

# Preface

A simple glance at the table of contents demonstrates the breadth of microscopy techniques applied to pharmaceutical microscopy. We range from simple stereo-microscopy to polarized light microscopy, and from electron microscopy to IR and Raman spectroscopy. This can be an intimidating set of techniques and instruments to attempt to learn and to use in just a cursory fashion, much less to become expert in use and interpretation. I am fortunate to have been given the opportunity to learn to use all of these techniques over my career. I began microscopy by measuring glass fibers on a projection microscope in a closet and have moved from there to all of the techniques listed in this book. I did the majority of my education part time after I started in industry and have consciously directed my academic studies toward industrial microscopy. My doctorate is in chemistry (physical) and my dissertation covered quantitative analysis using energy dispersive X-ray spectrometry in the environmental scanning electron microscope. I am fortunate to have had supportive managers as well as supportive academic advisors.

I learned optical microscopy from McCrone Research Institute, from listening to talks by industrial microscopists, from reading microscopy works, and by long hours with eyes applied to eyepieces. Walter McCrone's courses and conferences are what helped me decide that my goal was to become a chemical microscopist. Skip Palenik and John Delly were the two microscopists I most admired, but I must say that there were so many fine industrial microscopists working in the 1980s. I use the past tense because industrial specialization in science is not as common today as it was then. I think we have lost something important but such opinions may be tilting at windmills. Still, I believe that the satisfaction of becoming a master craftsman (woman as well) is worth the effort and pays dividends to business. Oh, did I mention how much I learned from chats at the bar after conferences bending elbows and ears? I cannot forget that source of "learning."

I have worked in the pharmaceutical industry since 1992. In that time, I have worked on hundreds of compounds and had maybe a dozen approved. My work has extended from very early-stage discovery before first time in human studies to post launch. I have transferred microscope size methods to manufacturing facilities. Most pharmaceutical scientists work in a very narrow range of development – a development that can take a decade from start to finish. Solid-state scientists, on the other hand, often work from the very early stages looking at polymorphism and

particle size all the way to marketing approval and manufacture. It is a fine way to learn the industry and the particular challenges to drug development.

I use personal pronouns such as 'I', 'you', and 'we' much more than is common in scientific books. I hope you do not find the practice too jarring or distracting. I chose to present the information in this fashion because so much of the contents involves personal preference and experience. Also, I am hoping to achieve the sense that you and I are sitting in front of a microscope and I am sharing with you what I have learned from more than 30 years of experience in industrial and pharmaceutical microscopy.

I am an enthusiastic proponent of microscopy in solid-state pharmaceutical development. I have gained a great deal of personal satisfaction from using microscopy to solve industrial problems and I hope this book helps you have the same experience.

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