

UNITED STATES GOVERNMENT

# Memorandum

TO : MR. I. W. CONRAD *JWC*

DATE: 12/20/63

FROM : W. D. GRIFFITH *W.D.G.*

SUBJECT: ASSASSINATION OF PRESIDENT JOHN F. KENNEDY  
11/22/63, DALLAS, TEXAS

Tolson	<input checked="" type="checkbox"/>
Belmont	<input checked="" type="checkbox"/>
Mohr	<input type="checkbox"/>
Casper	<input type="checkbox"/>
Callahan	<input type="checkbox"/>
Conrad	<input type="checkbox"/>
DeLoach	<input type="checkbox"/>
Evans	<input type="checkbox"/>
Gale	<input type="checkbox"/>
Rosen	<input type="checkbox"/>
Sullivan	<input type="checkbox"/>
Tavel	<input type="checkbox"/>
Trotter	<input type="checkbox"/>
Tele. Room	<input type="checkbox"/>
Holmes	<input type="checkbox"/>
Gandy	<input type="checkbox"/>

Pursuant to the Laboratory's request, the camera used to take the 8mm movies of the assassination has been received in the Laboratory from the Dallas Office. This is a Bell and Howell Zoomatic 8mm motion picture camera and is the property of Abraham Zapruder.

It has been determined that the normal operating speed of this camera is 18 1/3 frames per second. This is somewhat faster than the normal standard speed of 16 frames per second. While, as indicated in earlier memoranda, it is not possible to establish accurately the moment of impact of the first and second bullets, applying the above camera speed of 18 1/3 frames per second to the film pictures of the assassination, the best estimate of the elapsed time between the first and third shots lies between approximately five and six seconds. It is noted that the President's car moves behind a signboard at about the time of the first shot, and the President's movements during this period are not observable. However, he begins to fall forward immediately upon emerging from behind the sign.

ACTION:

Dallas is being appropriately advised by Laboratory report.

*W.D.G.*  
EW:IWC:mwf/dmg

- 62-109060
- 1-Mr. Belmont
- 1-Mr. Rosen (Att: Mr. Schutz)
- 1-Mr. Sullivan (Att: Mr. E. T. Turner)

*JWC*

REC-39 62-109060-213

25 JAN 3 1964

58 JAN 7 1964

EX-104

*W.D.G.*