

# MEMORANDUM

June 11, 1996

To: Jeremy Gunn  
Thru: Tim Wray \_\_\_\_\_  
cc: Joe Freeman  
From: Doug Horne  
Subject: Photographic Authenticity Issues

As directed, this brief memo summarizes, in abbreviated format, what I see as major authenticity issues for key assassination-related films. Should ARRB choose to employ the services of a photographic consultant or expert, we may wish to include these authenticity issues in the taskings assigned to our expert.

## Priority One:

Determine whether selected examples of the Zapruder film, Nix film, Muchmore film, and Bronson film are "in-camera" originals, or a copy of the original film created in a laboratory.

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### Zapruder Film:

Researchers have focused most of their attention on the Zapruder film over the years, and as a result I can offer several suggestions for testing the authenticity of this motion picture film of the assassination:

- \* Is it Kodachrome II Safety Film, and is it a variant available for use in 1963? (The original was reportedly Kodachrome II, and the 3 first generation copies were reportedly Ektachrome.)
- \* Film images found between the sprocket holes on what is represented to be the original Zapruder film should be examined in two regards:
  - edge number periodicity on individual frames should be both predictable, and

consistent, if the film has not been tampered with;  
-image content between sprocket holes should be checked for both consistency with remainder of image in each frame, and uniform quality with remainder of each frame.

\* Optical Densitometry (and perhaps other techniques) should be employed on the images of the back, or posterior portion of President Kennedy's head between (as a minimum) frames 242 and 340, with the goal being to determine whether the extreme darkness of the back of the President's head in these images, and particularly between frames 313 and 340, is a natural feature on the film, or an artifact. Frames 242-312 could possibly serve as "control" frames and be compared to the frames of interest to many researchers, namely, all frames following 313 in which the back of the President's head is visible.

\* Optical Densitometry (and perhaps other techniques) should be employed on frames subsequent to President Kennedy's first visible receipt of a head wound (i.e., frame 313), particularly on frames 335 and 337, to determine whether the large, visible wound in the top-right-side of the head displayed in these images is a natural feature on the film, or an artifact.

\* An expert ruling should be made as to whether it is possible for both the foreground and background in a film such as this to be in focus, where the camera operator is panning with a telephoto lens to follow a moving object (the limousine). (Rationale for this test: whereas approximately 35 witnesses in Dealey Plaza claimed that the limousine came to a stop during the shooting, projection of the motion picture shows the car slowing, but not stopping. Some researchers have claimed that Zapruder film frames which show both a clear foreground--the moving limousine--and a clear background--witnesses and objects in Dealey Plaza which were stationary and not moving like the limousine--are an impossibility if the Lincoln Continental never came to a complete stop, and that various frames--such as 303, 305-307, and 309-310--that show both the foreground and background in focus, are a prima facie indication that the limousine came to a complete stop and that the film has been altered.)

\* Compare speed of head-snap in Zapruder film with speed of head-snap in Nix film to see if they equate; I believe a photogrammetric expert would be critical to this study, as well as film speed. (Rationale: if they do not equate, then the authenticity of one of the two films, or both, may be in question.)

\* Compare location of limousine (or, more precisely, location of the President) at the moment of the visible head shot (i.e., frame 313 in Zapruder film) using all 3 motion picture films useful for this purpose--Zapruder, Nix and Muchmore--to determine

whether the limousine (and the President) are depicted at the same point on Elm Street in each motion picture at this precise moment. (Rationale: if the locations do not equate, then there is something amiss with at least one of the films.)

\* Compare frames 302 and 303, and frames 316 and 317, for discontinuities in images, frame edge numbers, etc. which would indicate that these frames were not originally contiguous. (Rationale: researchers have pointed out that the head turns of the limousine Driver between 302-303, and 316-317 are excessive and may indicate that frames have been removed.)

Priority Two:

Study Willis Slide number 5:

\* Is it an "in-camera" original?

\* Since Willis Slide #5 does not appear to show a railroad train to the left of the Pergola on the grassy knoll, and yet the Nix film and various Bond slides do appear to show a railroad train, compare these items and determine what reasonable explanation there might be for a railroad train not appearing in one image, where it does in others supposedly taken at the same approximate moment in time.

Priority Three:

Study best available copy (or copies) of Nix film to determine why the background appears either unusually dark, and/or inconsistent from frame-to-frame, above the white retaining wall to the left of the Pergola on the grassy knoll.

Priority Four:

Autopsy photographic materials of John F. Kennedy:

\* Do the black and white negatives in evidence at the Archives (B & W Kodak Safety Film, with four notches in each negative) match the type of film described in the official receipts from 11/22/63 (individual sheets of 4" X 5" Portrait Pan Film)?

\* Do the color positive transparencies in evidence at the Archives (256 Kodak Safety, with two notches in each transparency) match the type of film described in the official receipts

from 11/22/63 (individual sheets of 4" x 5" Ektachrome E3 Film)?

\* Study both B & W negatives and color positive transparencies to determine whether they are "in-camera" exposures, or duplicates made in a laboratory.

\* Study B & W negatives to determine whether any are simply duplicates of some of the color transparencies.

\* The "Red-to-Black" issue: for the type of black and white film used for the JFK autopsy photography in 1963, determine whether the amount of red visible in the color transparencies (and resulting internegatives) of the President's head wounds corresponds with the appropriate ranges of dark gray and/or black shading in the same images of the President's head which were shot on black and white negative film stock. (Restated, is the "red-to-black" issue a valid one for the type of black and white film involved in the autopsy photography, and if so, does the B & W film in the archives exhibit any anomalies in this regard?)

\* Do either autopsy photo series # 15, 16, 42 or 43 (wound of entrance in right posterior occipital region) or # 11, 12, 38, 39 (posterior view of wound of entrance of missile high in shoulder) show any evidence of being retouched, or of being composites of real photographs and artwork, or of being a composite of one photograph merged with another through a matte insertion process, or any other evidence of being a new "original" produced by an aerial imaging process?

Priority Five:

Study photograph of Lee and Marina Oswald and infant reportedly taken in Minsk (CE 2622) and produce a report in response to anomalies written about in the following two issues of The Fourth Decade: May, 1994 and July, 1994.