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OBITUARY

Professor Brian J. Whipp: an obituary

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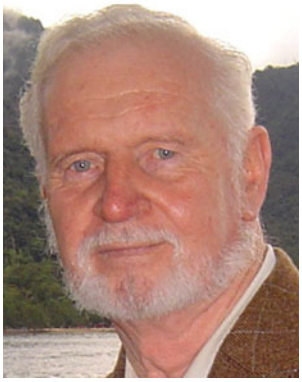

Tall, imposing, and faithfully Welsh, Brian Whipp (March 3rd, 1937–October 20th, 2011), whose unexpected death at the age of 74 has deprived us of an outstanding and influential Master—scientist, teacher and philosopher—in the field of respiratory and exercise physiology. To many of us, he was a respected and admired colleague, mentor and friend. Since his passing, others have paid tribute to Brian, and for those of us who knew him, we have had time to reflect on what he has meant to us and how his ideas and achievements have influenced the areas of respiratory gas-exchange and metabolic control. As a scientist, he paid attention to detail and pushed the boundaries of technology to understand the basic and clinical human physiology, and the mechanisms responsible for physiological behaviour. He was a masterful teacher, lecturer and speaker, one who could keep listeners spellbound by his knowledge of science, art, music, literature, history and by his command of language in crafting the perfect, definitive phrase. Those fortunate enough to have heard Brian's 2010 D.B. Dill lecture at ACSM, witnessed a performance by one of a rare mould of scientists—those who have truly shaped understanding and the future of their field.

Over two decades in the 1970s and 1980s with Karlman Wasserman, William Beaver, Richard Casaburi, Norman Lamarra and Susan Ward (to whom Brian would be married in 2009) at Harbor General Hospital in Torrance, California, Brian applied control systems analysis to the dynamics of pulmonary gas-exchange, ventilation and acid–base regulation during exercise. With these studies, he advanced our understanding of the mechanisms by which integrated physiological systems adjust to allow exercise to be sustained. Many of these ground-breaking discoveries were facilitated by the technical development of breath-by-breath gas-exchange monitoring and the creation of cardiopulmonary exercise testing protocols that now form the basis for diagnosis, prognosis and integrative physiological assessments used throughout the world in medicine, exercise physiology and sport. These innovative methodologies, aided by the availability of 'modern' computing, allowed unprecedented investigation of human

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bioenergetics in the non-steady-state (Beaver et al. 1973). The insight Brian and his colleagues provided would demonstrate the hierarchy, and the exercise intensity-dependence, of control mechanisms for O_2 uptake, CO_2 output and ventilation, leading a dramatic expansion of interest and research in exercise dynamics.

It was as Chair of Physiology in St. George's Hospital Medical School at the University of London from 1992, with colleagues Susan Ward and John Griffiths, that Brian would turn his attention to the control of skeletal muscle bioenergetics during exercise in humans. The innovative experimental technique that he devised, allowing O_2 uptake to be measured coincident with intra-muscular phosphate metabolism, provided the first in human evidence to support a hypothesis originally developed in 1955, of the phosphate-feedback control of oxidative phosphorylation (Whipp et al. 1999). The highly-influential works produced from these studies paved the way for insights into muscle bioenergetic control to be drawn from non-invasive pulmonary gas-exchange measurements, and provided a physiological systems-based understanding of the integration amongst muscle energetic requirements and activation of energy-producing pathways and support processes.

Brian was a scholar in the truest sense, combining extensive physiological knowledge with incisive intellect, considered logic, patience, rigor with—above all—a passion for the subject; qualities he imparted over four decades of tutelage to countless medical students, research fellows, and physicians to whom he was a unique and valued mentor.

As Emeritus Professor from 2001, Brian continued to be extremely active in innovative research, education and lecturing the world over. Working from, as he joked, 'The "study" for the "study" of human bioenergetics research' at his home in the Welsh village of Crickhowell, he produced over 50 academic works. During this time, he received many honours including ACSM's 2002 Joseph B. Wolffe Memorial Lectureship; the ACCP 2007 Distinguished Scientist Honor Lectureship; the 2008 APS Honor Award (Environmental and Exercise Physiology); the ERS 2010 J-C. Yernault Lectureship; and the ACSM 2010 D.B. Dill Lectureship.

For most of the readers of this journal, Brian will be well recognized as a pioneer in modern exercise and respiratory physiology and through his many accomplishments including more than 300 academic publications, several of which were published in "EJAP" where he served as an Editorial Board member (1996–1998). For others, he may be remembered in his youth as Welsh Amateur Athletic Association champion for high hurdles and decathlon or, throughout his life, as an exceptional table tennis and squash player (winning against each of the student members of the St. George's Hospital Medical School squash team in the year that he retired). For us, we are very fortunate to have worked with Brian, and each can offer a favoured story of Brian's humour (and mischief) and passion for science. But it is as an exceptional mentor where our memories of Brian converge. Brian always gave his time for his students, and held us to a rigor for scientific endeavour that was second to none. He expressed his views in his 2010 D.B. Dill lecture entitled "The self-correcting nature of science" where he echoed the words of Julius Comroe on the Responsibility of the Scientist (Comroe 1977): "When a scientist achieves the status of being an 'authority', he has an additional responsibility—of not holding back the advance of science by pronouncements that discourage certain lines of investigation. 'Non-authorities' also have the responsibility of not accepting authoritative pronouncements without question." With his typical insight, Brian added, "The authority also has the requirement to question, not only other people's work, but his own." Amongst the many and important scientific contributions that Brian leaves us, it is this progressive, self-questioning approach to scientific enterprise that is perhaps the most significant. Reflecting back on Brian's impact, this variation of an Arabic proverb seems appropriate:

He who knows not and knows not that he knows not—a fool, shun him.

He who knows not and knows that he knows not—a student, teach him.

He who knows and knows not that he knows—a poet, watch him.

He who knows and knows that he knows—a Master, follow him.

Brian truly was a "Master". He is, and will remain, sorely missed.

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