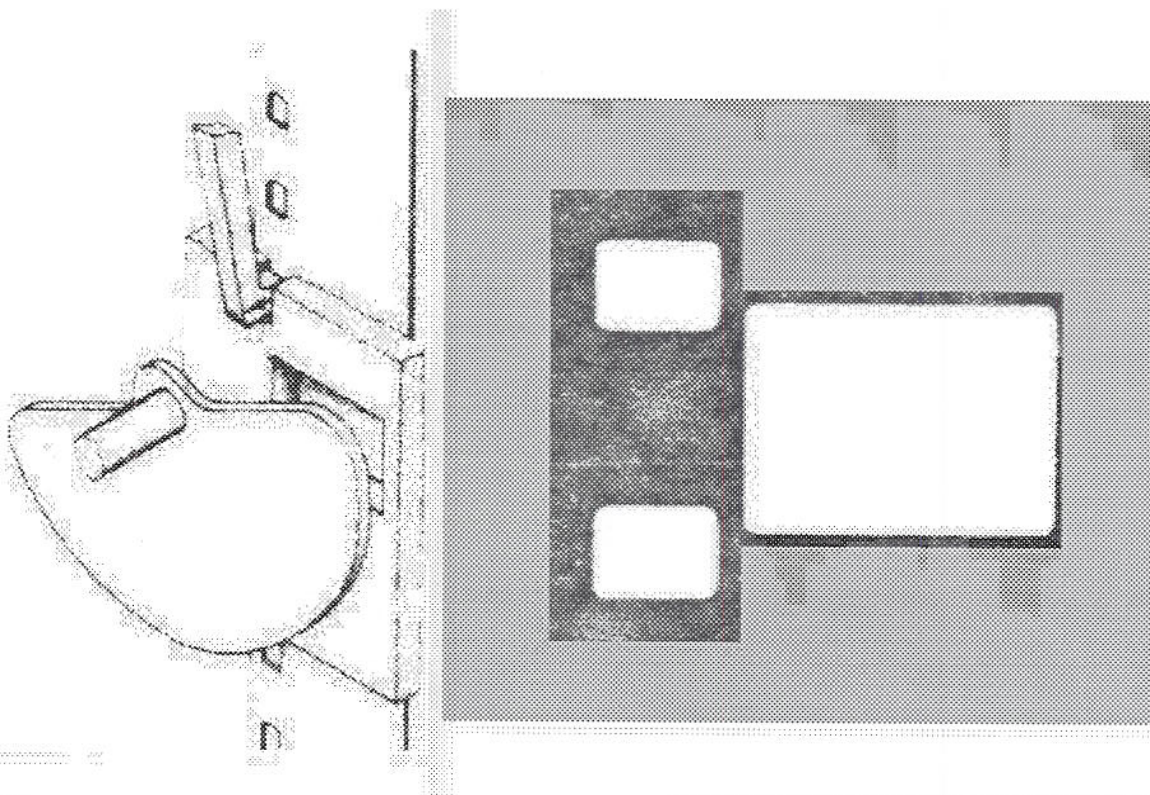


Proof that the Zapruder film is authentic

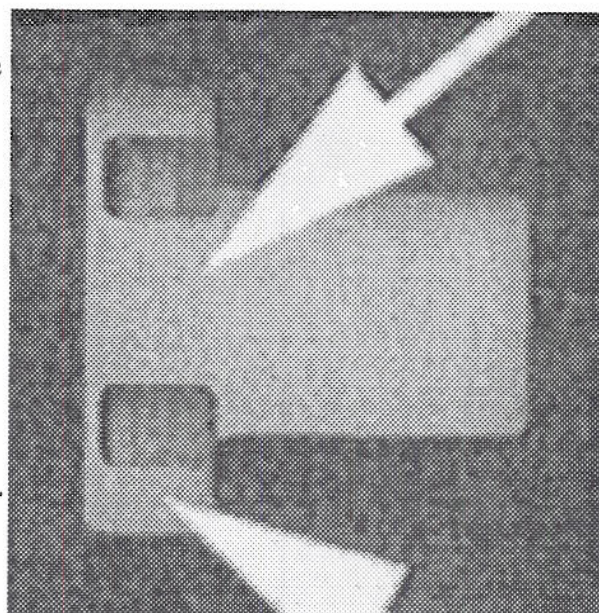
One of the central arguments in the book Assassination Science is that the Zapruder film is not authentic. Various researchers argue that frames had been cut out for some conspiratorial motive. On pages 310 to 315 Dr. Mantik discusses the strange ghostlike images in the sprocket hole area. He does not know what caused them and suspects that they indicate tampering. Balderdash. To date, no one has correctly explained what those images are and how they were created. For many years I have puzzled over them and discussed them with other researchers, but never reached a firm conclusion due to the very poor quality of the Zapruder film versions we have had. Now MPI has released the original Zapruder film with the sprocket hole areas intact. Within 5 seconds of viewing this new videotape release of the Zapruder, I knew instantly what the sprocket hole images are and exactly what caused them. You, gentle reader, will be among the first people to learn the truth. Since the publication of this article this summer I have received positive feedback from Internet readers which has allowed me to figure out what more of the ghost images are. I have revised and updated this article from this point to reflect the new information.

The Zapruder film proves itself to be authentic. There is no possibility that any frames could have been cut out of the film. Every time a frame was exposed, part of the background scene was exposed onto the next frame and the previous frame in their sprocket hole areas. The ghostlike images in the sprocket hole area are double exposures. Real objects faintly visible. The cause is the particular design of the inner workings of the Bell & Howell camera. When a frame is being exposed, there is an aperture plate which covers the frames above and below the current frame so that they do not get accidentally exposed. Some 8 mm cameras leave open the sprocket hole area of the current frame, which allows information to be recorded there, but that area is normally not projected. Some 8 mm cameras have a notch in the top of the aperture plate where the claw finishes its stroke when pulling down the next frame. Bell & Howell designed the aperture plate to use a groove in the middle of the aperture plate instead of a notch at the top. The illustration on the left is from a standard reference on film making which shows what an aperture plate looks like with a typical notch. The illustration on the right is what the aperture plate would look like if the notch had been changed to a groove. I also suspect that the corners are actually rounded instead of sharp. After exposure of the current frame, the claw grabs the current frame's sprocket hole and pulls the current frame down to bring in the next frame.



Addendum 11/22/98

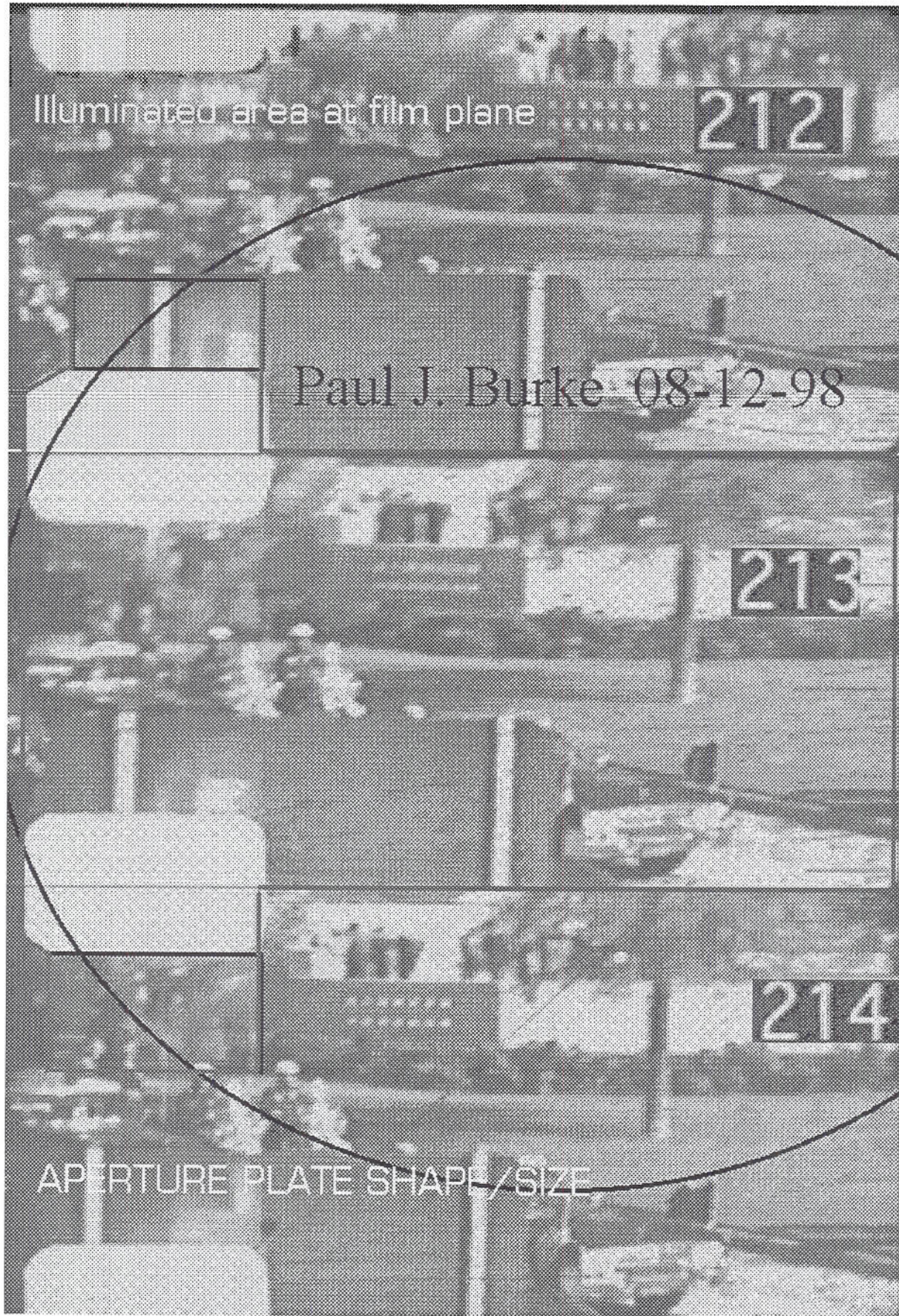
The picture on the right is a close-up of the aperture plate published in the Zavada report which was released by the National Archives on November 9, 1998. Mr. Zavada is the premiere Kodak authority on 8 mm film. He carefully studied the issue of the Zapruder film anomalies and found that the Zapruder film is authentic. The unique properties of the camera and the films used make it virtually impossible for anyone to have tampered with or faked the original film. It is very close to the upper illustration which I had composed in the computer. There is even a rounded corner as I had suspected.



Don't misunderstand the illustration on the upper right. This is not actually the aperture plate from Zapruder's Bell & Howell. This is just my impression of what it probably looks like in order to produce the double exposures. Bell & Howell is no longer in the 8 mm camera business, so it may be difficult to get the original diagrams and schematics. I have contacted Bell & Howell and asked them to see if they still have manuals and diagrams for that model camera. If they send me the original diagrams I will try to post them here in place of the above illustration.

Paul Burke has noted that the outline of the ghost images as derived from comparing numerous frames' ghost images reveals more detail about the design of the aperture plate. While I am not endorsing his illustration showing the outlines of the aperture plate as being exactly the same shape as Zapruder's aperture plate, it may well be very close to the reality. It would appear from Burke's interpretation that the claw was not the full width of the sprocket holes. I have seen examples of that

type of narrower claw in films I have examined, although in my examples the claw would grab the leftmost side of the sprocket hole and in Burke's illustration the groove's design would mean that the claw in Zapruder's camera grabbed the rightmost side of the sprocket hole area, creating ghost images whose boundaries conform to the outlines of the aperture plate as he has diagrammed it.



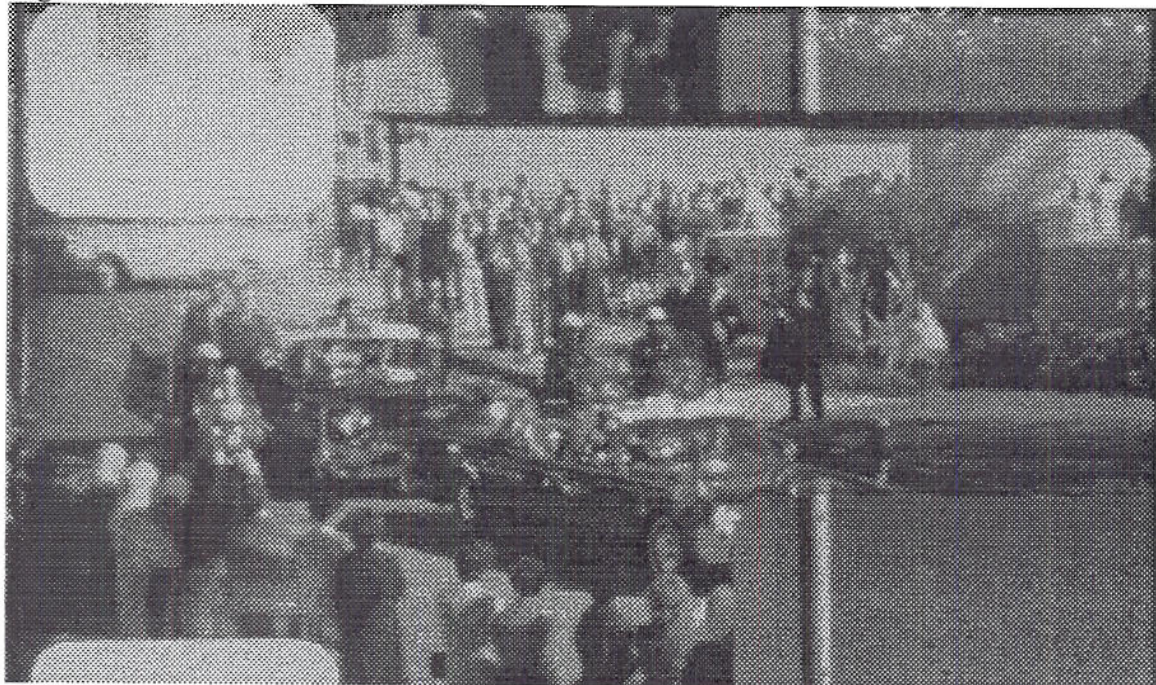
The Forces of Dark and Light

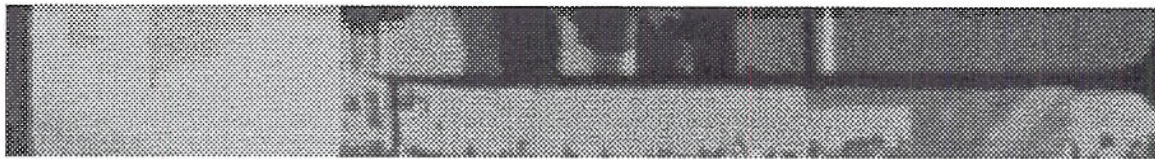
Dr. Mantik is correct that the ghostlike images do not appear everywhere in the film consistently. But he is incorrect that they occur in only one or two places. The double exposures are in all sequences of the film, but not in every frame, or at least not easily visible in every frame. Just how clearly the ghostlike images appear is a battle between the forces of dark and light. During the exposure of the current frame, if the area being exposed in the next frame's upper sprocket hole area is very bright and the regular sprocket hole area of the next frame has a background which is very dark, then the ghostlike image will be very bright. For example, in many frames before, during, and after the head shot at Z-313, as Dr. Mantik has pointed out, the background in the upper sprocket hole area of the current frame is very dark, such as the infield grass while the image from the previous frame already exposed by the bleed around was very bright, such as Chaney's white front fender.

At the other extreme, when the information in the current frame's upper sprocket hole area is very bright, such as the cars behind the limousine seen in early frames, this swamps out the much darker earlier exposed sprocket hole image, such as the dark green grass on the north side of Elm Street or the road. A few ghostlike images are easily visible just above the lower sprocket hole. One of the few places where we can easily see ghostlike images just above the lower sprocket hole is when the Stemmons Freeway sign is in the current frame's sprocket hole area. So, what looks like ghost images projected onto the back of the Stemmons Freeway sign are actually the windows of the Dallas County Records building on Houston Street. When the two forces are roughly equal, the ghostlike images are faintly visible.

I have prepared some illustrations in the computer to help show what area would be exposed in Zapruder's camera due to the groove in the aperture plate. Figure 1 is frame 183 which includes the sprocket hole. Notice the ghost image in the lower sprocket hole area just above the sprocket hole. This looks like some type of architectural feature projected onto the dark clothing of the spectators at the curb. In fact it is the front of one of the buildings on the north side of Elm Street in the 500 block.

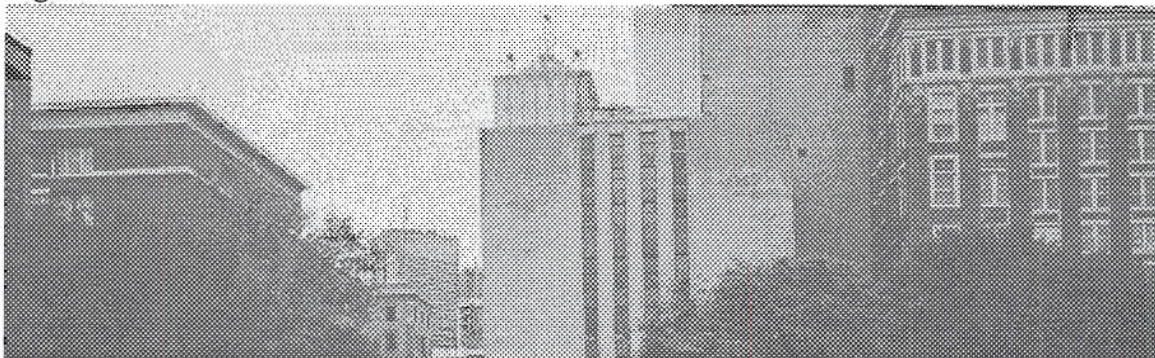
Figure 1

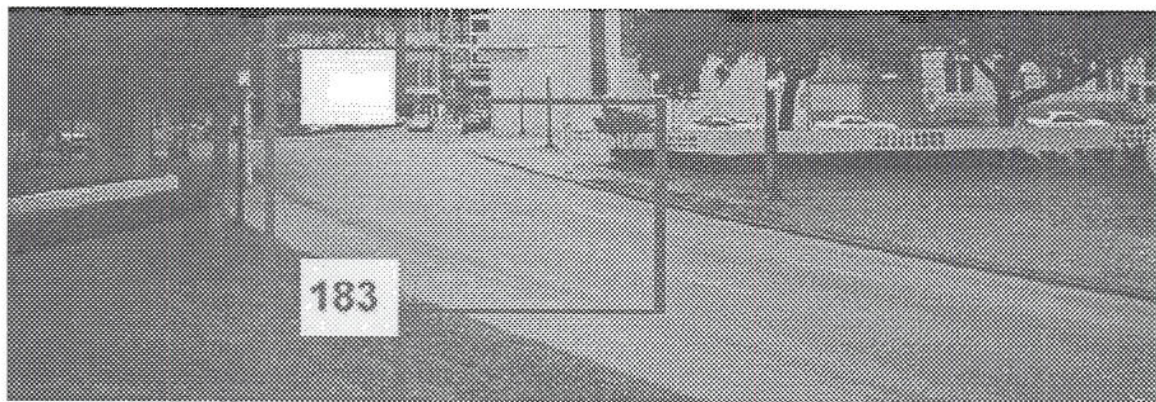




I do not currently have two consecutive frames from the newly released Zapruder film scanned into the computer in order to illustrate the extended tabs of exposure from one frame into the two adjacent frames' sprocket hole areas. I could only find one color photo taken from Zapruder's vantage point to illustrate how much area a typical exposure plus tabs would cover. Unfortunately it was taken after 1963 and there had been many changes to Dealey Plaza. For example, the Stemmons Freeway sign had been removed and several streets lights were moved. The new overhead signs get in the way of seeing the buildings farther down Elm Street. But just above the new signs' horizontal post you can see the windows of a building on Elm Street in the 500 block. And I have no idea what kind of lens was used for this photo, while Zapruder's camera was set on telephoto, so the appearance of the field of view is not the same. Showing what area is covered by the tabs might allow careful researchers to identify objects seen in that area in other films and photos. Figure 2 shows, approximately, the extent of the tabs of Z-183.

Figure 2





In the July 28, 1998 issue of the Globe weekly, several frames with the sprocket holes were published. Frame 225 shows the ghost image on the back of the Stemmons Freeway sign. This ghost image is actually the face of the Dallas County Records Building (DCRB). Figure 3 is frame 225. Compare the ghost image to the face of the DCRB in the Warren Commission's Exhibit No. 895 which includes a photograph from the reenactment and shows the areas above and below the Zapruder camera frame. Figure 4 is the reenactment photo.

Figure 3

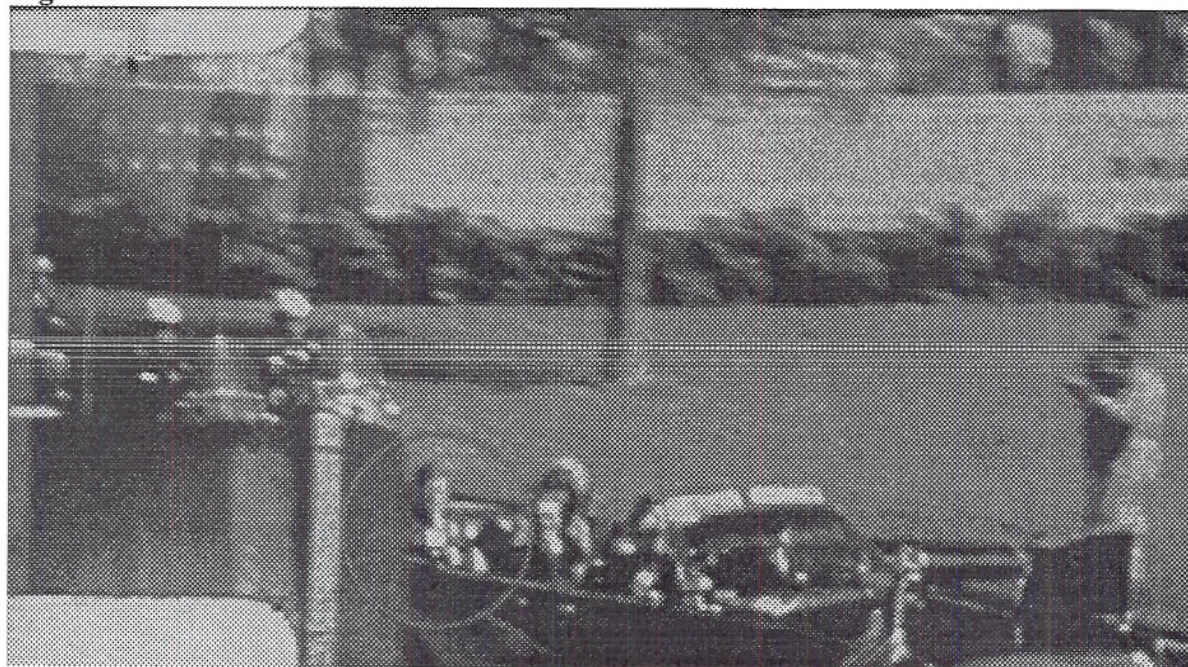
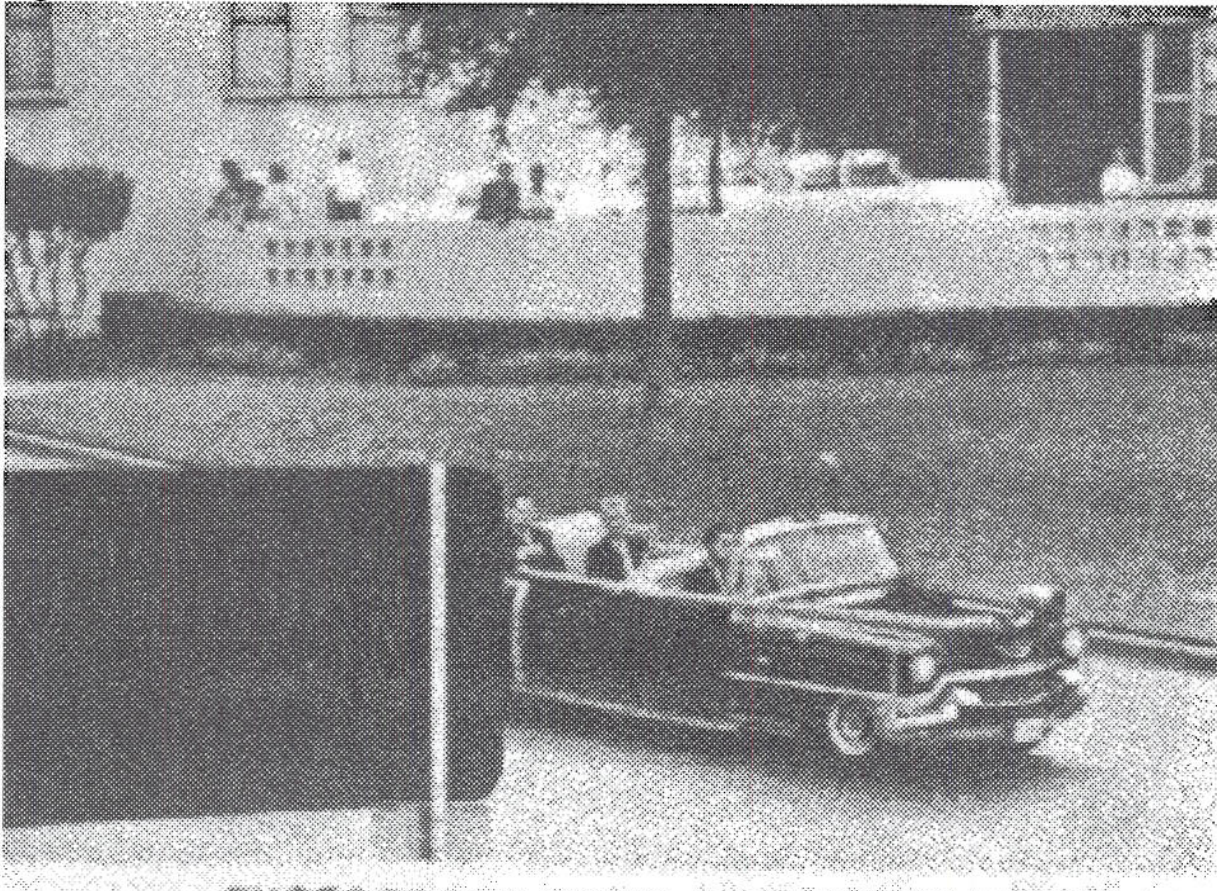




Figure 4



PHOTOGRAPH FROM RE-ENACTMENT

So far, I have only dealt with elements of absolute proof which can be verified by physics and mechanics, and of course by examination of Zapruder's camera. Now we have to delve into areas where cueing can take place. Interpretation of what the ghostlike images could be. In some cases, they are rather obvious and can be easily confirmed by referring to other films, photos, and maps. But in some cases, I may see someone ONLY because I expect to see someone there. I have made a list of observations of what I think the ghost images are. When I am very sure what it is, I will just state the object. When I am not sure, I will qualify my observation appropriately. You are encouraged to view the newly released Zapruder film and be cued by my list of observations to see if you agree with me and then make your own observations.

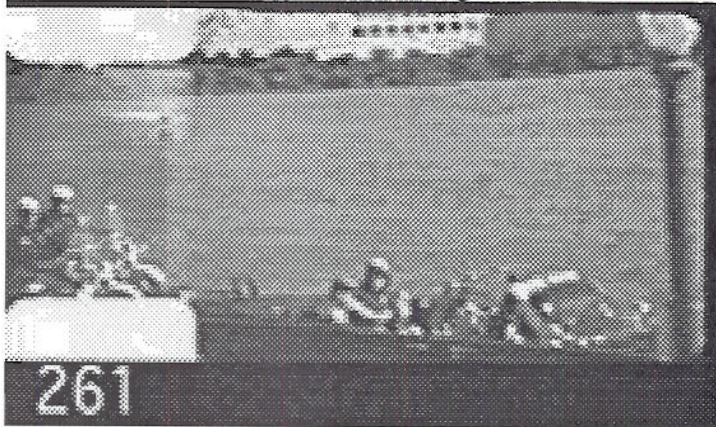
One word of caution however. Because MPI had the film rotoscoped in the computer to reduce the jitters, some objects will not move as expected. They may even appear to move backwards, as Zapruder jiggled the camera slightly. That is not an indication of doctoring the original film. It is an indication of doctoring the digitized version to make it more presentable to the public.

Frames 164 to 189 - building in 500 block of Elm Street in the lower sprocket hole area.

Frames 190 to 206 - bright object in the lower sprocket hole area.

Frames 212 to 230 - face of DCRB in the lower sprocket hole area against the back of the Stemmons Freeway sign.

Frames 255 to 264 - a north side (right lane) traffic line in the upper sprocket hole area.



Frames 264 to 289 - wall "B" leading to North Peristyle in the lower sprocket hole area.

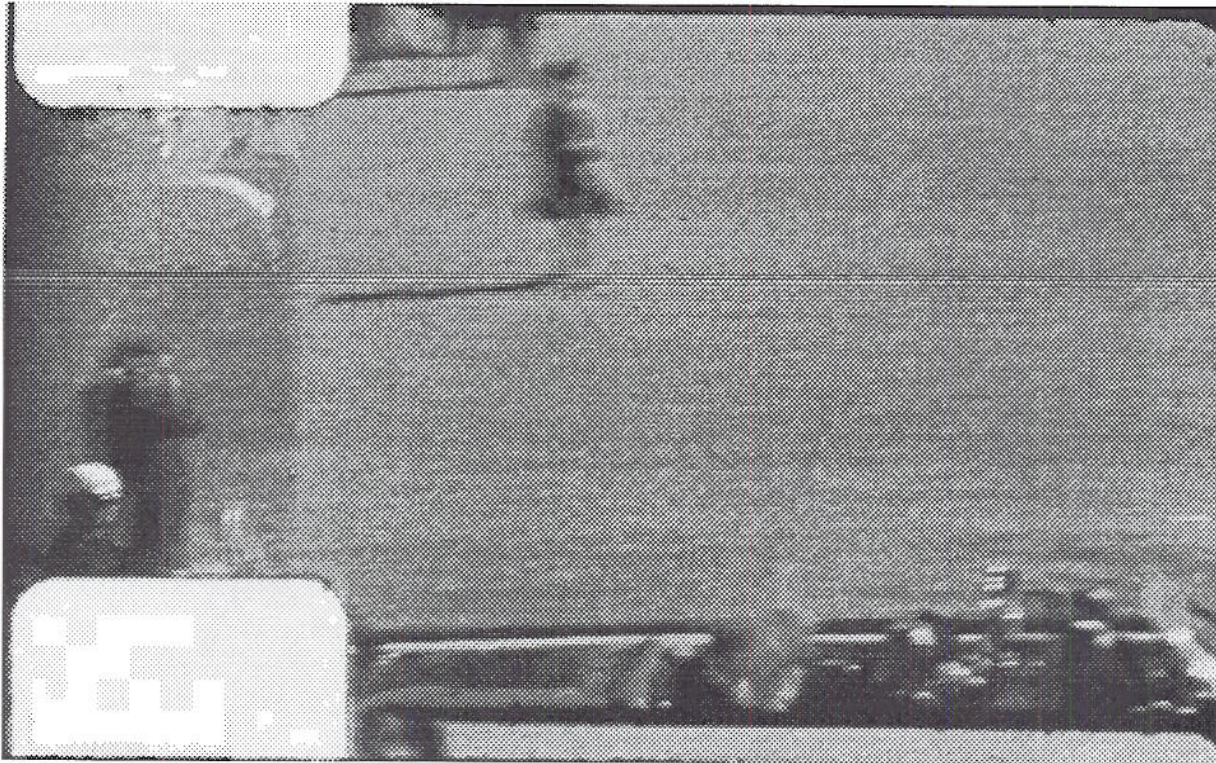
Frames 302 to 309 - North Peristyle in the lower sprocket hole area.

Frames 284 to 305 - motorcycle (Chaney's?) in the upper sprocket hole area.

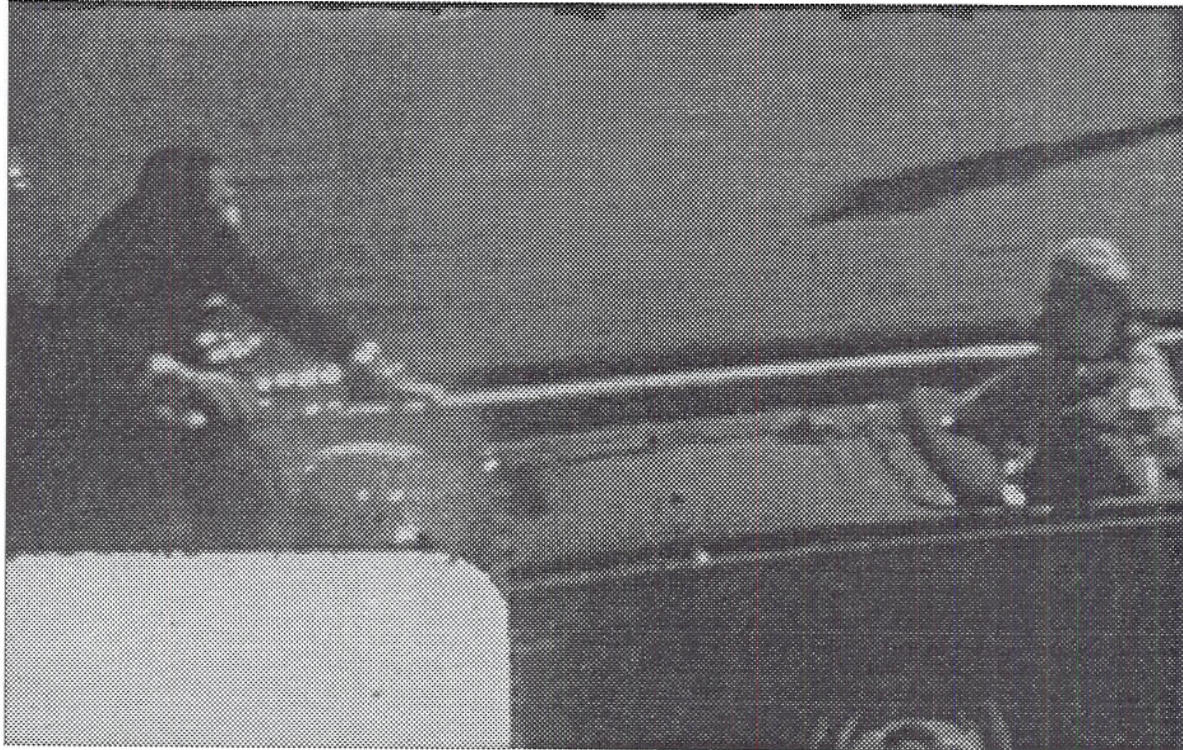
Frames 308 to 332 - motorcycle (probably Chaney's) in the upper sprocket hole area.

Z-313: Notice that the ghost image of Chaney's cycle is NOT blurred vs. Hargis's blurred image





Z-334?



Frame 339 - a north side (right lane) traffic line in the upper sprocket hole area.

Frame 355 - shadow on the road from limousine's right rear handhold in the upper sprocket hole area.

Frame 418 - bushes and road in the upper sprocket hole area.

Frame 434 - branches (much like those in Z-413) in the upper sprocket hole area.

Frame 448 - branches, grass, and sidewalk in the upper sprocket hole area.

Frame 479 - possibly part of a road sign in the upper sprocket hole area..

Now, what are the implications of this discovery about the Zapruder film? For one thing, it makes it extremely unlikely that anyone could have tampered with the film and reproduced the ghost images perfectly. When you consider that no one else, not even the best camera experts in the world, realized the mechanism which caused the ghostlike images for over 34 years, it seems highly unlikely that the conspirators would know about this characteristic of Zapruder's camera and be able to duplicate it within a few hours. If someone were to remove a frame or two here and there, the ghost images in the tabs would not line up properly with the new adjacent frames and would expose the alteration. It is time for everyone who has doubted the authenticity of the Zapruder film to realize that the Zapruder film is genuine and authentic, and now move on with their research.

