

*Die Grundlagen der Theorie des Mikroskops*, by KURT MICHEL. Wissensch. Verlagsgesellschaft m.b.H., Stuttgart, 1950, 314 Seiten, 160 Abbildungen, 27 DM.

The title renders very aptly the contents—in this book the fundamentals on which microscopy is based are completely and never unduly deep-searchingly dealt with. Mathematics (exclusively elementary) are continually applied, to the right degree in my opinion, it works clarifying, makes possible clear summaries and forms the tie between the various chapters—in short it procures the indispensable string through all the mentioned facts, but it is never a deterrent factor. After a general physical introduction the geometrical optics are dealt with in extenso in a very clear and comprehensible way, in which the optical instruments are continually adduced as examples or as applications. Now and then the meaning of a sentence is not too clear; apparently the author has been led to this by the desire to be as concise as possible, but a few times the same thought is mentioned twice in literally the same way (*e.g.*, in the legend of Fig. 32 and in the text on the same page). So it is possible to discuss whether the elaborate treatment of one item is in equilibrium with the hasty way in which other subjects are dealt with, but such a thought always leads to the wish to see the essential chapters *not* less elaborately treated and to drop the less important ones. So referent would prefer to drop the U.V. (absorption) microscopy completely rather than to have the few lines on pages 280 and 281 (even if it is appropriate to mention the monochromator on page 179 and in Fig. 114<sup>3</sup>). I deem the chapter on the electron microscopy such a short reference that it exclusively “states” and “mentions” but does not “explain”. Might not a short advice to study the monographs of VON ARDENNE and of GABOR have been sufficient. People really wanting an insight in the interesting but rather complicated theory of the electron microscope will have to study at least a few books of that kind. The same goes for the chapter on Colorphotography. The book would have gained in conciseness by their omission. Particularly good I think is the treatment of the wave-mechanical theory of image forming in the microscope (excellent illustrations in a rather poor execution); it is a profound pleasure to be introduced and guided in such a brilliant way into this field of the optics—with the figure of ABBE in the background.

For whom is this book meant? I think for everyone who is sufficiently interested in the physical background of his microscope to enjoy the study of the theory materialized in his instrument. The microscopist has in this book an excellent and trustworthy guide, but it has to be studied, not consulted. It is worth a place in the library of all laboratories where the microscope is used daily.

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