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**Final Report**  
**Chapter 6**  
**Zapruder Film**  
**(Draft # 2-Condensed Rewrite)**  
**July 9, 1998**

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A. Eastman Kodak's *Pro Bono* Work for the Review Board Related to the Zapruder Film

In the spring of 1996 the Review Board staff began considering which photographic issues might be worth pursuing as "research projects," within the spirit of the JFK Act--namely, in regard to what might be done either to answer questions about chain-of-custody, or provenance, of selected film records; or to enhance, or better preserve, selected film records. (From the beginning, it was understood that the Review Board would not endeavor to reach conclusions regarding what various films say, or do not say, about the events of the assassination, since image interpretation is subjective.)

The ARRB staff first met with the Eastman Kodak Company in June of 1996 in Washington, and discussed a wide variety of possible research topics. At this meeting, on June 11, Kodak reaffirmed its intent to provide a limited amount of *pro bono* work for the Review Board, and requested that the Review Board staff define its broadest possible range of potential interests in writing. This was done in a Review Board letter to Eastman Kodak dated July 26, 1996.

Telephonic liaison was established and discussions continued with Eastman Kodak laboratory officials in Rochester, New York. A meeting was held in Washington between Eastman Kodak technical experts from Rochester (Mr. James R. Milch and Mr. Roland J. Zavada), and Review Board staff, on September 11, 1996, at which time the Review Board staff identified three major areas of interest: (1) possible enhancement and, if necessary, optical (film) analysis of autopsy images; (2) possible digitization and enhancement of the Zapruder film, as well as edge print analysis of the original and first

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generation copies, and study of the optical characteristics of the Zapruder camera in relation to perceived “anomalies” in the original film; and (3) study of the provenance of film materials subpoenaed by the Review Board from Mr. Robert J. Groden for examination. Kodak laboratory experts from Rochester viewed the original Zapruder film, a Secret Service first generation copy, and some of the Groden materials for the first time during a visit to the National Archives.

In a January 7, 1997 letter addressed to the Review Board, Kodak offered to contribute up to \$ 20,000.00 of labor and materials to the ARRB in *pro bono* work--the equivalent of roughly 35 man-days of effort.

The Review Board staff defined and prioritized a list of potential work items in a February 6, 1997 letter to Kodak; Eastman Kodak responded with an April 14, 1997 letter that itemized, by cost, the potential work items identified in the February 6 Review Board letter.

In depth discussions were held between the Review Board staff, the National Archives JFK Liaison representative (Mr. Steve Tilley), and Eastman Kodak officials during an August 21, 1997 meeting in Rochester, New York. In addition to making arrangements for the study and enhancement of the autopsy images of President Kennedy (*see* ARRB Staff Medical Memo for details), Mr. Roland J. Zavada, a retired Eastman Kodak film chemist who was formerly Kodak’s pre-eminent 8 mm film expert, was identified as the consultant rehired by Kodak to attempt to write a “primer” explaining the optical operating characteristics of Abraham Zapruder’s 8 mm Bell and Howell home movie camera, the relationship (if any) between the camera’s optical operating characteristics and perceived “anomalies” in the original film, and questions about the provenance of the original film and the first generation copies. (It was subsequently determined that “provenance” issues included studying the paperwork chain-of-custody documents that exist today; conducting interviews of surviving personnel involved in the development of the original film, and the exposure and subsequent development of the 3 first generation copies; studying manufacturer’s edge print and processing lab edge print, and optical printer characteristics.) In addition, Mr. James K. Toner of Kodak (Laboratory Head, Imaging Sciences

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Resources Lab) presented a methodology for making the best possible direct digitization of the original Zapruder film, in the event that course of action was pursued by the Review Board and the National Archives.

In September, 1997, Mr. Toner and Mr. Zavada visited Washington and, in addition to studying selected autopsy film and x-ray images of President Kennedy at the National Archives, also studied perceived anomalies in the inter-sprocket areas of the original film, and the emulsion characteristics and edge print characteristics of what the Archives presumes to be the camera-original Zapruder film and the two Secret Service first generation copies. Following this visit, Mr. Zavada began writing his extensive report on Zapruder film issues, which expanded in scope as his research into camera optics and printer characteristics continued. This report should have been provided to the Review Board by Eastman Kodak, for transmittal to the JFK Collection at the National Archives, prior to ARRB shut-down on September 30, 1998.

Eastman Kodak deserves the highest accolades for the spirit of public service demonstrated by its selfless *pro bono* work for the Review Board. In expending approximately \$ 53,000.00 on work related to the digitization and enhancement of autopsy images, and approximately \$11,000.00 on work related to Zapruder film issues, Eastman Kodak significantly exceeded its original estimate of \$ 20,000.00 maximum in donated labor and materials.

B. The Review Board Staff's Study and Clarification of Paul Hoch's FOIA Lead "CIA Document 450"

The ARRB staff located and interviewed two former employees of the CIA's National Photographic Interpretation Center (NPIC) and questioned them about "CIA Document 450," a 1970s FOIA release--original document undated--that indicates NPIC had a version of the Zapruder film, made "internegatives" and "copies" and conducted a "print test," and conducted a shot-and-timing analysis based on interpretation of the film's content.

Both men interviewed indicated that the internegatives made were of single frames only, and the prints made (from these same internegatives) were of

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single frames only--for briefing boards--and that they never reproduced (or altered) the film as a motion picture. They identified portions of the document related to this activity--magnification and reproduction of small motion picture frames as prints. To this extent, the document has been demystified. However, other questions, such as who conducted the shot-and-timing analysis, and who assembled the briefing boards, remain unanswered.

C. For More Information on the Review Board Staff's Clarification Efforts Regarding Zapruder Film Issues, see Close-Out Memo Dated XXXXXX, titled "XXXXXX," written by Douglas Horne.

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