

Rudi Franz Eckhard Busse*

Ingrid Fleming und Ulrich Pohl

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Rudi Franz Eckhard Busse was born on November 21, 1943 in Bayreuth (home of Richard Wagner), in south East Germany, the youngest of four siblings. Rudi studied medicine and received his MD in 1971. After his internship, however, he realized that his true interests were in basic science, and not in clinical routine. Thus, in 1973 Rudi joined the Department of Physiology at Universität Erlangen-Nürnberg, where the focus was on hemodynamics. The move was a real challenge for Rudi, as his basic education was “humanistic” and had focused on a thorough training in Latin and Greek, rather than complex mathematics. Encouraged and supported by his



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early mentor, Erik Wetterer, he began working on the mechanisms governing vascular mechanics and the related hemodynamics and pulse transmission characteristics of arteries. Only four years after joining the Department of Physiology, Rudi submitted his “habilitation” thesis entitled, “A new theoretical and experimental way of determining the propagation coefficient and visco-elastic behavior of arteries in situ”. Although the topic sounded rather dry, if not dull, and the document itself was not easy reading, Rudi’s anecdotes on how some of the measurements were made (particularly the first measurements of the human carotid pulse) were hair-raising. Characteristic of the late 1970s, training in the basic sciences was considered part of a more universal education, and Erik Wetterer not only sparked Rudi’s interests in hemodynamics, but also in antique Turkmenian carpets. Rudi remained an avid collector throughout his life.

In 1981 Rudi moved to the University of Freiburg, first as an associate professor and later as a full professor in the Department of Applied Physiology. This move marked another huge shift in Rudi's research interest: Though he initially continued to study vascular mechanics, the seminal work of Robert Furchgott stimulated Rudi to investigate the role of endothelial cells in modulating vascular responses. Rudi's first publication in this then rapidly expanding field focused on the role of the endothelium in sensing vascular hypoxia. Thereafter, the role of flow/fluid shear stress as endothelial stimulator became the center of his research interests. Rudi was also one of the scientists involved in the identification of the endothelium-derived relaxing factor (EDRF), which we now know to be nitric oxide (NO). Rudi and his group were one of the first to link the acetylcholine-induced release of an EDRF to the activation of the soluble guanylyl cyclase, a mechanism that brought NO into play. A whole series of citation classics followed, and the expanding group's interests ranged from the control and consequences of NO production in vascular cells and endothelial cell Ca^{2+} signaling to the role of ACE inhibitors in regulating the endothelial cell response to bradykinin. The time in Freiburg proved incredibly fruitful, with an ever-increasing number of international young scientists (Duncan Stewart and William Jackson, to name two) joining Rudi in his laboratory. But it was not only the science that made these times unforgettable, it was also Rudi's warm, visionary, and optimistic personality in conjunction with some infamous and legendary excursions into the Black Forest, and to French gourmet restaurants, that made academic life in those days so attractive for this growing group of young scientists.

In 1993 Rudi took on the Chair of Cardiovascular Physiology at Frankfurt University. The years in Frankfurt proved to be exceedingly productive (Rudi was an author on more than 360 papers) and although the group continued to work on the mechanisms (particularly phosphorylation) regulating NO production, its interests expanded to the endothelium-derived hyperpolarizing factor (EDHF), vascular cytochrome P450 enzymes, and NADPH oxidases. Over the years, Rudi succeeded in recruiting some of the brightest and best scientists to his own department, as well as to other positions in the faculty. His determination to build an environment of like-minded researchers fuelled the establishment of one of the few programs that obtained funding within the framework

of the German research foundation excellence initiative (the Excellence Cluster Cardio-Pulmonary System; ECCPS), a joint initiative of the Frankfurt and Giessen universities. This final success and the well-deserved international reputation of his department clearly reflected Rudi's enthusiasm for cardiovascular physiology and his visions on the importance of translational science.

The lights in Rudi's institute frequently burned bright until well after midnight, and it was generally after normal working hours—when the telephone had finally stopped ringing—that he had time to philosophize about specific projects and the field in general. Some of the best memories of Rudi were of such evenings spent correcting manuscripts, and the long discussions that took place over every other sentence, as well as even longer digressions on topics related to contemporary art, films, and classical music, an interest that grew from his close childhood relationship with the Wagner family. Scientific posters never adorned the walls of his institute. Instead there were framed posters from every major art museum worldwide, and of course his office always boasted a prized selection from his large collection of antique carpets.

Rudi Busse's contribution to science was recognized by a series of prizes and awards, including the Fraenkel and Paul-Morawitz awards, as well as the Carl-Ludwig Medal from the German Cardiac Society. He also played an active role on the Editorial board of several journals and was an Associate Editor for Circulation Research from 1999 until his death.

Although we found it relatively easy to give an overview of Rudi's achievements during his all too short to life, it was much more difficult to convey on paper the infectious "Lebensfreude" (joy of life), the youthful sense of humor, generosity, open-mindedness, and ability to bring people together that those who knew Rudi closely experienced first-hand. Those who spent time with Rudi grew to value him as an exceptional, innovative, and upbeat (as long as it was after 10:00 am) scientist, as well as a close personal friend. Through Rudi one learned about life in all of its facets. He taught each of his coworkers to trust their own instincts, to be open to new ideas, to be unafraid to make mistakes, and most importantly, he taught integrity.

Rudi Busse died on June 27, 2007 after battling against pancreatic cancer for nearly a year. He is survived by his wife and son, and extended family. In honor of Rudi and his passion for cardiovascular physiology, the Institute for Cardiovascular Physiology at the JWG University Frankfurt has established an award in his name to support young scientists.

Ehrungen und Auszeichnungen (Auswahl)	
2000	<u>Paul-Morawitz-Preis</u> der <u>Deutschen Kardiologischen Gesellschaft</u>
2002	Ordentliches Mitglied der <u>Deutschen Akademie der Naturforscher Leopoldina</u>
2005	Gedenkmedaille der <u>E.K. Frey-E. Werle Foundation</u>
2007	<u>Carl-Ludwig-Ehrenmedaille</u> der Deutschen Gesellschaft für Kardiologie
2008	Rudi-Busse-Young Investigator Award für Experimentelle Herz-Kreislaufforschung

Herausgeber	
Associate Editor	Circulation Research
Editorial Board Member	American Journal of Physiology - Cell - Heart and Circulatory Physiology - Regulatory, Integrative and Comparative Physiology
	European Journal of Physiology
	Journal of Vascular Research
	Hypertension
	Deutsche Forschungsgemeinschaft (DFG)
Gutachter	Alexander von Humboldt-Stiftung

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