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## IN MEMORIAM

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# P. Prithvi Raj, MD, FIPP 1931–2016

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Born Phulchand Prithviraj Borundia in Bagri Sajjanpur, a small village in India, he came to be known the world over, both humbly and iconically, as simply Raj. His remarkable life was distinguished by constant innovation, punctuated with perpetual professional reinvention. During his earthy journey, Raj worked and taught at a number of universities in England, Norway, and throughout the United States. Along the way, he amassed a remarkable number of publications, accolades, and awards. Yet the legacy of Raj is far more than the sum of his academic and professional achievements. It is that spirit of innovation, intellectual curiosity, and the need to relieve suffering across the globe that serves as inspiration, surviving him in the family, colleagues, and students he touched so deeply.

Destined to make a meaningful, global impact in his career, from an early age, Raj demonstrated exceptional scholarly abilities. Following graduation from St. Joseph's Boy's High School in Bangalore, he went on to Mysore Medical College before becoming an orthopedic surgery registrar in England. It was at Darlington Memorial Hospital in County Durham, UK, that he met his future bride, Susan Martin. Susan Raj remained his devoted wife, confidant, and work partner in writing and publishing for over 50 years (Figure 1). Her efforts allowed Raj to continue to be active academically throughout his less physically active "retirement" years; he was actively collaborating on yet another textbook at



**Figure 1.** Susan Raj and P. Prithvi Raj at home in Cincinnati.

the time of his passing. He died at home, peacefully, surrounded by his loving family. At 84, his mind remained as keen as ever to the last.

The Raj's adventure together brought them to the United States, where, after a short period in Connecticut, Raj became intrigued with the field of anesthesiology. His first mentor in anesthesiology was the famous Pepper Jenkins, MD, at Parkland Memorial in Dallas. Following Anesthesiology Residency and on the advice of Dr. Jenkins, Raj completed a postdoctoral fellowship in Norway before accepting a Senior Registrar position in anesthesiology at the University of Birmingham. He passed his FFARCS examination in England and was invited back to the University of Texas Southwestern by Dr. Jenkins, this time as an Assistant Professor. His research interest was in the field of drug metabolism. At that time, cytochrome P450 enzymes were only just beginning to be understood, and Raj's joint appointment in biochemistry positioned him on the cutting edge of this burgeoning field.

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Always evolving, his investigations led to pioneering work in diverse areas of research beyond drug metabolism to include fiberoptic intubation and mechanisms of intravenous regional anesthesia. However, without question, one of his most important and lasting innovative contributions was the introduction of peripheral nerve stimulators in the performance of regional anesthetic blocks for surgery. This novel approach allowed not only for a more accurate needle placement, improving the success rate of regional anesthesia techniques, but correct use also allowed the operator to judge the distance remaining to the nerve, allowing placement adjacent to the nerve without touching or injuring the nerve. This was a major safety advance and arguably the first major advance in technique in the preceding century of regional anesthesia practice.

His work in regional anesthesia also included the development of new regional block techniques, including the infraclavicular approach to the brachial plexus. This technique was also used to place catheters for brachial plexus infusion of local anesthetics, providing long-term relief for acute postoperative and chronic pain patients. Controversial at the time, over 35 years later, perineural infusions are now standard practice, allowing a number of surgeries that once required days of in-hospital care for pain control to be safely and comfortably performed as outpatient procedures with home infusions. Similarly, at the same time Raj pioneered continuous epidural infusions, facing similar criticisms for techniques that are now taken for granted as the accepted standard of care. Raj's ground-breaking work has since been recognized. He received the most prestigious awards in regional anesthesia: both the Gaston Labatt Award and the John J. Bonica Award from the American Society of Regional Anesthesia and the Carl Koller Award from the European Society of Regional Anesthesia. Most recently, he had the opportunity to return to his hometown to accept an award from the Academy of Regional Anesthesia in India. His awards and recognition in the field of pain medicine have also been numerous and international.

Not content to rest on one's laurels, after leaving Texas, Raj went to UCLA where he served as Vice Chairman of the Department of Anesthesiology, then back to Dallas before moving to the University of Cincinnati to develop one of the early comprehensive pain clinics and a 1-year pain fellowship program. The program evolved, as did the training of pain physicians: two more areas where Raj

took a pioneering lead role. Clinic development and pain fellow education continued to be his focus as he developed pain services at the University of Texas Health Science Center in Houston, a Medical College of Georgia satellite in Atlanta, and finally back to California at UCLA once again. The last and perhaps most remarkable teaching professorship was in Lubbock, Texas, at Texas Tech. While the clinic there was already well established by his long-time friend, Gabor Racz, MD, together the pair became what many considered the most influential institutional force in interventional pain management at that time.

Defining new institutions was another hallmark of Raj's career. He was a founder of the American Society of Regional Anesthesia, the Texas Pain Society, and the World Institute of Pain (WIP). Raj was a founder of the international pain certification, Fellow of Interventional Pain Practice, FIPP. He founded several pain journals, including *Pain Practice*, the official journal of WIP, and served as its Editor-in-Chief (EIC) for the crucial first 5 years of the journal's development. In his continuing emeritus role for the next 12 years, he provided sage advice and guidance to the editor and the Editorial Board.

Raj mentored many medical students, residents, pain fellows, and colleagues through the years. Many consider him much more than a mentor. In the outpouring of heartfelt expression when Raj was in his final days, many notes shared similar themes. They expressed feelings beyond friendship, often considering Raj a father figure: one of the most influential men in their lives. Many trace their training to Raj even when trained by former Raj fellows: a pain family tree. Only an extraordinary man can engender such feelings. His lessons clearly went beyond pain management, beyond medical practice, and beyond medical societies. They were lessons in how to handle adversity. Lessons in the safe use of creativity: a difficult task in medicine. Lessons in overcoming insecurities: facing one's demons. Raj led by example, a life well-lived, with grace, and meaning.

Raj's gentle guiding hand ensured his legacy will endure. Raj was blessed with a close and wonderful family and blessed with the knowledge that his extended worldwide family will carry on his life's work, striving to make a difference in pain care and pain suffering, especially for those in underserved and underdeveloped areas of the world: helping those who cannot help themselves.