

The Scientific and Academic Work of Professor Ulrich Zwiener – A Tribute

Das wissenschaftliche und akademische Wirken von Professor Ulrich Zwiener – Nachruf



Professor Zwiener, Director of the Institute of Pathophysiology and Pathobiochemistry at the Friedrich Schiller University Hospital, Jena, and Section Editor “Physiology & Ecology”, has passed away. The startling news came unexpectedly, and shock and profound grief are still being felt.

Permit me to outline his work as a scientist and university teacher. This may be an opportunity to illustrate the high regard in which he was held over the years by companions and coworkers, colleagues and students from near and far.

Prof. Zwiener’s associates were fascinated and swept along by his restless commitment and his enduring search for universally valid mechanisms in the occurrence of disease, a search which transcended the divisions between disciplines. His work was characterized by two qualities: inspiring innovation derived from topical analysis, and strategic vision founded in theory. He had acquired the intellectual basis for this through a solid education in experimental-methodical neurophysiology at the Physiological Institute of the Berlin Humboldt University and a second course of studies in Philosophy with a specialization in theory of cognition. In these early days he established a lasting reputation by completing Ph.D.s in both fields and by producing original works of research. This led to strengthened thought structures and trend-setting research and curricular content, which he was increasingly successful in implementing as the youngest holder of a chair (1978) and director of an institute in the German Democratic Republic at that time. This took place under extremely strained economic conditions and in a very difficult environment that was in some ways hostile to

science. Crucial for the sustainable development of the Institute of Pathophysiology and Pathobiochemistry – the only one of its kind in Germany – was the exemplary work ethic of its director, his entrusting of responsibilities to junior colleagues to an unconventional degree, and his constant readiness to optimize his own direction in research through dialogue with others.

Prof. Zwiener played a decisive role nationally and internationally in shaping pathophysiology as the science of diseased functions, encompassing disorders on biophysical, biochemical and psychosomatic levels. As a core discipline of general pathology it forms the bridge in research and teaching between fundamental biomedical research and clinical work. As such, interdisciplinarity was, as a matter of principle, a dominant maxim for Professor Zwiener’s academic work. And so the methodical approach was found with which to better shed light on the systematic character of the pathogenesis of illnesses. As Director of the Neurophysiological Department at the psychiatric hospital of the Medical Academy of Erfurt (1969–75), he introduced cybernetic methods into medical research at the beginning of the 70’s. He was among the first to use time series analysis successfully for the quantitative analysis of the autonomic nervous system in relation to behavioral states in newborns. Up to the end he enjoyed success in this area with the experimental and clinical evaluation of nonlinear methods (e.g. DFG-funded project Zw 47/9 1, 2001–03). He organized and ensured the fruitful interdisciplinary exchange between medical doctors, scientists and engineers for the theoretically-founded development of signal and system analysis.

Parallel to this, Professor Zwiener also set a scientific-political course. In particular, he consistently promoted the advancement of the younger generation of scientists as Chairman of the Society for Pathological and Clinical Physiology of the GDR, and organized the development of international relations, even beyond the iron curtain. This included organizing the International Congress for Pathophysiology (Leipzig, August 6–10, 1984) at which the “International Society of Pathophysiology” (ISP) was conceived. The founding of the ISP took place after overcoming state-dictated ideological hurdles in the summer of 1991 in Moscow. Prof. Zwiener belonged to the ISP Council until 1998, which united representatives of pathophysiology from all 5 continents. In recent years he was chairman of the Teaching Group “Central and Northern Europe” of the ISP.

The implementation of interdisciplinary work methods and the successful shaping of the role of pathophysiology as a bridge between theoretical and clinical medicine remained Professor Zwiener’s avowed goals. This manifested itself in, among other things, his leadership of interdisciplinary research projects sponsored by the German Research Foundation (DFG) and the German Ministry of Education and Research (BMBF). Altogether, 115 of the 206 original

scientific studies resulted from the fruitful cooperation with system analysts, mathematicians, biologists and physiologists, anesthetists, pediatricians, obstetricians, internists, intensive care practitioners, psychiatrists and psychologists. The majority of the 8 post-doctoral and 36 doctoral dissertations supervised by him were dedicated to pathogenetically oriented interdisciplinary issues. Prof. Zwiener's creative strengths also had a fertile influence on the reconception of the medical studies curriculum. From many years of experience as a successful university lecturer (including the publication of 5 text books), his enduring efforts were devoted to the introduction of integrative training methodologies.

With Prof. Zwiener's passing we have lost a visionary scientist and an extraordinary human being, who combined enthusiasm and creativity in research and teaching with a

deep humanism and a sensitivity for human injustice at home and elsewhere in the world, which in the end he could no longer bear.

Along with our grief we feel gratitude for the years of work we shared with him.

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