In Memoriam

In Memoriam of John T. Shepherd, MD, DSc

Paul M. Vanhoutte, MD, PhD; John P. Cooke, MD, PhD; Richard A. Cohen, MD

John T. Shepherd, MD, DSc (Figure) was born on May 21st, 1919, in Northern Ireland and passed away in Rochester, Minnesota, on October 4th, 2011, after a protracted illness. With his passing we have lost a great integrative physiologist who contributed much to the field of cardiovascular medicine, and to our scientific community. His friends and colleagues will remember his gentle humor, engaging intellect, and humanitarian qualities. Sadly, we cannot reproduce for you his most endearing qualities, but we will briefly describe his accomplishments and his landmark studies.

John Shepherd received all of his impressive formal training (MB, BCh, M Chir and MD) at Queens University in Belfast. He both perfected his clinical training and became a physiologist of the peripheral circulation in the Department of Physiology at Queens. A Fulbright Scholarship brought him for the first time to the Mayo Clinic to work as a postdoctoral fellow with another giant in cardiovascular physiology, Dr Earl Wood. Both his unconditional attachment to Mayo and his passion for hemodynamic investigations stem from that first stay in Rochester. Indeed, although he returned to Northern Ireland after his Fulbright Scholarship and even spent some time in Paris (he loved to reminisce about his French experiences!), he returned to Rochester in 1957 to join the Department of Physiology at the Mayo Clinic, which he never left again. He was an extraordinary man at the service of an extraordinary institution. He became intensely American, yet he remained so British in his command of the language and his code of social conduct. Many years later, Dr Shepherd went back to Queens University to receive an honorary degree, a rare honor because an alma mater does not easily bestow such honor on one of its own alumni.

Mayo turned out to be the right setting for Dr Shepherd to blossom scientifically, but the institution created by the Mayo brothers also provided the stage on which the superior interpersonal skills of John Shepherd could work wonders, most notably his development of the Mayo Medical School. He passed on to generations of young researchers his simple, basic philosophy of human relationships, including the admonition to be nice to colleagues on our way up (since as he often said, with a twinkle in his eyes), we are bound to meet the same people on our way down. He strongly believed in the committee-driven organization of the Mayo Clinic and its need for collegial consensus in the decision making process. Hence, he became a master consensus maker, which explains why over the years he played such a prominent role as one of the leaders of the organization, becoming among others Chairman of the Department of Physiology and Biophysics, Director for Research, Dean of the Medical School, Member of the Board of Governors, Member of the Board of Trustees and Chair of the Board of Development. His remarkable capacities and his willingness to provide service to science were also recognized outside of Mayo, as illustrated best by his Presidency of the American Heart Association (1975–1976), and his Chairmanship of the Space Medicine Committee of NASA.

Dr Shepherd was an extraordinary scientist and a true scholar. His early work in Belfast, using simple techniques such as plethysmography, often as his own research subject, was seminal in the understanding of the autonomic control of the human peripheral circulation.1 He was one of the first to appreciate the role of the veins as the capacitance regulator of the circulation and pioneered the concept that not all veins are equal in that regard, with the splanchnic veins adjusting from moment to moment the return of blood to the heart, protected as they are from alterations in gravitational forces resulting from changes in body position.2,3,4 In association with Dr David Donald, a remarkable experimental surgeon and physiologist, he made major contributions to the understanding of the role of the various autonomic receptor systems (in

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393
particular the high and low pressure baroreceptors) constantly feeding information into the vasomotor centers of the medulla oblongata.\textsuperscript{3,5,6} His work was essential in creating countermeasures for pilots facing high gravitational forces, and for astronauts exposed to microgravity conditions.

Dr Shepherd was fundamentally an in vivo researcher, but soon he realized that to analyze the behavior of the blood vessel wall it is often necessary to study it in isolation. Hence, he participated with passion in experiments on isolated arteries and veins that aimed to unravel the complexities of adrenergic responsiveness,\textsuperscript{7,8,9} prejunctional regulation of norepinephrine release,\textsuperscript{10,11,12} the importance of vascular control in thermoregulation,\textsuperscript{13,14,15} and endothelium-dependent control of vascular tone.\textsuperscript{16,17,18} But he never forgot that this type of information was only valuable if it helped to explain the function of the blood vessels in the intact organism, and thus was truly what one would call today a translational scientist.\textsuperscript{19,20,21} Those who have had the privilege to work with him will always remember the incredible mentor that he was, forcing us to ask the right question, to listen to the data obtained, to be clear and simple, and to paint pictures with our words to make the point.

Dr Shepherd was indeed a superb leader, a remarkable researcher, a great teacher and a unique mentor. But he was also a wonderful, warm human being, always listening, understanding, trying to help. He was a man of great humor, incomparable wit, and a fluid rationality, with a strong code of social conduct imparted by a Presbyterian upbringing and learned by his innate joie de vivre. He was a true friend. We miss him.

**References**

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