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Berkeley, Calif. 94704
August 6, 1967

Harold Weisberg
Hyattstown, Maryland 20734

Dear Harold,

I have no real news to report, but here are some miscellaneous observations*

Dr. John Nichols, of the Univ. of Kansas, has brought to my attention apparent proof that the autopsy report was interfered with by the Kennedy family. In "Medical World News," (July 28, 1967; p. 21) Dr. Boswell is quoted as saying "The autopsy was silent on these points because the question of the presence or absence of Addison's disease was not a question that affected the cause of death. Information on this point was not published (published?? P.H.) because it was regarded as a strictly private matter for the President's family to decide. They chose not to release it, which as ~~far~~ far as I am concerned they had every right to do."

I am enclosing some notes on the analysis of the Zapruder film done by Luis Alvarez (who is head of the physics group I am in) and others for CBS. Unless you want a copy for your files, I won't send you the "Magnet" article in which much of this is discussed, since it is quite inaccurate factually. I have written to E.G. & G., who did the photo analysis, and will let you know if I find anything new.

Incidentally, while checking one of Alvarez' points, I noted that "Frame 284" at 18H55 is actually a duplicate of frame 283. I doubt that this is significant, since the part of the missing frame which shows the occupants of the car is visible above frame 285 on the next page. Another "printing error," I guess.

It seems that Bringuier was not the only anti-Commie fanatic in the D.R.E. I have come across a book published in Jan. 1963, primarily about the work of D.R.E. - raids, submitting intelligence reports to FBI, CIA, SISS, etc. ("The Real Story on Cuba," Monarch Books, by "James Bayard" (pen name)) It is ~~quite~~ quite bitter about U.S. policy (including then-"recent" CIA-Coast Guard interference with D.R.E. activities) but not particularly anti-JFK. Pretty far-out stuff. I would like to know what Bringuier, Quiroga, and the N.O. cops really thought about Oswald before the assassination.

I know from Hal Verb that you are too busy to keep up with all the articles that come out, so I thought I should point out 3 items in Bill Turner's piece in the June Ramparts, which you might find relevant to your work. "A former CIA agent with whom I have consulted discloses that at the very least, the Agency would have assigned Oswald a "babysitter"-someone who would befriend him and thus keep an eye on him."..."I learned from ... a Minuteman aide who had access to their Headquarters files - about an allied group in New Orleans known as the Anti-Communism League of the Carribean.(said to have been used by the CIA in Guatemala, 1954) (He) said the names of both Banister and Ward appeared in the secret Minuteman files as members of the Minutemen and as operatives of the Anti-Communism league ..." "An anti-Castro 'freedom fighter' well acquainted with both Hall and Howard contends they trained not only in Florida at No Name Key but at bases in the vicinity of New Orleans. He told me ~~that~~ the pair was closely associated with Guy Galbadon, an ex-marine who in 1961 attempted to organize a private army in Southern California to invade Cuba but was dissuaded by state authorities."

Just noticed that p. 17-18 of CD 298 contain FBI remarks on the Hughes film. I have a copy of p. 17 only, so I don't know if there is anything of importance.

I saw a newspaper story that said Novel started on the NBC payroll on Feb. 1. If true, is this of interest, or was the press aware of Garrison's investigation that early?

Sincerely yours,

Paul
Paul Hoch

8/9/67

Dear Paul,

Your very interesting letter of 8/6 raises a number of things of interest and some that are feedback of my own, uncredited work used by others.

Most of all, at the moment, I am quite interested in what CBS attributed to Alvarez but which, in its entirety, not just the Frame 190 staff, it knew about earlier from me. It was determined not to credit me. I can prove they had my stuff and that they knew this was in it, for they credited one part of "one critic". I may be wanting to do something about CBS, hence everything on, about or from Alvarez, who I presume to be honorable, is of great interest and I'd like all of it, even if inaccurate.

Hal is right. Add to that that I am much more tired than ever. So I will not take time to search out references. My guess is that the second "Alvarez" camera shake I go into at several points in WWII, beginning about pp 212-3 and about six of seven pages later. The 227 is specific. Ray argued the meaning of it with me. I think he says Connally was hit there. Alvarez failed to note 222, where it is also true. The interesting thing, as CBS has not responded about, is that there are about a half-dozen such points, not just the three Alvarez talks about. I have other, unpublished material on this I'd prefer not to go into here. I'll do something with it soon.

Even the pinpointing of Frames 185-6 is not Alvarez' but mine (WW48) I think it is likely there could have been an even earlier Zapruder reaction.

If you can supply it, I'd appreciate a clearer copy of your note so I can send them to someone who is interested in this and who thinks he may be able to do something for me about it.

I would like this as fast as possible, for I am in correspondence with a CBS vice president. Also, I want to make the only outgoing mail, leaving in a few minutes.

I am quite interested in any alteration or suggestion of anything unusual at about Frame 285. There is a sharp forward head motion about there that I alone seem to have discovered. You will find that I mention it vaguely in II. I feared no one would believe so violent a disagreement with the official interpretation of the film, so just before publication I went over the ms and weakened this point to have, to say merely that the head moves in both directions in disconnected motions. The first is short, sharp and forward, the second (313) violently backward. I'd really like all of what Alvarez has. The absence of a single frame here could be crucial. Frame 317 in the slides is still mislabelled, even though I called it to official attention last year.

The Monarch book is of great interest. Can you get me a copy or lend me yours? I can't speak for the cops or Quiroga, although I imagine the cops thought Oswald what they call "Red". But Bringuier is pure nut, the only thing pure about him. His case against me was tossed out of court a week ago today. He alleged my correct quotation of his own testimony defamed him! He is right of radical right, close to Margis. If you can spare a copy of that "amparts piece, I'd like it. I do not know if I have it or not, but I'd like a second if I do. Some of that stuff was mine, some given them in confidence in December and some the consequence of Bill and Maggie calling Turner in when I asked them to follow one of my leads. They wanted professional help. Turner kept all of it, not even telling me what he learned! That is the "inuteman, Gebaldon stuff. The guy we took he, to phoned me from Calif. and I referred to Bill. I believe "Banister was connected with the Anti-Communist League of the Carribean... My phrase for Shaw is "mother hen", very similar to the Ramparts "babysitter"... True about Novel on NBC payroll 2/1. NYTimes had man down there at latest in November. Investigation began 10/66. I knew about it 1/1. He has gone back to N.O. I gather from Alcock he'll sing... If Bringuier is a nut, the others need not be.

Notes on the CBS-Alvarez Analysis of the Zapruder Film

(Based on Dr. Alvarez' notes; and on an (inaccurate) article in "The Magnet," which is "published for the employees and families of the Lawrence Radiation Laboratory, University of California," July, 1967. Familiarity with the transcript of the CBS Television program of June 25-28, 1967 is assumed.)

Dr. Alvarez became interested in the Zapruder film around Thanksgiving, 1966. On the basis of his analysis of the frames in Life and Vol. 18, he wrote to Edwin Haddeson, a lawyer with CBS contacts, who communicated the results to Frank Stanton of CBS (a longtime acquaintance of Alvarez). On Jan. 19, Alvarez studied the film at the Archives with CBS officials and E.G.SG. experts. (E.G. SG. is described as "the firm that also does much technical-photography analysis in connection with LRL-Livermore field activities.")

The analysis of the motion of Zapruder's camera is considerably more subtle than was indicated by Dr. Wyckoff on CBS. Alvarez' procedure was to look at various points in each frame, especially highlights on the car frame or windshield which would be dots if the panning motion were perfect. The effect of a shot is to set the camera into oscillations, which turn the dots into streaks. (Either the shock wave of the bullet, or Zapruder's reaction to a sound, etc., could have started the oscillations.) From the lengths and directions of the streaks in many consecutive frames, one can deduce the rate of oscillation. One finds a frequency of about 3 cycles per second (cps); the oscillations are visible with decreasing amplitude over several cycles. Since the camera was following the moving car, and was rotated by the reaction to the shots, the background blurring is different from that of objects in the car, and gives further information about the direction of the jitter.

In a sense, this analysis is an extension of the observation (Whitewash, p. 47) that the film is blurred at about frame 190. However, I know of no previous attempt to compare quantitatively that blurring with the less obvious reaction by Zapruder to the other 2 known shots. I think this is pretty solid proof that Zapruder was startled at about frame 186. I am not convinced, however, that this analysis proves (or could prove) that 3 and only 3 shots were fired.

Although the FBI perhaps should have thought of this, one can easily see how they missed it. Shaneyfelt testified (5H142) that the FBI looked for reactions to the shots by Kennedy and Connally, and by the spectators-visible in the film, but he did not mention reaction by Zapruder. It happened, however, that Dr. Alvarez had formerly studied two problems related to this analysis - measurement of shock waves, and the "jitter" of hand-held binoculars and cameras.

Dr. Alvarez also observed that, contrary to the implications of Shaneyfelt's testimony (5H161), one can do better than just determining the average speed of the car, 11.2 mph. There are sufficient features in the background of the Zapruder film to allow a fairly precise determination of the position of the car at all times. It appears that it did in fact slow down between the second and third shots! (I think that Itek has already claimed to have located the car at the time of the fatal shot more accurately than the Commission did.)

In connection with the question of the speed at which the Zapruder camera

was operating, Dr. Alvarez noted that the film contains a kind of internal "clock." One can measure the frequency of the clapping of the man visible in frames 276-297. It is about $3\frac{1}{2}$ cycles in 18 frames. (I haven't taken the time to do this carefully.) If the camera was running at 18.3 frames per second (fps), this is about 3.5 cps, which is a quite natural clapping speed. If the camera were running at 24 fps, the rate would be 4.6 claps per second, which is about as fast as one can clap, spreading one's hands as widely as the man in the film is. To me, a rate of 4.6 cps does not really seem natural.

A clapping rate of 7 cps, with a large handsread, is physically impossible, so the camera could not have been going as fast as 36 fps. It may seem surprising that one cannot clap at 7 cps, since 3.5 cps is quite natural. However, it is easy to show that a "cube law" is involved; e.g., to clap twice as fast, with the same amplitude, one must use 8 ($8=2^3$) times as much power.

This is, I feel, a very ingenious observation by Dr. Alvarez, but I doubt that it can discriminate between 18 and 24 frames per second. In any case, comparison of the Zapruder film with other films of the assassination is probably the first thing that should be done if the figure of 18.3 fps is still questioned.

Paul Hoch
August 6, 1967

(These are rather rough notes
and should not be quoted in
print or taken to be exact.)