Epilogue

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When Professor Josef Bille shared his concept for a book, dedicated to Dr. Gerhard Zinser, everyone who had the privilege to work with him over the years was excited, especially me. It led to an interdisciplinary project in which outstanding ophthalmologists, scientists and colleagues could contribute their expertise and pay tribute to a great person. I am very grateful to the many authors who have invested significant effort and dedication to make this happen. It was really worthwhile! The book provides a clear and understandable overview of the broad field of high-resolution imaging in microscopy and ophthalmology.

I started working with Gerhard at Heidelberg Engineering in 1995, when the Heidelberg Retina Tomograph (HRT) had been on the market for several years. The HRT was based on the Laser Tomographic Scanner (LTS), which Gerhard had developed in the late 80s at Heidelberg Instruments. The success of Heidelberg Engineering was based not only on the entrepreneurial spirit of the two founders Gerhard Zinser and Christoph Schoess, but also on two fundamental factors: the focus on the essentials and the associated miniaturization of the camera unit, and the rapid technical development along with increasing performance of the young personal computer (PC). Only this combination made it possible to offer such a device at an affordable price. As a fully digital system, the HRT represented a quantum leap for imaging of the fundus at a time when color fundus photos were still taken with conventional films. It became the first diagnostic imaging device that was able to objectively quantify clinically relevant factors of the optic nerve head.

This marked the beginning of an era of innovative technical achievements in ophthalmology that continues today. A groundbreaking example of this is certainly optical coherence tomography (OCT), which today plays an outstanding role in routine clinical practice. Who would have thought at the time that the lateral resolution of imaging in the human eye with adaptive optics would be surpassed by the axial imaging resolution of OCT technology?

I consider it a fortunate coincidence and a privilege to have accompanied Gerhard as a unique pioneer in this field for more than 20 years and to be involved in the significant advancement of diagnostics in ophthalmology. I know that many of my colleagues feel the same way. As a true visionary, for Gerhard, only the best was good enough. His view was always directed

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forward and discussions were always held with the greatest respect as equals. Gerhard carefully put together a very efficient and harmonious team over the years. These colleagues have not only become experts in their fields, but are also highly innovative and exceptionally motivated.

In 2014, Gerhard appointed me Head of the Research and Development department. I am very grateful to him for the trust he placed in me that allows me to work with a distinguished team to lead Heidelberg Engineering into a successful future with innovative technical solutions.

While this book highlights technologies that have become an integral part of everyday clinical life, it also presents many methods, such as 2-photon imaging, which are not yet commercially available.

This era of rapid technical progress in ophthalmology is far from over, as the need for improved and novel diagnostic imaging is greater than ever before. It is not only necessary to deepen the understanding of physiology and pathophysiology, but also a necessary prerequisite to improve testing efficacy, allowing for the development and approval of new therapeutic approaches.

For example, the current treatment (OCT-guided anti-VEGF therapy) of age-related macular degeneration only takes place in a late phase of the disease and only treats the symptoms, not their underlying causes. Important and specific indicators for the early form of AMD are the so-called basal laminar and basal linear deposits (BLamD/BLinD). BLamD is thicker and can be seen with OCT under some circumstances. BLinD is thinner and cannot be seen yet. Visualizing these deposits would be ideal for a corresponding future therapeutic treatment of early age-related macular degeneration.

It is not only the innovative technical development of the devices themselves that will overcome this and other challenges in the future and open up new paths to improve patient care, but also the exciting potential of artificial intelligence in medicine.

I am very curious to see where this journey will take us and very excited to be part of it.

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