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## Robert James Baker (1942-2018), Obituary

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## OBITUARY

### ROBERT JAMES BAKER (1942–2018)

On 30 March 2018, the science of mammalogy and the American Society of Mammalogists lost one of the most influential figures of the last half-century. Robert James Baker died quietly at his home in Lubbock, Texas (Fig. 1). He was born on 8 April 1942 to James Simeon Baker and Laura Cooper in Warren, Arkansas. His father was killed during World War II and his mother remarried, resulting in his growing up with six half-siblings. According to Robert's autobiography in *Going afield* (330—number refers to specific publication in "Bibliography"), he spent a good deal of his youth with his grandparents on a 100-acre farm in the West Gulf Coastal Plain of southeastern Arkansas. He identified his maternal grandmother, "Grandma Rosie," as his best friend and his greatest influence during these years. His marriage to Jean Joyner on 19 August 1961 ended in divorce in 1975, but the marriage resulted in a daughter, April Baker-Padilla, and two grandchildren, Jason Baker and Faith Padilla. Robert was married to his wife of 39 years, Laura Kyle (M.D.), on 28 May 1978 in Lubbock. Their son, Robert Kyle Baker, preceded his father in death, which was a tragedy from which neither Robert nor Laura ever completely recovered.

Robert was always more than willing to admit to his "type A" personality and he seemed to try to live daily by his motto "anything worth doing is worth overdoing." He must have always been a human dynamo, but with the diagnosis of type 1 diabetes while in the field in Alamos, Sonora, in the summer of 1966, he went into hyperdrive. He did not reduce his life goals, but instead decided that they would need to be accomplished in much less time. At the time of his diagnosis, diabetes typically was responsible for shortening life expectancy by one-third and could cause loss of eyesight, amputation of limbs, kidney failure, heart disease, and loss of nerve function. Robert stated in his autobiography, "Diabetes has been such a constant and obnoxious companion that it has often been a major statement of who I am" (330). Robert seemed to have a clock ticking at the back of his mind and everything needed to be moving at top speed. Anytime a colleague or student needed to repeat an experiment, his question would be: "Why is there always time to do it over but never enough to do it right the first time?" Anyone who accompanied Robert into the field could expect at least two things—Robert would do more work than you no matter how hard you worked and Robert would have a low blood sugar crisis at some point. The insulin control of diabetes, particularly in the early years using insulin from pigs, was imperfect at best. Colleagues and students who went to the field with Robert soon learned to pack a couple of extra cans of Coca-Cola, a bag of



Fig. 1.—Robert J. Baker (1942–2018). Photograph taken in May 2006. Horn Professor portrait, courtesy of Southwest Collection/Special Collections Library, Texas Tech University, Lubbock, Texas.

caramel candies, and Snickers bars, or to be prepared for a high-speed drive (always by Robert) to the nearest Allsup's or some local grog shop dispensing soft drinks. However, ultimately Robert won the race with diabetes, living longer than predicted and accomplishing most of his life goals. Age and accumulating health issues finally slowed the engine shortly after his retirement from Texas Tech University. Laura was constantly at his side until the end, giving loving and professional care.

Robert began his collegiate education at Ouachita Baptist University in 1959 on an academic scholarship. He described his experience there as "nearly ending my college education" (330). Fortunately, he transferred to University of Arkansas at Monticello (then Arkansas A&M College) where he graduated in 1963. While at the university he was mentored by two professors—

W. C. Hopgood and Claud M. Ward. Hopgood taught Robert's first course in biology and then comparative anatomy and taught him about academic standards. Ward introduced Robert to the study of mammals and encouraged him to pursue a graduate degree. Robert went on to Oklahoma State University where he received his M.S. in 1965, working under the direction of Bryan P. Glass. Robert's love of natural history collections and his steadfast view of the importance of voucher specimens may have been kindled at Oklahoma State where RJB 1, an *Ochrotomys nuttalli*, still resides in the OSU Collection of Vertebrates as OSU-M 4713. His thesis was on the systematics of *Myotis subulatus*, but it was never published (2) because in Robert's opinion it was not of high enough quality. He moved directly to the University of Arizona, pursuing his Ph.D. under E. Lendell Cockrum. He completed his dissertation in 2 years, studying the phylogeny of nectar-feeding bats of the family Phyllostomidae based on karyotypes (Fig. 2).

David Schmidly remembered: "I first met Robert in the spring of 1967 when he was interviewing for a job in the Department of Biology at Texas Tech. I was a student working on my master's degree and my faculty advisor, Robert L. Packard, invited me to tag along when he took Baker to the Student Union Building for coffee. I remember the occasion well because I couldn't believe how young Baker looked. He had the appearance of an 18-year old boy yet he already possessed a Ph.D. at the youthful age of 25—barely a year older than me. I was even more impressed as he talked about his research on karyotypes and chromosomes of bats—something I knew almost nothing about. I also remember how excited Dr. Packard was when he told me later that Baker had accepted the position at Tech and thus doubled the number of mammalogists at the university."

When Robert arrived on campus, the institution was still known as Texas Technological College and it did not award its first Ph.D. in biology until 1969. Robert hit the department like

a whirlwind. He had a small office with an equally small lab in the back that was soon filled with live bats and pocket gophers. Almost immediately upon arriving at Tech, Robert attracted a crew of undergraduate and graduate students working both in the laboratory learning this new technique of karyotyping and in the field studying native Texas mammals. This work included numerous field trips in departmental Chevrolet Suburbans to collect rodents and bats, either with an aim to characterize biodiversity or to study chromosomal variation—woodrats at Post, southern yellow bats in the last remnants of the palm grove near Brownsville, bats and rodents in mountains of the Trans-Pecos region, and of course, Mexico. These early days were times of opportunism, to explore a biota that was new to him, and to identify potential projects. The trips were especially exciting for students, but students also shared in the excitement of lab work and writing papers, usually with Robert as co-author but sometimes without him.

Robert's research production certainly was prodigious, with 438 scientific publications and counting (see "Bibliography" that follows). These contributions primarily concerned mammals, although a few covered other taxonomic groups and museology. Although this level of output is reached by few scientists, to us, the real story is the high quality of research and the ideas that it generated. John Bickham recalled certain people being critical of Robert's productivity, saying something to the effect that because he published so many papers, they must not all be of high quality. But people who study how science progresses have a different opinion. In his book, *The Medici Effect*, which explores the factors that promote innovation in science and other fields, Frans Johansson points out that, "The most successful innovators produce and realize an incredible number of ideas," and, "those who have created the most are also the ones who have the most significant innovative impact" (Johansson 2006). Examples he cites include: "Pablo Picasso, for instance, produced 20,000 pieces of art; Einstein wrote more than 240 papers; Bach wrote a Cantata every week; Thomas Edison filed a record 1,039 patents" (Johansson 2006:91). Johansson (2006) shows a clear relationship between productivity and impact in innovation. Although Robert might not rise to the level of Einstein and those mentioned here, the quantity and quality of his papers speak of a person of incredible drive and talent.

The impact that Robert's research program has had, and is still having, on the fields of mammalogy and its connection to evolutionary biology cannot be overstated. Beyond the numerous accomplishments of his students, Robert's collective contribution to the scientific body of knowledge is diverse and far-reaching, ranging from key natural history observations to advancement of evolutionary theory. As his research program matured, Robert developed an intense passion for the "species problem" and he would spend countless hours reading and thinking of species concepts with the goal of better understanding mammalian speciation. Robert would often recount conversations that he had with Ernst Mayr about the Biological Species Concept and Mayr's usage of "reproductive isolation" rather than the more accurate "genetic isolation" when defining species boundaries. When reflecting on Robert's research program, it is clear that he was absolutely fascinated with the mechanisms underlying the establishment of independent mammalian



Fig. 2.—Robert J. Baker (center) in the field in Guerrero, Mexico, in 1966, with William López-Forment (left) and Juan Nava (right). Photographer unknown.

lineages, ranging from novel insights into the interplay between chromosomal evolution and genetic isolation (canalization model of chromosomal evolution—99; speciation by monobrachial centric fusion—160) to embracement of the Bateson-Dobzhansky-Muller model for the accumulation of genetic incompatibilities that ultimately separate species (Genetic Species Concept—291, 346). Because of his intense interest in speciation, Robert always took great pleasure in describing taxa of mammals new to science. He described and named 18 new species and subspecies as well as 11 higher-level taxa (Table 1).

Robert once stated that he enjoyed planting and caring for trees on his property because the branching patterns of the limbs would stir up thoughts of evolutionary trajectories, speciation, and the tree of life. Certainly, one of the branching sequences that dominated a career-long quest from the time of his Ph.D. dissertation was redoing Miller’s classic 1907 classification of bats (Miller 1907) based on the latest genetic and genomic data, which he accomplished in 2016 for phyllostomids with the appearance of two publications (430, 431). Robert was absolutely overjoyed whenever one of his students would enter his office with a newly generated phylogenetic tree because the phylogeny provided novel insight into the evolutionary history of the targeted taxon. Together with his students, he would overlay molecular phylogenies onto geographic maps and would develop hypotheses as to the putative geographic and ecological barriers that might have contributed to the observed genetic structure. Although not without controversy and despite the recent flood of genomic datasets,

his test of the Genetic Species Concept (291, 346) arguably remains the gold standard for measuring mammalian species diversity. Robert was adamant that utilization of mitochondrial DNA sequence data to quantify genetic isolation between mammalian lineages represented a *starting point* for researchers aiming to elucidate subspecies and species boundaries. For Robert, deviations from the genetic patterns observed across traditionally accepted mammalian sister species represented treasures ripe for exploration because such deviations (for example, naturally hybridizing species) provided a window into mammalian evolution and had the potential for major insights into the mechanisms underlying mammalian speciation (383).

Robert also made significant contributions in other scientific disciplines, such as biogeography, as David Schmidly and co-authors recognized in a recent publication (Schmidly et al. 2017). Over a period of several decades, Robert and his collaborators collected bats on the various Caribbean Islands, and in 1978, Robert and Hugh Genoways described the island biogeography of bats in the Caribbean Basin (75). This was the first comprehensive account of the distribution of bats across a large oceanic archipelago, and it formed the basis for numerous comparative analyses in island biogeography that continue today.

In 1994, Robert was asked to serve as a collaborator-contractor on a project at Chernobyl directed by Ronald Chesser and Michael Smith at the University of Georgia’s Savannah River Ecology Laboratory, in collaboration with Ukrainian experts Sergey Gaschak and others at the Chornobyl Center

**Table 1.**—Taxa of mammals described as new to science by Robert J. Baker and his colleagues. The taxa are listed at the taxonomic level at which they were originally described.

Taxonomic level	Name and authority	Citation
Subfamily	Glyphonycterine Baker, Solari, Cirranello, and Simmons	Baker et al. 2016 (430)
Subfamily	Rhinophyllinae Baker, Solari, Cirranello, and Simmons	Baker et al. 2016 (430)
Tribe	Hsunycterini Parlos, Timm, Swier, Zeballos, and Baker	Parlos et al. 2014 (419)
Tribe	Diphyllini Baker, Solari, Cirranello, and Simmons	Baker et al. 2016 (430)
Subtribe	Anourina Baker, Solari, Cirranello, and Simmons	Baker et al. 2016 (430)
Subtribe	Vampyressina Baker, Solari, Cirranello, and Simmons	Baker et al. 2016 (430)
Subtribe	Eschisthenina Baker, Solari, Cirranello, and Simmons	Baker et al. 2016 (430)
Subtribe	Ectophyllina Baker, Solari, Cirranello, and Simmons	Baker et al. 2016 (430)
Genus	<i>Hsunycteris</i> Parlos, Timm, Swier, Zeballos, and Baker	Parlos et al. 2014 (419)
Subgenus	<i>Leuconycteris</i> Porter, Hooper, Cline, Hoffmann, and Baker	Porter et al. 2007 (358)
Subgenus	<i>Schizonycteris</i> Porter, Hooper, Cline, Hoffmann, and Baker	Porter et al. 2007 (358)
Species	<i>Eptesicus guadeloupensis</i> Genoways and Baker	Genoways and Baker 1975 (58)
Species	<i>Chiroderma improvisum</i> Baker and Genoways	Baker and Genoways 1976 (63)
Species	<i>Rhogeessa genowaysi</i> Baker	Baker 1984 (141)
Species	<i>Rhogeessa hussoni</i> Genoways and Baker	Genoways and Baker 1996 (238)
Species	<i>Carollia sowelli</i> Baker, Solari, and Hoffmann	Baker et al. 2002 (303)
Species	<i>Notiosorex cockrumi</i> Baker, O’Neill, and McAliley	Baker et al. 2003 (308)
Species	<i>Lophostoma aequatorialis</i> Baker, Fonseca, Parish, Phillips, and Hoffmann	Baker et al. 2004 (324)
Species	<i>Oryzomys andersoni</i> Brooks and Baker	Brooks et al. 2004 (326)
Species	<i>Carollia benkeithi</i> Solari and Baker	Solari and Baker 2006 (343)
Species	<i>Anoura cadenai</i> Mantilla-Meluk and Baker	Mantilla-Meluk and Baker 2006 (348)
Species	<i>Micronycteris giovanniae</i> Baker and Fonseca	Fonseca et al. 2007 (351)
Species	<i>Eumops wilsoni</i> Baker, McDonough, Swier, Larsen, Carrera, and Ammerman	Baker et al. 2009 (369)
Species	<i>Anoura carishina</i> Mantilla-Meluk and Baker	Mantilla-Meluk and Baker 2010 (381)
Species	<i>Rhogeessa bickhami</i> Baird, Marchán-Rivadeneira, Pérez, and Baker	Baird et al. 2012 (398)
Species	<i>Rhogeessa menchuae</i> Baird, Marchán-Rivadeneira, Pérez, and Baker	Baird et al. 2012 (398)
Subspecies	<i>Uroderma bilobatum davisii</i> Baker and McDaniel	Baker and McDaniel 1972 (40)
Subspecies	<i>Geomys bursarius knoxjonesi</i> Baker and Genoways	Baker and Genoways 1975 (56)
Subspecies	<i>Ardops nichollsi vincentensis</i> R. Larsen, Genoways, and Baker	Larsen et al. 2017 (435)

and International Radioecology Laboratory. Robert educated himself on methods and theory in ecotoxicology, recruited and trained students, and established international collaborations. These collaborations continued for several years and resulted in more than 40 scientific publications focused on Chernobyl research. Overall, their research showed that current radiation doses experienced by wildlife near Chernobyl were not sufficient to yield high mutation rates or prevent population maintenance. In Robert's typical whimsical style, they published a paper stating that the Chernobyl accident had created an effective wildlife reserve by forcing the evacuation of 126 villages. However, it was an early Chernobyl manuscript that served as one of the biggest challenges in Robert's career.

One of the key values of any significant scientific leader is integrity—the willingness to do the right thing no matter how difficult or trying the circumstance. Robert's ability to do the right thing was truly tested when he discovered an error in a paper that he and several members of his lab had published on research concerning the Chernobyl nuclear disaster zone in the journal *Nature* (229), arguably the most prestigious journal in the field of biology. Robert was extremely excited about this publication because, not only was it being published in *Nature*, it was the cover article. He purchased copies of the cover and had one framed for each of his co-authors. The original data for the publication were produced using the Sanger sequencing method, which had some level of error associated with it but during this period of DNA sequencing, numerous scientific papers relied on this technique to produce results and those results were published. When Robert's lab purchased an automated sequencer shortly after the *Nature* paper was published, Robert asked a member of the lab to use the archived clones from the original paper to reproduce the dataset. A comparison of the results revealed that some of the original nucleotide determinations within the gene sequence were not statistically supported using the new sequencing method. There were elevated mutation rates in the Chernobyl animals in comparisons to control animals, but the differences were not statistically significant using the new sequencing method. What is important to note is that no other researcher had caught this error or had pointed it out. Robert discovered it himself and made the decision to offer full disclosure with corrections. David Schmidly, who was serving as Vice President of Research at Texas Tech at the time, recalls the day Robert came to his office and told him of the discovery—“It was obvious that he was down and struggling with what to do.” Robert discussed the implications of the findings with David and the next day let him know he would be issuing a retraction (244) regarding some of the data in the article. Meredith Hamilton, as one of the co-authors, recalls a series of phone conversations, which were not about whether or not he should issue the retraction, they were about what he should do going forward from this point. Should he get out of science and find something totally different to do? Robert spent several months of soul-searching and concluded that the retraction had been the right thing to do and that he needed to move on and do the best science that he could. Robert believed that good science depends on the researcher being honest and if that

means pointing out your own mistakes then that is what has to happen. In 2014, Robert contacted the authors of the *Nature* article and asked them to reflect on the impact of the retraction. He was working on an article for *The Winnower* (424) to tell the story behind the retraction. Hamilton recalls that what ensued was a string of emails with a common theme: Did you contemplate getting out of science or academia? Some authors thought about it—but nobody did. Did this retraction impact our success as scientists or academicians? “No.” Are we better scientists for having gone through this? “Yes.”

Robert worked in the lab-field border in biology (as defined by Kohler 2002), but his practice was primarily of the field. Field biology to him was a kind of evolutionary practice. He was a tireless collector, trapping and netting bats at night, and during the day, “processing his catch” by preparing karyotypes and preserving organ tissues and specimens for later work in the lab. He had a knack for picking field sites that could provide “natural experiments” to test evolutionary theory, such as the contact zone between populations of pocket gophers of the genus *Geomys* in Texas and New Mexico. Robert's research really took him far afield in several senses. To pursue his interests, he travelled the world collecting specimens of mammals. His travels took him to 5 continents (North America, South America, Europe, Asia, and Africa) and at least 26 countries and territories in addition to the United States, including Colombia, Costa Rica, Cuba, Dominica, Ecuador, El Salvador, England, Grenada, Guadeloupe, Guatemala, Honduras, Jamaica, Kyrgyz Republic, Malaysia, Mexico, Montserrat, Nicaragua, Panama, Peru, Puerto Rico, Russia, Suriname, Trinidad, Tunisia, Ukraine, and Venezuela. Robert's collaborative nature led to many international partnerships that resulted in joint research projects with access to a wide array of mammalian species, and he recruited and mentored many international graduate students from these countries. Robert calculated that he had spent over 30 months in the field in the Neotropics, primarily pursuing bats (Fig. 3), and 5 months in the Chernobyl nuclear disaster zone, studying the impact of radiation on mammalian populations (Fig. 4).

Robert began his fieldwork like most traditional mammalogists with a bag of museum special mousetraps, a sack of bat nets, a little sawdust, a box of oatmeal, a jar of peanut butter, a skinning kit, a batt of cotton, museum skin and skull tags, and a little Monel wire for tails and legs. However, starting in the mid-1970s, Robert realized that the future of mammalogy lay in new methodologies, so as his range of research interests expanded so did his field equipment to include a hand-cranked centrifuge, glass slides, ethanol, Sherman live traps, ice, Dewar, Nunc cryotubes, shell vials, Nobuto strips, liquid nitrogen, an electric centrifuge, transformers, tube canes, formalin, a video camera, a GPS device, a digital SLR camera, and a sturdy machete. This allowed preparation of standard museum specimens, specimens preserved in formalin, karyotypes, frozen tissues, lysis-preserved tissues, blood samples, parasites, fecal matter, and stomach contents so that they could be returned to Lubbock for study. Robert, himself, explained the progression of research methods that he employed: “karyotyping, in situ



Fig. 3.—Robert J. Baker removing a *Uroderma* from a mist net at Santa Rosa, Guatemala, in May 1977. Photograph by Ira F. Greenbaum.



Fig. 4.—Robert J. Baker recovering from checking his trapline of Sherman live traps in the Chernobyl nuclear disaster zone, Ukraine, in 2011. Photograph by Caleb D. Phillips.

hybridization, G and C chromosomal banding, starch gel electrophoresis, restriction enzyme site mapping, DNA sequencing, construction and probing of cosmid and plasmid libraries, and differential expression of genes” (330). Robert understood the

concept and value of the voucher specimen and how critical it was to future research, as he and colleagues wrote at least seven papers on the topic (281, 290, 305, 341, 349, 406, 423). The hallmark of Robert’s work and the mammalogy program at Texas Tech was not to abandon the old methods but to meld them with the newly developed and evolving techniques.

Robert absolutely loved trying to outfox the mammals he was collecting, and he would spend hours thinking of novel trap designs, mist-net mesh sizes, and ideal trap and mist-net locations. Even as a graduate student, Robert was among the first to successfully karyotype wild mammals under field conditions. When he needed live pocket gophers for genetic studies, and no existing traps would do the job, he along with his student Stephen Williams designed the Baker-Williams pocket gopher live trap, which still is widely used by researchers studying live pocket gophers (37). This also inspired another of his students, Terry Yates, to develop the first live trap for moles. After his significant time in the Neotropics netting bats, there was almost no Neotropical bat species beyond his reach. However, while mist-netting bats in the Old World for the first time in 2006, Robert was presented with a novel challenge because many Old World bat species seemed to readily detect and avoid his typical Neotropical net settings. Robert was absolutely thrilled by this and he enjoyed thinking of how to modify his Neotropical netting techniques to capture more efficiently Old World bats. He then modified his netting approach in the field in order to maximize species diversity.

Robert loved to take both undergraduates and graduate students in the field and he was not above pitting them against each other if it resulted in all learning more about mammals and having a good time. Karen McBee recalled that on a mammalogy class fieldtrip to the Chiricahua Mountains of Arizona, he challenged the undergraduates to take on the graduate students in a contest to see which group could collect the most individuals, most species, and best species (to be determined by him), then gave almost all the Sherman traps to the undergraduates. Robert spent countless hours leading students while setting Sherman traps and simultaneously describing how a recent manuscript should be revised. He spent just as many hours talking with his students about professional development, philosophy, and the latest music. He always led by example, be it setting bat nets across the NCO Club swimming pool at Guantanamo Bay Naval Base in Cuba or digging holes for trapping pocket gophers on the Llano Estacado.

Although Robert made major scientific contributions through his research and leadership, his greatest impact on the future of mammalogy and of science in America may well be through the students that he trained. Each student was like a stone thrown into a pond, creating ripples that move outward in concentric circles, sometimes interacting with each other and at other times creating new ripples, and all moving outward toward an unseen horizon where the future of science lies. Robert certainly created many such ripples, and their entire impact will not be fully realized in our lifetime. He served as the academic advisor for 50 (32 men, 18 women) graduate students who completed Ph.D. degrees, with most dissertations focusing on

mammals, but at least 6 dealing with other vertebrate groups or museum collections. In addition, he trained 48 students (26 men, 22 women) who completed master's theses (Table 2). At least 10 (5 men, 5 women) post-doctoral associates participated in research projects in Robert's laboratory for a total of approximately 22 years: Karen McBee, 1986–1987; Laura Janecek, 1991–1992; Ron Van Den Bussche, 1992–1995; Meredith J. Hamilton, 1994–1995; Ann E. M. Baker, 1995–1996; John C. Patton, 1996–1997; Calvin A. Porter, 1998–2001; Brenda E. Rodgers, 2000–2001; Steven R. Hooper, 2002–2007; and Caleb Phillips, 2009–2014.

In addition to training and supervising graduate students, Robert taught a broad array of courses in the Department of Biological Sciences, including such offerings as General Zoology, Biological Status of Man, Histology, Cytology, Evolution, Mammalogy, Advanced Mammalogy, Field Cytogenetics, Field Methods, Collection Management, and Systematic Biology. However, his favorite course was Freshman Biology for Non-majors, where he did not just give lectures, he presented performances. It is not often that you will find such a distinguished scholar who teaches freshman non-major students. The impact of this to society is enormous. What could be more important in our world than to have a leading scholar teaching students who want to become teachers, entrepreneurs, engineers, historians, writers, musicians, and others what biology is really about and how it impacts their lives. For some students, this course was transformational, resulting in their discovering a previously unknown interest in sciences, particularly biology. Throughout his career, Robert also encouraged numerous undergraduates to participate in research in his laboratory. Based on the available information, we know that at least 27 (20 men, 7 women) coauthored publications resulting from their work (Fig. 5).

David Schmidly, in assessing Robert's impact on students observed: "Robert cared about his students—he didn't coddle them; in fact, he was often very hard and demanding of them—but he cared that they were prepared to be successful and ready for the hard work of success as scientists. He felt very strongly that they needed to be on the 'cutting edge' of mammalogy if they were to be successful in the job market and able to obtain grants to ensure tenure. During the 1980s and early 1990s, technological advances in DNA methodologies allowed for previously complicated and expensive methods to be utilized at university research laboratories. At first, these new DNA methods revolutionized systematic mammalogy, but later population genetics, ecology, behavioral, and other mammalian fields of study benefited from the vast amounts of information available in DNA-based studies. In 1986, at the pinnacle of his publishing career, Robert took a leave of absence from Tech and spent a year with Rodney Honeycutt, a former student, at Harvard University learning some of the new techniques of molecular biology. When asked why he did this, Robert said it was primarily for his students: 'If they are going to be cutting edge, as I tell them they must be, then I have to be as well.' Using many of these techniques, Robert, along with his former student Robert Bradley,

in 2006 proposed the Genetic Species Concept for mammals in a seminal paper 'Speciation in mammals and the genetic species concept' (291, 346). Their model is commonly used to interpret speciation events in mammalogy today."

With a stable of motivated graduate students and active field and laboratory programs to support, Robert was constantly seeking sources of funding. This often consumed a major portion of his time, but the results are a testament to his ability to gather the necessary resources. Through grants and contracts, he was awarded nearly \$16 million (in 2018 dollars) during his career at Texas Tech University. The National Science Foundation (NSF) supplied nearly \$3 million of these dollars in support of Robert's research on the genetics of phyllostomid bats and the white-footed mouse, *Peromyscus leucopus*. He also was able to gain funds from the NSF for the building of the scientific research collection of mammals and the associated cryogenics facility for storage of a large frozen tissues collection, the latter with Robert Bradley. Texas Tech University also was persuaded to match these funds to build this world-class resource. Other sources of funding for research projects ranged from private foundations, state and federal agencies, industry, private donors, and even other nations, including: American Philosophical Society, Health Protection Agency, National Fish and Wildlife Foundation, National Geographic Society, National Institutes of Health, National Parks Service, New Brunswick Wildlife Trust Fund, Pantex Treatment Facility, Sandia National Laboratories, Smithsonian Foreign Currency Program, James Sowell (private donor), State of Alaska, Texas Agricultural Experiment Station, Texas Department of Transportation, Texas Nature Conservancy, Texas Parks and Wildlife Department, Texas State line items, The CH Foundation (Lubbock), United States Department of Agriculture, United States Department of Defense, United States Department of Energy, and Welder Wildlife Foundation. Line item appropriations from the State of Texas provided long-term and significant support for studies of genetics and biodiversity and development of a biodiversity database.

Although Robert filled several administrative and leadership roles during his tenure at Texas Tech University, none were as a Chair, Dean, Vice President of Research, or any of the traditional roles that befall many successful scientists during their twilight years. Robert did serve as Associate Chairperson of the Department of Biological Sciences (1985–1986) and as Associate Director for Research at the Museum of Texas Tech University (1972–1975); however, it is almost certain that he did so reluctantly. This is not to say that Robert did not have academic appointments or charges that placed him in positions of authority, leadership, and responsibility. For example, in 1997, Robert was selected by Chancellor John T. Montford as the faculty leader for the University Horizon Capital Campaign. This was a major, university-wide campaign to build the institutional endowment programs. Robert's task force was to solicit donations from the university faculty, with a goal of \$10 million. Chancellor Montford selected Robert because he knew it would be a difficult task to convince faculty members to contribute, and he needed an aggressive personality to take charge. During



**Table 2.**—Students completing graduate degrees under the supervision of Robert J. Baker at Texas Tech University.

Year	Names
<b>Graduate students who completed Ph.D. degrees</b>	
1973	J. Hoyt Bowers, V. Rick McDaniel, and Jerry W. Warner
1975	William J. Bleier
1976	John W. Bickham
1978	Ira F. Greenbaum and Terry L. Yates
1981	Rodney L. Honeycutt
1982	Margaret A. O'Connell
1983	Michael W. Haiduk
1984	Fred B. Stangl, Jr.
1986	Craig S. Hood and Mazin B. Qumsiyeh
1987	David C. Kerridge
1989	Meredith J. Hamilton and Ronald A. Van Den Bussche
1991	Robert D. Bradley and Alec Knight
1992	Calvin A. Porter
1993	Jonathan L. Longmire
1994	Joaquin Arroyo-Cabrales
1995	Cheryl A. Schmidt
1997	James Cathey, James A. DeWoody, Burhan Ghariebeh, Mary Maltbie, and R. Richard Monk
1999	Kateryna Dmytrivna Makova and Anton Nekrutenko
2000	Kelly Allen and Brenda E. Rodgers
2002	Federico G. Hoffmann and Jeffrey K. Wickliffe
2003	Deidre A. Parish
2004	Adam Fuller
2005	Emma M. P. Dawson
2007	Norma Salcedo (with Richard E. Strauss) and Sergio Solari
2008	Vicki J. Swier
2009	Heather N. Meeks
2010	Peter A. Larsen and Hugo Mantilla-Meluk
2011	Roxanne J. Larsen
2013	Faisal Bin Ali Anwarali Khan
2014	Matias Feijoo (with Enrique Lessa; graduated from Universidad de la República, Montevideo, Uruguay), Molly M. McDonough, and Lizette K. Siles Mendoza
2015	Maria Raquel Marchán-Rivadeneira, Julie A. Parlos, and Cibele Sotero-Caio
<b>Graduate students who completed master's degrees</b>	
1969	Dale L. Berry
1970	Omer James Reichman
1971	William J. Bleier
1973	Brent L. Davis and Stephen L. Williams
1975	John E. Cornely, Ira F. Greenbaum, Margaret A. O'Connell, and Edward F. Pembleton
1976	John C. Patton
1978	Rebecca A. Bass
1979	Laurie Erickson, Anette Johnson, and Paul Young (with Robert L. Packard)
1980	Karen McBee
1981	Michael L. Arnold
1982	Ben F. Koop
1983	Cora Clark
1984	Kimberlyn Nelson
1985	Hae Kyung Lee
1989	Albert Kumirai
1992	Kevin L. Bowers and Mary Maltbie
1993	Shelly Witte
1995	Susan Carron
1996	Sergio Tiranti
1997	April Bates (with R. R. Monk) and Ted Jolley (with R. D. Bradley)
1998	Britney Hager (with R. R. Monk) and Ellen Roots McBride
1999	Oleksiy Knyazhnytskiy (with R. R. Monk) and Cole Matson
2000	Raegan D. King (with R. R. Monk) and Nicole Lewis-Oritt
2001	Emma M. P. Dawson, Amy S. Halter, and Mark B. O'Neill
2003	Yelena Dunina-Barkovskaya and Mariko Kageyama
2004	Rene Fonseca
2005	Holly Bjorum and Peter A. Larsen
2006	Adam Brown
2007	Tamara Enriquez and Juan Pablo Carrera
2008	Faisal Bin Ali Anwarali Khan and Maria Raquel Marchán-Rivadeneira
2009	C. Miguel Pinto



Fig. 5.—Robert J. Baker supervising an undergraduate student researcher, Ryan Foresman, in the Biological Sciences Building, Texas Tech University, 2002. Photograph courtesy of Center for the Integration of STEM Education and Research, Texas Tech University.

this campaign (1997–2001), Robert’s group garnered a total of \$17 million in pledges from the Tech faculty.

Another nontraditional administrative assignment that actually suited Robert quite well was the role of Faculty Athletics Representative to the NCAA and Big 12 Conference (2001–2008). In this position, he acted as a liaison between the academic side of the university and the Athletic Department, serving as a check and balance between coaches, compliance personnel, and the athletic director.

Throughout his career, Robert helped recruit notable mammalogists as faculty members and administrators to Texas Tech University. Two of the first in this long line of mammalogists were J Knox Jones, Jr., and Dildford C. Carter. In 1971, Robert participated in a meeting with Jones and Carter along with Robert L. Packard, during which the plans were laid out for the Natural Science Research Laboratory (NSRL) attached to the Museum of Texas Tech University. This facility (2 floors, 12,184 square feet) was designed to blend graduate education and state-of-the-art research with the traditional aspects of natural history collections and was key in building the mammalogy programs at Texas Tech. Later (2004–2005), through Robert’s efforts and leadership, the NSRL underwent an expansion when President David J. Schmidly recommended funds from a donor gift be used to more than double its size (2 floors, 16,154 square feet). Robert served as Director of the NSRL from 1976 until his retirement in 2015, dealing with natural history collections, funding, personnel issues, and editing 2 scientific publication series issued by the Museum.

Because of Robert’s care and breadth of scientific interests, he along with his colleagues and students were able to develop the collections available for study in the NSRL into a world-class research resource in mammalogy that will not be duplicated in the future. When Robert was hired (summer 1967), there were approximately 5,000 vouchers in the mammal

collection. His first specimen catalogued in the museum collection was TTU-M 5158, a *Phyllostomus hastatus* from Trinidad, collected in August 1967. At the time of his death, the catalogued mammal collection numbered 136,209. The Genetic Resources Collection (GRC) of tissues and other associated material count currently stands at >370,000 samples from >100,000 individuals of >1,000 species. The enhanced value of the NSRL collections results from the fact that some specimens originated from geographic areas that no longer exist in their original condition, and many others came from locations that currently cannot be accessed because of geopolitical problems. Also, opinions about collecting of wild mammals are changing, funding sources are becoming scarce, and in a post-9/11 world, travel in general is more difficult, and travel with a mountain of scientific equipment is nearly impossible. Thus, large-scale field expeditions may be approaching their own extinction. All of these factors mean that the resources of the NSRL will make it one of the truly important sites for the study of the genetics and evolutionary biology of mammals for the foreseeable future.

The NSRL may be best known for its tissue and karyotype collection, the GRC, which had its beginnings in Robert’s research laboratory. Developing a numbering system for this collection brought about several arguments and discussions with museum professionals pertaining to how to handle ancillary collections that almost certainly would be “destroyed” as they were used. For example, a tissue sample may be depleted as it is loaned out and used. Should this sample be accessioned, catalogued, and later deaccessioned? To simplify matters, in 1968, Robert developed the TK (Tissue and Karyotype) system that assigned a non-catalog number to such archived samples, thus allowing for data entry and cross-referencing to the voucher specimen, destructive sampling, and depletion of samples. Many other research laboratories and collections have followed suit. The collections of the GRC have garnered a broad-based usership in such fields as zoonoses, genomics, and metagenomics. Although it took several attempts to procure funding, another Baker dream was realized when the 2 Roberts, Baker and Bradley, received an NSF Award to convert the GRC from mechanical freezers (–80°C) to liquid nitrogen freezers (–190°C). The GRC was always a source of pride and joy for Robert and the liquid nitrogen project may have been one of his crowning achievements, or at least one of his proudest.

As Director of the NSRL, Robert worked incessantly to help grow and improve all of the natural history collections. He directed the research of Museum Science students, and wrote manuscripts emphasizing the value of natural history collections to science, education, and society (349, 390, 406, 423, 427). In his final years, Robert personally donated or pledged significant funds to help ensure the continuation of the NSRL.

Robert Bradley, in assessing Robert’s administrative skills, observed: “To describe Robert’s administrative style is difficult at best. Obviously, to those who knew him, he was not your prototype administrator. He was a leader and a visionary, in his own way, but mostly he had the ability to predict where ‘we’ needed to go. ‘We’ meaning the NSRL, the Biology faculty,

or any facet of TTU with which he had a responsibility. His management style was reactionary and generally involved a Bakerian version of crisis management. Often, we would undergo periods of ‘stasis’ and then Robert would decide it was time to act upon whatever needed acting. When he decided that it was time to ‘act’—it was ‘Katy-bar-the-door’ time! Things were going to get done and in the quickest manner possible! In the words made famous by General George Patton and Lee Iacocca (and one of Robert’s favorites)... ‘Lead, follow, or get the hell out of the way’ was a fitting mantra.”

Although busy with research, teaching, and university service, Robert made time to serve a number of professional societies. He always considered the American Society of Mammalogists to be his “home” society (joining in 1963) so it is not surprising that it received much of his service time. He held many leadership roles for the Society, being an elected member of the Board of Directors (1973–1984, 1986–1992) and serving as First Vice President (1993–1994) and then President (1994–1996). Much of his service time was devoted to editing for the *Journal of Mammalogy*, serving in the positions of Editor for General Notes (1972–1973), Editor for Feature Articles (1974–1975), Managing Editor (1982–1984, 1992–1993), and Journal Editor (1985–1987). Robert also served on nine Standing Committees and three ad hoc Committees for a total of 101 committee-service years. He served the longest terms, 19 years each, on the Development (1996–2015) and Resolutions (1976–1978, 1988–1994, 1996–2007) committees and for the latter he specialized in writing the host resolution for a number of years. Other committees on which he served included the following: Jackson Award, 16 years (1996–2012); Editorial, 14 (1971–1976, 1981–1987, 1991–1993); Honorary Membership, 12 (1996–2008); Nomenclature, 7 (1987–1994); Merriam Award, 6 (1977–1980, 1984–1987); Animal Care and Use, 2 (1992–1994); Membership, 2 (1970–1972); ad hoc Officers Manual, 2 (1998–2000); ad hoc Bylaws Revision, 1 (1998–1999); and ad hoc Committee on Committees, 1 (1995–1996).

Robert also put his editorial skills to work for other professional societies (Table 3), as well as training his students to be editors and emphasized, “just make the decision.” He also took leadership positions in other organizations, serving as President-elect, then President of the Southwestern Association of Naturalists (1981–1982), President of the Texas Society of Mammalogists (1990), elected member of Board of Directors (2000) and President (2002) of the Texas Genetics Society, Councilor for the Society of Systematics Biologists (Class

1993), Council Member of the American Genetics Association (1993–1995), and an elected Fellow of the Texas Academy of Science (1990). Beyond his service to scientific organizations, Robert served as an active member of the Board of Directors for the Nature Conservancy of Texas (1996–1999), Board of Directors for the Helen Hodges Educational Charitable Trust (1987–2013), and as President of the Texas Panhandle Retrievers Club (1982–1983). The latter position was the result of his long-time involvement with breeding and training of golden retrievers.

After a long and distinguished career, it is not surprising that Robert received many awards and recognitions, but in total his record minimally can be said to be impressive. He was recognized by his home institution, Texas Tech University, at least 10 times (Table 4) at a number of levels in the organization—undergraduate students, graduate students, College of Arts and Sciences, Athletic Department, Vice President for Research, and several other higher administrative levels. Of all the awards that he received from the university, it seemed to us that the first he received gave him the most pleasure as he always proudly signed his name as a Paul Whitfield Horn Professor. At the time of his death, Robert was the most honored member of the American Society of Mammalogists, having received 3 of the Society’s top awards—Merriam for research, Jackson for contribution to the ASM, and Grinnell for education—and the organization’s highest recognition, election as an Honorary Member. He was an Honorary Member of the Texas Society of Mammalogists, received 2 of the highest awards from the Southwestern Association of Naturalists, and highest recognitions of the North American Society for Bat Research and Mexican Association of Mammalogists. He was named the Distinguished Texas Scientist in 2007, an award whose first recipient was the medical pioneer Michael DeBakey. The Texas Genetics Society recognized Robert with its 2 highest awards, and he was a co-author of a paper recognized by the Ecological Society of America. Finally, Robert was recognized as a Distinguished Alumnus of 2 of his alma maters.

Another form of recognition, unique to systematic biology, is the naming of new taxa in honor of a person or persons. These are known as patronyms and their formation and use are governed by the rules of the International Code of Zoological Nomenclature. Robert has been recognized by having 7 species or subspecies named in his honor (Table 5). Six of the species-subspecies are new mammals and the seventh is a parasitic mite known from the Neotropical bat

**Table 3.**—Editorial positions held by Robert J. Baker beyond those for the American Society of Mammalogists and the Museum of Texas Tech University.

Editorial position	Journal	Years served
Associate Editor	<i>Systematic Zoology</i>	1980–1982
Associate Editor	<i>Journal of Heredity</i>	1989–1996
Associate Editor	<i>Chromosome Research</i>	1992–1995
Associate Editor	<i>Wildlife Society Bulletin</i>	2003–2005, 2013–2015
Editorial Board Member	<i>Molecular Phylogenetics and Evolution</i>	1992–2018
Editorial Board Member	<i>Journal of Mammalian Evolution</i>	1993–2005
Editorial Board Member	<i>Acta Chiropterologica</i>	2003–2018

**Table 4.**—Awards and recognitions received by Robert J. Baker during his career at Texas Tech University.

Presenting organization/institution	Year	Award/recognition	Purpose
Texas Tech University	1979	Paul Whitfield Horn Professorship	University's highest faculty honor
College of Arts and Sciences, Texas Tech University	1980, 1986	Faculty Research Award	Recognition for excellence in research within the college
Texas Tech University	1987	President's Award for Excellence in Education	Demonstration of strong leadership and service within the university
Office of Vice President for Research, Texas Tech University	1989	Barnie E. Rushing, Jr., Faculty Distinguished Research Award	Recognition of excellence in research, scholarship, and creative activity
Texas Tech University System	1998	Grover E. Murray Education Award	Outstanding contributions to higher education
Texas Tech University Athletic Department	2000	Recognition Award	Contributions to total development of student athletes
TTU Association of Biologists (Graduate Student Association)	2001	Award for Excellence in Graduate Education	Outstanding graduate education in biology
Texas Tech University	2001	Teaching Academy	Promotion of teaching excellence and service to university teaching
Texas Tech University Student Housing	2002	Professing Excellence	Student-presented recognition to outstanding faculty who impact their students' learning and academic success
Phi Beta Kappa, Texas Tech University	2007	Outstanding Faculty Mentor	Recognition of mentoring university students
American Society of Mammalogists	1980	C. Hart Merriam Award	Recognition of outstanding research contributions to the science of mammalogy
American Society of Mammalogists	1994	Hartley H. T. Jackson Award	Recognition of long and outstanding service to the American Society of Mammalogists
American Society of Mammalogists	2000	Joseph Grinnell Award	Recognition of excellence in education in mammalogy
American Society of Mammalogists	2005	Honorary Member	Conferred in recognition of a distinguished career in service to mammalogy
Texas Society of Mammalogists	1997	Honorary Member	Recognition of a career in service and study of Texas mammals
Southwestern Association of Naturalists	1993	Don Tinkle Award for Research	Recognition of significant contributions to the knowledge and understanding of the biota of the southwestern United States, Mexico, and Central America
Southwestern Association of Naturalists	2002	Robert L. Packard Award for Education	Recognition of significant contributions to the understanding of the biota of the southwestern United States, Mexico, and Central America through teaching or presenting scientific information to the general public
North American Society for Bat Research	2009	Gerrit S. Miller, Jr., Award	Recognition of outstanding service and contributions to the field of chiropteran biology
Asociación Mexicana de Mastozoología	2012	José Ticul Álvarez Solórzano Award	Recognition of research on any topic that impacts the vision and development of Mexican mammalogy
Texas Academy of Science	2007	Distinguished Texas Scientist	Reflects distinguished contributions to science through research and publication that has garnered recognition at the national and international level
Texas Genetics Society	2005	Barbara Bowman Distinguished Texas Geneticist Award	Recognition of outstanding geneticists who have made major contributions to the field of genetics
Texas Genetics Society	2007	Distinguished Service Award	Recognition of outstanding service to the Texas Genetics Society
Ecological Society of America	2007	Sustainability Science Award	Recognition of the authors of a peer reviewed paper that makes the greatest contribution to the emerging science of ecosystem and regional sustainability through the integration of ecological and social sciences
University of Arkansas Monticello	1981	Distinguished Alumnus Award	Recognition of outstanding service to one's profession, community, and alma mater
Oklahoma State University Alumni Association	2001	Distinguished Alumnus Award	Recognition of one's distinctive success in his or her chosen field or profession, or performs outstanding service to their community

*Phyllostomus hastatus*. Of the mammals, 4 are Neotropical bats and 2 are rodents—one a pocket gopher and the other a harvest mouse. We expect there will be additional patronyms in Robert's honor in the future.

With all of his university and professional activities, it would seem that Robert had very little time for a private life, but nothing

could be further from the truth because he and Laura always had time for family, friends, colleagues, and especially for students. Many times, in the later years, these activities were carried out at the "DNA Works" ranch near Afton, Texas. This part of Texas is the Rolling Plains just to the east of the caprock of the Llano Estacado, characterized by interspersed grasslands and mesquite

**Table 5.**—Patronyms honoring Robert J. Baker.

Order	Name	Author(s)	Description
Mesostigmata	<i>Parichoronyssus bakeri</i>	Morales-Malacara and Guerrero (2007)	A parasitic mite hosted by the bat <i>Phyllostomus hastatus</i> taken from Parque Nacional Manu, Madre de Dios, Peru
Chiroptera	<i>Glossophaga commissarisi bakeri</i>	Webster and Jones (1987)	A nectar-feeding bat from near Leticia, Amazonas, Colombia
Chiroptera	<i>Tonatia saurophila bakeri</i>	Williams et al. (1995)	An omnivorous bat from the Darién of Panamá
Chiroptera	<i>Sturnira bakeri</i>	Velazco and Patterson (2014)	A fruit-eating bat from El Oro Province, Ecuador
Chiroptera	<i>Uroderma bakeri</i>	Mantilla-Meluk (2014)	A fruit-eating bat from Miranda, Venezuela
Rodentia	<i>Geomys texensis bakeri</i>	Smolen et al. (1993)	A pocket gopher from Medina Co., Texas
Rodentia	<i>Reithrodontomys bakeri</i>	Bradley et al. (2004)	A harvest mouse from central Guerrero, Mexico

and other brush. This was an excellent area for cattle and a variety of wildlife, and Robert made full use of both opportunities.

The main ranch at Afton (and nearby smaller properties) was the last in a string of property acquisitions and sales for the Bakers. For nearly 3 decades, Robert and Laura owned a variety of properties at varying distances and spanning several directions of the compass from Lubbock. The earlier locations ranged from Post, to Dimmit, Clarendon, and Polar, but his main love was the 900-acre ranch at Afton, with a house and 10-acre lake. After acquiring this property, his further acquisitions were increasingly centered on Afton.

Baker’s love of biology, especially genetics, extended into his personal life. He used genetics to breed a hardy line of golden retrievers that were as happy lying on a couch as breaking ice for a mallard duck on a frozen West Texas playa. In his younger years, Robert was an avid competitor with his dogs in retriever field trials. He would generally take a break in the late afternoon to train for an hour, and grab something to eat, before returning to the lab. He was a tough taskmaster, but he loved his dogs and they returned his devotion with obedience and companionship. In his later years, he entered the registered Angus business and befriended an 80+-year-old “cow” woman named Minnie Lou Bradley. Minnie owned and operated the Bradley 3 Ranch near Memphis, Texas, with her daughter and son-in-law. Robert and Minnie exchanged letters over the best bulls for Robert to run in his herd. It was entertaining to listen to the 2 of them discussing EPDs (expected progeny differences) and line breeding. Robert’s commitment to genetics can be seen in his brand (a double helix) and his ranch name, DNA Works. In his late 60s, he even went “rogue” and got his brand tattooed on his shoulder. He loved to say, “If it’s good enough for my cows, it’s good enough for me!” However, the cattle were not universally loved in the family because after a long day working with the cattle, Laura was heard to say to Robert: “The cattle are only good for losing our money and wasting your friends’ time.”

Working cows with Robert was an adventure. During the early years of ranching, Robert did not have very good equipment, so tagging, vaccinating, and branding was more like a prison rodeo than an organized ranching event. Later, Robert designed the “crème de la crème” of working pens. These pens were formidable and elaborate. The only problem was,

Robert worked and organized everything exactly the opposite a “normal” human would do. So even with the best equipment possible, it was a challenge. Helpers generally questioned his Ph.D. by the time they were finished.

Days at the Afton ranch could be a lot of fun when it was not necessary to work the cattle, especially if you were a child. The pond at the ranch was always filled with hungry sunfish, crappie, bass, and catfish and Robert had cane poles for all takers. He delighted in seeing the children of friends and students pulling out one fish after another. He was quick to clean the fish and then get them into the fryer and onto a plate in less than 30 min. Even the pickiest child could not resist trying the fish that they had just caught.

Robert’s true passion was hunting, and happiness for him was a day of chasing pheasants or bringing down mallards with a golden retriever by his side or hiking the mountains of New Mexico hunting mule deer or wapiti. His properties presented many hunting opportunities depending upon the season. There were mourning doves, bobwhite quail, wild turkey, ring-necked pheasants, various species of ducks, jackrabbits, white-tailed deer, and wild hogs. Robert was always a strong proponent of hunter ethics and gun safety rules. All of the take from a day’s hunt would be frozen, served up for dinner, or donated to appreciative friends and neighbors. Although Robert was an avid hunter and outdoorsman, his views on gun control and gun rights were surprisingly to the left. He was a member of the NRA but quit when they refused to support bans on assault weapons. He supported gun registration, safety training, and locking mechanisms to keep guns from the hands of children. Few have run more shells through a shotgun, yet he supported common sense gun regulation, tracking, and control.

As an academic, Robert had several attributes that he espoused, whether in words or actions. We expect these were infused into many of his students, whether they realize it or not. We have gleaned the following characteristics from our experiences with Robert, but our choices are obviously idiosyncratic. We hope they help convey something of his philosophy, attitudes, and efforts. *Inspire and motivate your students:* We consider this his biggest gift to us. *Be opportunistic:* This characteristic applied to his research (taking advantage of local fauna), funding (he obtained line-item funding from the State

for several of his projects), and recruiting of students. *Teach undergraduates*: Robert took pride in teaching undergraduate classes. He considered it an opportunity and a part of his legacy rather than a task. *Think BIG and small*: He maintained a vision for the big picture but also was happy to undertake small-scale studies. The latter were especially effective with undergraduate students, because small projects were manageable enough that the students could learn all dimensions of research. *Be honorable*: Robert always conveyed a sense of trust, whether in being generous with authorship or in his interacting with others. *Persevere*: Robert faced several major setbacks, certainly beginning with his diagnosis with diabetes early in his career and the aforementioned retracting of the *Nature* paper on Chernobyl mice. *Publish with your students*: Robert instilled an attitude of publishing as a key to success because he understood that the final step of the scientific method is publishing your results. He led by example, driving to publish paper after paper. *Professional service*: As scientists, Robert expected his students to find and become involved in professional organizations. This was good for their careers and it was a way to pay it forward.

James Bull, who was his undergraduate student at Texas Tech and now is a member of the National Academy of Science, remembers Robert's mentoring: "Reading these pages gives a sense of someone who accomplished four times the work and recognition expected of a 'run-of-the-mill' over-achiever. But for those lucky enough to work with Robert, he was even more remarkable as a friend and mentor. Being around him gave one a sense of vitality and of belonging; we felt part of his family; we felt important to *him*. Lots of his friends felt that they were his *best* friend. In the lab, he conferred on his students a sense of purpose and confidence in themselves. And he could accomplish this whether in a one-on-one interaction or when leading a group of 10. He had an unusual ability to inspire a person to achieve more than one ever imagined possible. His confidence in his students transferred to them so to become part of each student's psyche. His enthusiasm was infectious. Working with him was not always bliss, of course. He did not conceal his emotions, and his emotions ran strong both positive and negative. But being yelled at or criticized by Robert was not a rejection, not an emotional downer, it merely made one feel part of his family (perhaps not at the moment). It was part of the excitement of going through life with him at his pace. For those of us close to him, his ability to make us feel part of his life, to feel important, and to share in his excitement is what we will miss the most."

In a speech delivered in 1905, dubbed the "Strenuous Man," Theodore "Teddy" Roosevelt, the 26th President of the United States, famously claimed that in life "the credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood, who strives valiantly, ... who knows the great enthusiasms, the great devotions, who spends himself for a worthy cause; who, at the best, knows, in the end, the triumph of high achievement, and who, at the worst, if he fails, at least he fails while daring greatly, so that his place shall never be with those cold and timid souls who knew neither victory nor defeat" (Roosevelt 1905). So, in conclusion, we believe Roosevelt was correct—the credit does belong to the man in

the arena. That is where Robert J. Baker chose to spend his life and career. A country boy from Arkansas, who lost his father in World War II, and grew up reciting the Bible, became a world-class teacher and scholar who taught us much about the natural world and life. What a Story!!

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