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A Brief History of the 16mm Film Format

By Paul Eisloeffel, Nebraska State Historical Society

In January 1923, the Eastman Kodak Company of Rochester, New York, introduced the first commercially successful amateur movie camera in America: the Cine-Kodak. Large, boxy, and hand cranked, this device paved the way for a succession of cameras, projectors, and accessories that fed both a hobby and an industry. But the really important advance—what put the power of filmmaking into the hands of amateurs—was not so much the machines as it was the film itself. Intended as a proletarian alternative to the conventional 35mm format, the film measured 16 millimeters wide and sported a frame size one-fourth that of 35mm film. It was designed for economy and portability.

But more than that, 16mm film was a technological advancement that helped redefine filmmaking for the next half-century. It employed a base of noncombustible acetate plastic, unlike the dangerously flammable cellulose nitrate used for 35mm film, earning it the name “Safety Film.” It could be loaded in daylight. And it was “direct reversal” film, relieving the need for the two-step process of creating a negative and printing a positive from it; there was no negative—only the positive camera original. These advances made the new 16mm film the perfect instrument for amateur filmmakers and hobbyists.

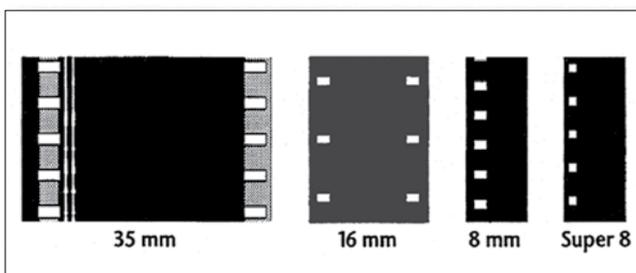


Illustration 1. This guide shows the 16mm format in comparisons to the three other common formats. Courtesy, Archives Filmworks, Lincoln, NE.

From these beginnings, amateur filmmaking took off and thrived for decades. It spawned a plethora of accessories, at least one national organization (the Amateur Cinema League), and “how-to” manuals, all targeting the hobbyist. Kodak also established collections of 16mm films for rental or purchase for the home or classroom, thus creating another reason to buy into the 16mm market even if filmmaking was not an interest.

Along the 16mm format’s story arc came other innovations, also designed to enhance the amateur’s experience. New, derivative film formats were introduced: 8mm in 1932 (half the width and one-quarter the frame size of 16mm) and Super-8 in 1965 (which had an increased frame size over “Regular 8”). Color film also joined the fray; the disappointing Kodacolor system (introduced in 1928) was replaced by the popular Kodachrome in 1935. And other companies, like Revere, Bell and Howell, DeVry, Victor, and Keystone, cut into Kodak’s market share.

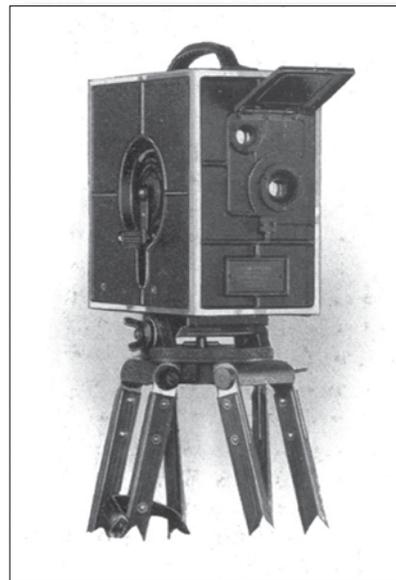


Illustration 2. The Cine-Kodak (1923) started the 16mm home movie revolution. Courtesy, Nebraska State Historical Society.

But while all this advancement was directed toward the home hobbyist, 16mm began to take on a professional status. It continued to be available to home moviemakers in its original silent, reversal, daylight-loading version, but the needs of the professional filmmaker drew much of the production of 16mm footage toward other film stocks. Perhaps its most significant boost as a professional film format came during World War II, when it was used extensively for both field photography and on the home front. 16mm sound projectors became common fixtures in schools, churches, hospitals, businesses, and town halls. By the mid-1940s, the 16mm format’s place as a nontheatrical tool for education, mass communication, and public service was secured, as was its legitimacy as a professional format.

In the postwar years, the home movie market shifted toward the cheaper and more portable 8mm film gauge while professional 16mm film production expanded tremendously.

This was a time of unprecedented growth for the format, as government, private industry, and assorted organizations sponsored the making of films for educational, promotional, and persuasive purposes, and distribution of these films became a big business.

Perhaps the final big boost to the 16mm format came from the television industry. The first local stations began broadcasting in the late 1940s, and 16mm was the format of choice for both field news gathering and programming that was not broadcast live.

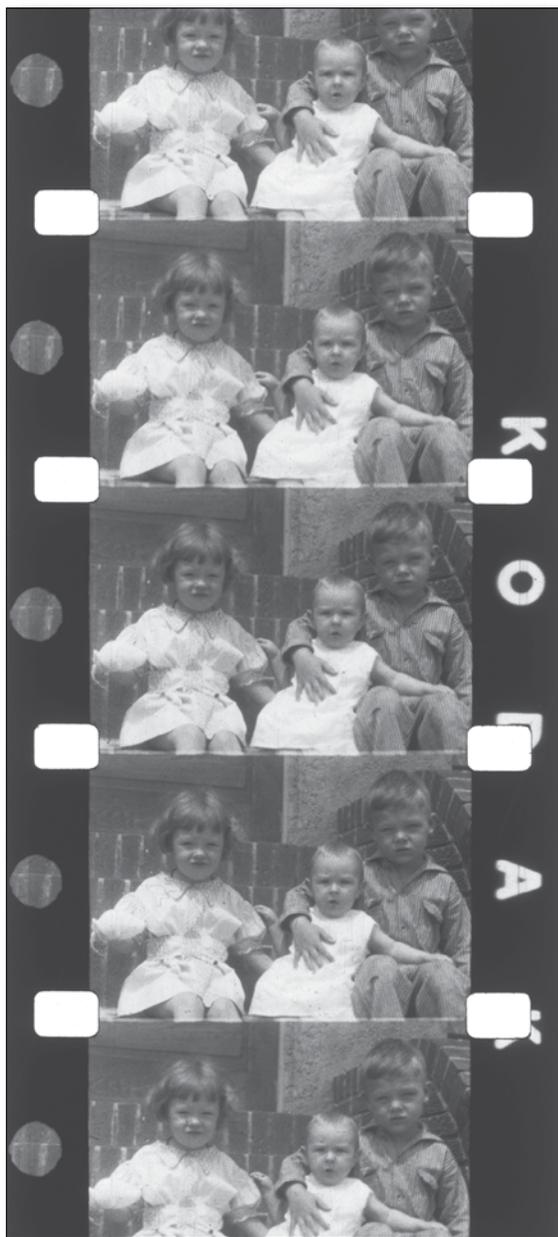


Illustration 3. This strip of film from a home movie shows the tell-tale black edges of 16mm reversal film. Courtesy, Nebraska State Historical Society.

By the early 1980s, durable polyester-based 16mm film stock became available. Even so, the increasingly widespread use of videotape ended the 16mm format's dominance in the television industry. Its use in sponsored filmmaking also waned, as did all film formats in amateur use. Sixteen millimeter film is now used sparingly, notably in broadcasting, documentary, and avant-garde applications and in climatic conditions too extreme for magnetic and optical carriers.

But 16mm had a good run. Dubbed a “substandard” format when it was first introduced, it proved all but substandard in its impact on the history of communication. Its economy and portability assured its status as the dominant film format of the mid-twentieth century. Consequently, it is the format most often present in the collections of archives, libraries, and museums. And, if cared for properly, it will still outlive videotape and optical media by decades.

Annotated Bibliography

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National Film Preservation Foundation. *The Film Preservation Guide: The Basics for Archives, Libraries, and Museums*. San Francisco: 2004. This now-classic manual explains the differences in film formats, their physical makeup, and their preservation and management needs.

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Slide, Anthony. *Before Video: A History of Non-Theatrical Film*. Westport, CT: Greenwood Press, 1992. Slide's work includes a detailed account of the role of the 16mm format in the years preceding the video revolution, particularly in the fields of education, religion, and the health sciences. It also covers the topics of film libraries and the rental industry quite well.

Zimmermann, Patricia R. *Reel Families: A Social History of Amateur Film*. Bloomington: Indiana University Press, 1995. In this good companion to Katelle's book, Zimmermann offers insights into the humanist aspects of the home movie phenomenon.