management relations and ensure balanced implementation of the National Labor Relations Act. He has served as a member of the vestry of St John's Episcopal Church on Lafayette Square in Washington DC and on the Board of Directors of Rebuilding Together of Washington DC, a nonprofit that repairs the homes of low income residents. He is an active rower and a member of the Capital Rowing Club.

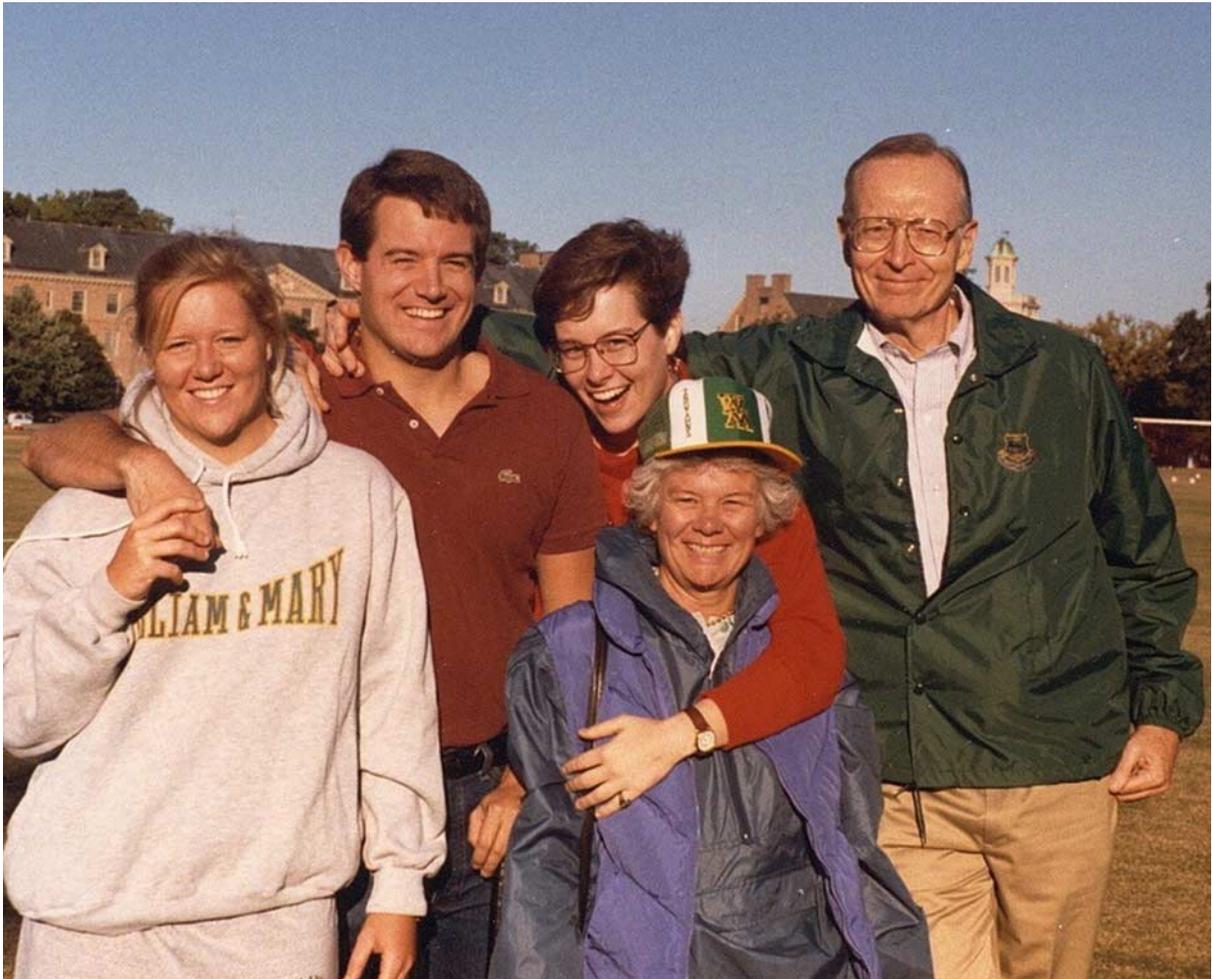


FIG. 5. The Kraus family circa 1986, from left to right, Caroline, Grant, Madeleine, Monny, and Fred.

My late wife, also Madeleine (Monny), was supportive of my career from the beginning, and even involved in my academic pursuits. She encouraged my extracurricular activities at the AFIP during my army service by defending my schedule and by typing the long hand drafts of my early papers. When I started work on my gynecologic pathology book, handwritten on lined pads, Monny typed the whole manuscript. She was totally attentive to our children's education, but saw to it that I participated also, from reading aloud before bedtime, to changing diapers and attending teacher conferences. I was convinced that each of our children should have his/her own microscope, with which I showed them the teeming life forms present in pond water and infusions from a tuft of grass from the yard outside the house. I actually envisaged the microscopes as having constant enthusiastic use. They took all this in

good humor, but only Madeleine still uses a microscope.

Our family has remained close. For over 20 yr my second wife, Gayle (Fig. 6), and I have rented a house in Islesboro, Maine, in August, where we have vacationed together with at least 1, but usually more of my 3 grown children. We have fun together as a family, sailing, playing tennis, paddling sea kayaks, and on foggy days playing bridge. We also share Christmas holidays together, each year in St Louis. Whenever at least 4 of us gather we set up the bridge table.

Gayle has pursued a very absorbing international business career in the energy industry and was already widely travelled when we met. In recent years Gayle has given encouragement and major assistance in organizing my travels to give placental talks in Granada, Bologna, and Rome. We have also traveled



FIG. 6. Gayle and Fred sailing in Maine.

as tourists and to visit friends in London, Paris, Berlin, Vienna, Athens, the Greek Islands, Venice, the Dalmatian Coast, and, most recently, Istanbul and Milan. As an avid and competitive tennis player, Gayle gets me on the court, in a shared lesson with a pro each week, more in the summer. She is very active professionally as trustee on corporate and nonprofit boards, which stimulates me to continue my daily appearance at the WUMS laboratory.

T.M.U.: *Perhaps you would like to elaborate a little bit more on your post-“retirement” activities.*

F.T.K.: Throughout my postretirement years I have continued as associate editor of *Human Pathology*. I continue to enjoy editing the case reports, most of which present interesting ideas and keep my pathology concepts a little more current. Now that I am less pressed for time, interacting with the reviewers and authors has also become more rewarding. This

involves some degree of activity pretty much every day.

I have already mentioned my teaching activities in the OB/GYN department at Washington University. The relationship there resumed in July 2000 with an appointment as Adjunct Professor of Obstetrics and Gynecology (!) assigned to the “Nelson Lab” directed by D. Michael Nelson, MD, PhD, the Virginia S. Lang Professor of Obstetrics and Gynecology. Currently, I continue to enjoy the stimulation of contact with residents, fellows, and the research team in the Obstetrics and Gynecology Department at the Washington University School of Medicine.

I have contributed my observations of the relevant placental pathologic features to several of the research publications from this laboratory. We have identified placental pathologic features in growth restriction in a series of 161 SGA fetuses, identified the apoptotic nature of the nuclear changes in

meconium-associated vascular necrosis, and shown correlations between different placental sites and gene expression. In 2004 I completed an *Atlas of Placental Pathology* (18) for the AFIP Non-Tumor Series published by the American Registry of Pathology, with the aid of coauthors Raymond Redline, Deborah Gersell, Jeffrey Dicke, and Dr Nelson. I enjoyed helping Ona Marie Faye Petersen organize a week-long course on perinatal pathology for the Society of Pediatric Pathologists, which took place in Salt Lake City in 2008.

In April, 2010 I assembled an international group for a course on placental pathology, which was hosted and beautifully organized by Professor Francisco Nogales and presented in his pathology department at the University of Granada in Spain. The speakers included Eoghan Mooney (National Maternity Hospital, Dublin), Rebecca Baergen (Cornell University, New York), and Raymond Redline (Case Western Reserve, Cleveland), with Michael Wells (President, European Society of Pathology) and Professor Nogales presiding and discussants. This event was dedicated in homage to the late Professor Harold Fox, The founding editor of *Placenta*, who was, sadly, too ill to attend. In addition to his long friendship with all of us, his many contributions to placental pathology, Harold was fondly remembered by all of us for his witty and acerbic delivery. Some years previously I had had the pleasure joining in a gynecologic pathology seminar and visit to Harold and his wife, Augusta, in Manchester, England where I was treated to the details of preparing a delicious “proper Manx kipper” for our Sunday breakfast. All of us who attended this course were looking forward to Harold’s customary panache, which we sorely missed, due to his illness.

This event coincided with my 80th birthday. Thus, with Gayle, son Grant, and dear friends, I found myself on the evening of my birthday dining at a lovely restaurant on a high point in Granada gazing over at a stunning view of the beautifully illuminated Alhambra some 1000 yards away.

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