

# Making KODAK Film

Expanded Second Edition

by Robert L. Shanebrook

8.5 x 11 inches, four-colour printed on 80-pound gloss paper.

This edition is expanded to 470 pages including an extra 225 illustrations and over 600 footnoted references. The price is \$125US.

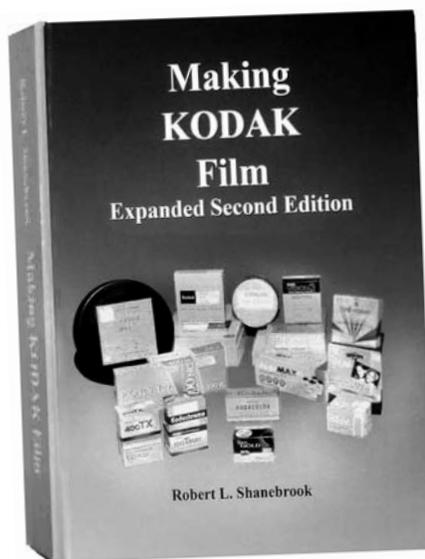
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*In January, 2017, Kodak announced the reintroduction of their well-known Ektachrome transparency film. While there are many comments and opinions about the significance of this move, writers wanting a solid background perspective might be well-advised to review carefully this newly-updated and expanded volume on the history of film making at Kodak. Although many would rather have heard that Kodachrome was being revived, this volume makes very clear the relative complexities of colour film production, so that the unlikelihood of reintroducing any colour film at all can be easily understood.*

To present the entire history of film manufacture in other than a superficial form is no easy task. This author must deal with two main problems, first, how to clarify which processes/products are still being used, and which are now history, and, second, how much technical detail to include. As noted in this book's preface, current processes (as of 2016) are spoken of in the present tense and historical ones in the past tense. Although logical enough, this can be a bit jarring to the reader, particularly when both tenses are presented in one paragraph. Ultimately, though, this does become an efficient way to sort out the timeliness issue.

The level of detail presented in this book is well beyond what a casual reader would need, and yet such detail is only barely enough to explain the nuances of the many technical improvements that incrementally led to the high quality of modern film. The history of the development of complex industrial processes is much more difficult to describe than the mere "invention" of a thing. This book is wonderfully focussed on the technical side of the advances without giving way to the



idolatry and corporate porn of many company histories. It's a wonder that Kodak would allow the revelation of such inside data but Shanebrook was able to consult over 100 photographic film experts as well as being part of the Kodak team.

This is not a business history of the Kodak company - in fact only casual mention is made of the recent bankruptcy. There is, however, significant detail on the development of Rochester's Kodak Park and in particular the history of the film manufacturing buildings there, as well as a section on the international factories. Kodak Canada, however, does not merit much detail, which could be taken to mean it was not as significant as we might think in the corporate scheme.

The initial chapters of the book describe the components of silver halide film itself and then move on to how a new film is measured and commercialized in the Kodak world, including an extensive example of how the Portra series of films differed from their predecessors and how they were brought to market. These were professional films that were closely specified to please the professional users. An interesting point was how the number of Portra film choices were simplified when commercial printing moved from



photographic enlargers/paper to digital scanning and printing, due to the availability of saturation adjustment in the digital process.

If all this sounds too technical, the book is also full of interesting side details and anecdotes, for instance the description of Kodak's use of a New York salt mine to store films used for nuclear tracking. This was necessitated by the fact that film stored on the surface would be fogged by cosmic radiation in ten days!

The most interesting and accessible part of this volume is the central core of three sections which detail the manufacture of flexible film base, the making of film emulsion, and the coating of the base with the emulsion. It is in these chapters that the full physical miracle of film manufacture is described from its beginnings at Kodak. The rapid growth of Kodak may be gleaned from the book's descriptions; to quote, "During the 1900-1908 period, twenty-nine machines with 12 foot by 46 inch wheels were built," to manufacture film base. Difficulties in finding a suitable substitute for the highly flammable cellulose nitrate film base are presented in detail.

One of the gems of these sections is the complete reprint of a first-hand ac-

count of emulsion making written by a Kodak worker hired in 1934. This forty-year employee's description of the early years shows how labour-intensive and un-automated the emulsion making process was in the mid-20th century.

If anything demonstrates more clearly why you cannot make quality film in your basement, it is this book's chronicle of the development of the film coating process. Driven by rising demand for film each decade until 2003, Kodak was constantly developing the film coating machine and process, starting from the hand-cranked hopper travelling along a track on glass tables, to the final multi-layer machines that could make Kodacolor in a single pass. The size and complexity of these modern machines is well represented by the book's revelation that the film length inside the machine from input to output winder is over 5,000 feet!

Complementing these core chapters is an extensive description of the final finishing steps for converting the coated film web into the size and shape required. The completeness of Kodak's autonomy is demonstrated by the description of the Kodak paper-making operation in Rochester, and the extensive effort required to perfect what one might assume is the simple

matter of making backing paper for roll films. Attention here is given to all formats, including the now discontinued 110, disk, and APS.

The final chapters of the book catalogue the various film types and give histories of some of the modern films, such as Kodachrome. Although the 21st century might be seen as a time of constant retrenchment and defeat for Kodak, it is clear that Kodak continued intensive development.

This book presents a sprawling and diversified overview of the making of Kodak film, from the voice of someone who obviously has ample first-hand knowledge of it. Reading beyond the wealth of technical details, the insular, quirky (really, a internal methodology called KOS?) culture and self-sufficient brilliance of old-style corporate monoliths like Eastman Kodak can be felt. Mostly, it is a book for those who would like to move beyond the current simplistic nostalgia-for-film craze to a more sophisticated knowledge of film's complex history, and its quite miraculous functionality.

REVIEWED BY DAVID BRIDGE