peated flashbacks, multiple viewpoints, and so on. The first hundred pages or so are inordinately prolix, but it is worth making an effort. At the heart of his narrative is a chain of fateful events. One section of the students have all leave stopped until the perpetrator of a minor crime is discovered. After several weeks of confinement, one of the meekest and most put-upon boys betrays the name of the offender, so that he can have his leave restored and go out to meet the girl he is in love with (whom in fact he scarcely knows). A few days later he is shot on manovel's center of consciousness, insofar as it has one—feels himself impelled to give away the name of the murderer to the authorities. They are determined to keep the whole thing quiet, and the only decent officer in the place is sent off to a remote mountain garrison because he is determined to establish the truth. If Llosa's novel had been severely edited at an early stage its dramatic core would, I think, have emerged more effectively: despite its prolixity, it is still a harsh and honest piece of fiction. □

LETTERS

THE SECOND OSWALD

To the Editors:

Permit me to bolster R. H. Popkin's brilliant reconstruction of the Kennedy assassination (July 28) by adding to his account certain facts which have just recently come to light.

(a) *Commission Exhibit 399*—Popkin states that "there is no evidence that the Commission could obtain anything like pristine No. 399 in any of its tests." Actually, there is one test performed by the Commission which *did* produce two bullets virtually identical with 399. In order to get control rounds for use in ballistics comparison tests Special Agent Frazier test-fired two bullets from Oswald's rifle (3:437). Although Frazier indicates only that he test-fired the rifle to get these rounds, it is standard ballistics practice to obtain such rounds by firing into a long tube of cotton waste. When we look at the two bullets so produced (Commission Exhibit 572; 17:258), we find they appear to be virtually identical with 399. Although the Commission appears not to have realized it, a test had been performed which indicated quite clearly that 399 was a plant, that its most likely source was the test-firing of Oswald's gun into cotton.

(b) *The Autopsy Report* — The disparity between the final autopsy report and the FBI reports of Dec. 9th and January 13th is explained as due to a reconstruction of the wounds by the autopsy doctors on November 23rd and 24th. Since FBI agents were not present at these subsequent conferences, the FBI was naturally ignorant of the reconstruction. Such an explanation seems plausible only as long as there is no substantive discrepancy between what the FBI observers say they saw at the autopsy, and what the doctors later report. Such a discrepancy emerges from an examination of the report on the autopsy submitted by the two FBI agents who were present.

This report is entitled, "Autopsy of Body of President John Fitzgerald Kennedy."* Five pages single-spaced, it was dictated by Agents Francis X. O'Neill and James W. Sibert on 26 November 1963. The following citation gives the salient characteristics of Kennedy's wounds as they were observed by agents O'Neill and Sibert:

> Upon completion of X-rays and photographs, the first incision was made at 8:15 p.m. X-Rays of the brain area which were developed and returned to the autopsy room disclosed a path of a missile which appeared to enter the back of the skull and the path of the disintegrated fragments could be observed along the right side of the skull. The largest section of this missile as portrayed by X-Ray appeared to be behind the right frontal sinus. The next largest fragment appeared to be at the rear of the skull at the juncture of the skull bone.
>
> The Chief Pathologist advised approximately 40 particles of disintegrated bullet and smudges indicated that the projectile had fragmentized while passing through the skull region. During the autopsy inspection of the area of the brain, two fragments were removed by Dr. Humes, namely, one fragment measuring 7 x 2 millimeters, which was removed from the right side of the brain. An additional fragment of metal measuring 1 x 3 millimeters was also removed from this area, both of which were placed in a glass jar containing a black metal top which were thereafter marked for identification and following the signing of a proper receipt were transported by Bureau agents to the FBI Laboratory.
>
> During the latter stages of this autopsy, Dr. Humes located an opening which appeared to be a bullet hole which was below the level of the shoulders and two inches to the right of the middle line of the spinal column.
>
> This opening was probed by Dr. Humes with the finger at which time it was determined that the trajectory of the missile entering at this point had entered at a downward position of 45 to 60 degrees. Further probing determined that the distance traveled by this missile was a short distance inasmuch as the end of the opening could be felt with the finger.
>
> Inasmuch as no complete bullet of any size could be located in the brain area and likewise no bullet could be located in the back or any other area of the body as determined by total body X-Rays and inspection revealing there was no point of exit, the individuals performing the autopsy were at a loss to explain why they could find no bullets.
>
> A call was made by Bureau agents to the Firearms Section of the FBI Laboratory at which time SA Charles L. Killion advised that the Laboratory had received through Secret Service Agent Richard Johnson a bullet which had reportedly been found on a stretcher in the emergency room of Parkland Hospital, Dallas, Texas. This stretcher had also contained a stethoscope and pair of rubber gloves. Agent Johnson had advised

* This report bears the Commission File Number CD-7 and FBI file numbers 89-30. It was discovered in the National Archives by Mr. Paul Hoch of Berkeley, California.

the Laboratory that it had not been ascertained whether or not this was the stretcher which had been used to transport the body of President Kennedy. Agent Killion further described this bullet as pertaining to a 6.5 millimeter rifle which would be approximately a 25 caliber rifle and that this bullet consisted of a copper alloy full jacket.

Immediately following receipt of this information, this was made available to Dr. Humes who advised that in his opinion this accounted for no bullet being located which had entered the back region and that since external cardiac massage had been performed at Parkland Hospital, it was entirely possible that through such movement the bullet had worked its way back out of the point of entry and had fallen on the stretcher.

Also during the latter stages of the autopsy, a piece of the skull measuring 10 x 6.5 centimeters was brought to Dr. Humes who was instructed that this had been removed from the President's skull. Immediately this section of skull was X-rayed, at which time it was determined by Dr. Humes that one corner of this section revealed minute metal particles and inspection of this same area disclosed a chipping of the top portion of this piece, both of which indicated that this had been the point of exit of the bullet entering the skull region.

On the basis of the latter two developments, Dr. Humes stated that the pattern was clear, that the one bullet had entered the President's back and had worked its way out of the body during external cardiac massage and that a second high velocity bullet had entered the rear of the skull and had fragmentized prior to exit through the top of the skull. He further pointed out that X-Rays had disclosed numerous fractures in the cranial area which he attributed to the force generated by the impact of the bullet in its passage through the brain area. He attributed the death of the President to a gunshot wound of the head.

On the basis of these observations by O'Neill and Sibert a host of questions must be directed to the doctors who signed the final, undated autopsy report:

(1) How does a wound "below the shoulders and two inches to the right of the spinal column" become the neck wound pictured in Commission Exhibits 385 and 386?

(2) How does a wound whose terminus "could be felt with the finger" become a transit wound with its exit in the President's throat? Surely to "reconstruct" a wound in this fashion is to falsify it.

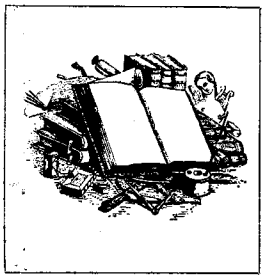
(3) What happened to what O'Neill and Sibert describe as "the next largest fragment" which they locate "at the rear of the skull at the juncture of the skull bone"? Nowhere in the autopsy report or in the testimony of any of the autopsy doctors do we find mention of this bullet fragment in the President's skull. This is a significant omission since the location of such a fragment might prove difficult to resolve with the official theory of a hit in the right occipital region exiting through the roof of the skull.

(4) Why does O'Neill and Sibert's fully detailed report contain no mention of the small entry hole in the back of the President's head? In testimony before the Commission (2:352), Dr. Humes indicated that this wound had been examined in detail. He described its measurements as 6 by 15 millimeters, located it as "2.5 centimeters to the right and slightly above the external occipital protuberance," and told how the scalp had been reflected and the underlying bone examined. How is it possible that O'Neill and Sibert simply missed this important wound and its meticulous examination by Dr. Humes? When we pursue the matter of this head wound we find that O'Neill and Sibert were not alone in failing to notice it. For when we examine the testimony of the Dallas doctors and nurses together with that of the Secret Service and FBI agents who witnessed the autopsy, we find that (with the exception of an ambiguous answer from Roy Kellerman) *no one* except the three doctors who signed the autopsy report claim to have seen this entry hole in the President's head. Does it exist? I don't know. But there is a miraculously simple way to find out. The government need only produce the 11 X-Rays, 22 color photos, and 18 black and white prints which O'Neill and Sibert report were taken during the autopsy.

Josiah Thompson
Department of Philosophy
Haverford College
Haverford, Pennsylvania

To the Editors:

Dr. Richard Popkin's article, "The Second Oswald," divides into two sections, (1) a résumé of the arguments by Salandria, Epstein, Weisberg, and Cook which supposedly demonstrate that the Warren Commission's theory of the assassination is impossible, and (2) an alternative theory which explains some of the facts which the Commission could not. While I have some questions concerning the second section, this letter is addressed only to the first.



The reason for concluding that the official theory is impossible is the contention that, based on the Commission's own evidence, it is impossible for all the shots to have been fired by the same man using the Carcano rifle. This statement is based on two others, that (a) if Governor Connally's wounds were not caused by the first bullet to hit the President, they cannot have been caused by the same man firing the Carcano, but (b) the evidence proves such a double hit impossible.

I grant the claim that, if the double hit theory falls, the Report falls. As I view the Zapruder film of the assassination sequence, if Connally's back is not struck by the first Kennedy shot, there is no time when it can have been struck, from the Depository, which is not under the minimum repeat time for the Carcano rifle. Awareness of this problem was a major factor in a skepticism concerning the Warren Report which seduced me into several months' study of the hearings and documents.

The main argument against the double hit is that the bullet supposedly entered the President's back too far down to be able to exit where the autopsy claims it exited, and to strike Connally's back where his doctors say it was struck. Now, if the Commission's calculations concerning the position of the car are correct, the angle of fire from the Depository window was approximately 18 degrees (R 106). According to the autopsy report, the Kennedy back wound was "on the upper right posterior thorax just above the upper border of the scapula . . . [and] is measured to be 14 centimeters from the tip of the right acromion process and 14 centimeters below the tip of the right mastoid process" (R 543). (The posterior thorax = the back between the neck and the abdomen; scapula = shoulder blade; acromion process = the protruberance at the top of the shoulder joint: mastoid process = the protruberance of the skull immediately behind the ear lobe; 14 centimeters—about 5½ inches.) The autopsy examination found no continuous bullet trail, but it did find bruises on the strap muscles and the linings of the chest cavity, and a tear in the trachea, which indicated a course straight through the base of the neck between the back wound and the lower throat (R 541). According to the Dallas doctors, Kennedy's throat wound was immediately below the Adam's apple, and Connally's back wound was immediately below the right shoulder blade near the edge of the body (R 89,531).

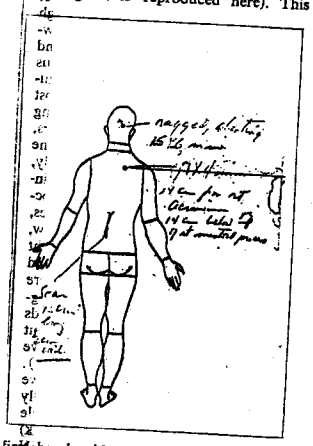
No one denies that the positions of the Kennedy throat wound and the Connally back wound are compatible with the assumed angle of fire. What about the position of the Kennedy back wound? If one is sitting up ramrod straight, the point designated by the autopsy is roughly level with the Adam's apple. If, however, the shoulders are slightly rounded, or the head thrust slightly forward, the back wound is above the throat wound, and readily compatible with an 18 degree angle of fire. That the President's posture was the latter is hardly impossible or improbable, and indeed is suggested by a photograph showing the Presidential party earlier during the motorcade (R 104).

What, then, is the problem? First, there is a *prima facie* discrepancy between the position of the back wound as measured on the President's body, and the position as indicated by his clothing. Dr. Popkin and other critics have calculated incorrectly that this discrepancy may be as much as six inches. According to the Report, the holes in the back of the suit coat and the shirt are respectively 5⅜ and 5¾ inches below the top of the collar (R 92). But the reader will discover through observation that the tip of the mastoid process is rarely more than 2 - 3 inches above the top of the shirt collar. Thus the apparent discrepancy between the position on the body and the position as indicated by the clothing is approximately 2 - 3 inches, rather than 6 inches. Would the critics maintain that it is impossible for the coat and shirt to be hunched up to this extent, either from a sitting posture, or from rubbing against the car seat, or both?

But suppose there were strong evidence that in fact the coat and shirt were not hunched up at all, that the lower wound they indicate is the true one, and that the autopsy report as printed by the Commission is inaccurate. Just such evidence, the critics suggest, may lie in the FBI statements concerning the autopsy findings, which clash with the official account, and which were omitted from the Commission's 27 volumes. In its extensive Summary Report on the Assassination, dated Dec. 9, 1963, the FBI states, "Medical examination of the President's body revealed that one of the bullets had entered just below his shoulder to the right of the spinal column at an angle of 45 to 60 degrees downward, that there was no point of exit, and that the bullet was not in the body" (Epstein 184). On Jan. 13, 1964, the FBI Supplemental Report states, "Medical examination of the President's body had revealed that the bullet which entered his back had penetrated to a distance of less than a finger length" (E 198).

The language locating the back wound is imprecise, but it is consistent with a position lower than that indicated by the printed autopsy. Are

ly survived the fire, when Dr. Humes ...ined the "preliminary" autopsy notes ...n November 24th, does give these pre-...ise measurements; but it also has a diagram clearly (and precisely?) locating the wound in the back, at least six inches below the neck (the relevant part of the diagram is reproduced here). This



first hand evidence, marked by the doctors at the time they were studying the body, definitely conforms to the FBI's location of the wound. This firsthand evidence bears no relation to Exhibit 385, prepared at the direction of Dr. Humes when he was to present the autopsy findings to the Commission, in which the diagram shows the bullet entering the back of the neck and exiting through the throat. And I trust Mr. Crawford would agree that if the bullet entered where shown on the firsthand diagram, 397, and was on a downward path, it would have to exit in the chest and not the throat, unless Kennedy had been bent way over.

The evidence of Exhibit 397 is confirmed by other firsthand testimony. Secret Service Agents Greer and Kellerman, who were present at the autopsy described the wound as being in the shoulder (II:81 and II:127). Kellerman further described the scene at the autopsy, when Colonel Finck was probing this shoulder wound, and Finck said, "There are no lanes for an outlet of this entry in this man's shoulder" (II:93). All of this definitely seems to confirm the FBI version of the autopsy. Further, at the conclusion of the autopsy, Secret Service Agent Hill was called in specifically to see where the wounds were, so that he could, if necessary, testify on this later on. Hill gave as his firsthand observation: "I saw an opening in the back about six inches below the neckline to the right-hand side of the spinal column" (II:143).

Since I wrote my article, a more impressive firsthand document has come to light, Commission Document No. 7 in the National Archives papers, discussed in Professor Thompson's letter. This is the original report on the autopsy by Agents O'Neill and Siebert, who were present at the time, and who dictated their report on November 26. (It is remarkable that neither O'Neill nor Sibert were called as witnesses by the Commission, when it is obvious from this document that their information formed the basis for the FBI reports of December 9th and January 13th). I don't know if Mr. Crawford has seen this report, and whether he finds in weighing the "official" autopsy against the FBI reports and the eyewitness reports of the Secret service men, this changes the balance. O'Neill and Sibert give a blow-by-blow account of the autopsy, with much precise detail as to what was done and what was found. On the fourth page of their report they state that, "During the latter stages of this autopsy, Dr. Humes located an opening which appeared to be a bullet hole which was below the shoulders and two inches to the right of the middle line of the spinal column." They, then described Dr. Humes probing this opening with his finger, determining that the trajectory of the missile was 45°-60° downward, and that the missile went in only a finger's length. According to Sibert and O'Neill, "Dr. Humes stated that the pattern was clear that the new bullet had entered the President's back and had worked its way out of the body during external cardiac massage . . . "

All of this firsthand evidence—the position of the wound on the autopsy diagram in Exhibit 397, the reports of five people who saw the wound, including one who was asked specifically to witness the condition of the body—seems to corroborate the FBI claims, and to cast doubt on the doctor's report. According to the *Greater Philadelphia Magazine*, August 1, 1966, issue, Dr. Humes refused to discuss the discrepancies between the autopsy report and the FBI statements. The quotation attributed to him hardly inspires confidence: "I am not concerned with what was in the FBI report. We did our job and we signed the report and it was very straightforward and unequivocal. We don't feel we should discuss the matter any more. That is the position we are taking and that is the position we have been instructed to take by our superiors."

Besides the questions this raises, there seems to be a further problem. Mr. Crawford mentions that in the "official" autopsy report, the doctors claim to have found bruises on the strap muscles and the lining of the chest cavity and a tear in the trachea. One wonders, in view of the Sibert-O'Neill data, and the testimony of Greer and Kellerman, when the doctors found those injuries. They are not mentioned in the Sibert-O'Neill report nor in the testimony of the Secret Service agents, and the next day the doctors no longer had the X-rays. Are the doctors' findings based on first-hand observation, recollection, or what? Are they based on data destroyed by Dr. Humes on November 24th? Some elucidation on this score now seems in order, regardless of what Dr. Humes's superiors say.

Since one fundamental point on which the very possibility of the Commission's theory rests is the location of this wound, I'm sure Mr. Crawford would agree that this basic question can easily be settled by the examination of the autopsy photos and X-rays. If they confirm the FBI statements, then the Commission theory is clearly impossible.

Lacking these photos, we can go on to argue the next point, the holes in the clothes. The clothes only present a problem if the wound is in the neck. The holes conform to the FBI description, and to that of Agent Hill. But if the wound is in the neck, then the question arises as to how it was possible for there to be holes 5⅜ and 5¾ inches below the top of the collar, from the same bullet? Even if one were to accept Mr. Crawford's modifications (which I don't), which make the problem one of accounting for a 2-3 inch discrepancy, one still has to explain how the shirt and coat can ride up, hike up, bunch up, or hunch up so that the cloth is not doubled over.

It should be pointed out that though the argument is over a couple or a few inches, these details are crucial. The schematic drawing in Exhibit No. 385, showing the path of the bullet from neck through throat, just about fits with their alleged trajectory, and Dr. Humes, in his testimony, at least four times claimed it was a "neck" wound. Any correction downward in the location of the back wound will raise difficulties, quickly bordering on impossibilities. Dr. Humes, Arlen Specter, and others have offered explanations of the holes in the clothing that will not require relocating the back wound further down, but I think these are hardly credible or satisfactory. (The article in the *Greater Philadelphia Magazine*, pp. 82-83, has a hilarious quotation from a recent interview with Specter in which he tried to explain the holes in the clothing.)

The next point raised by Mr. Crawford concerns the time when Governor Connally was wounded. Both the Governor and his wife testified that he was hit by the second shot. The Commission claimed he was hit by the first shot but had a delayed reaction. Mr. Crawford suggests Connally was shot by the time of Zapruder frame 229. I haven't had the opportunity to study the colored slides of the Zapruder pictures at the National Archives. The Commission, which did examine the pictures at length, placed the hit at between frames 235 and 240. If they had adopted Mr. Crawford's view they would have avoided the delayed reaction theory. As far as I know, they have never suggested such a solution. Specter, when pressed recently on this issue, said: "You can't tell from the films when Connally was hit, you just can't tell" (*Greater Philadelphia Magazine*, p. 44). It is interesting that Vincent Salandria, who has made an intensive study of the slides, claims that Connally was probably hit much later, and he offers some very convincing evidence for his contention. If true, this would rule out the single-bullet hypothesis entirely. Others, including Sylvia Meagher (excerpts from her detailed study of the discrepancies in the Warren Report appear in the September and October issues of *The Minority of One*), have examined the Zapruder film and have come to conclusions very different from those of Mr. Crawford. If one accepts, as I did, the Commission's conclusion as to when Connally was hit, then the problem remains, is the delayed reaction theory tenable? And can the testimony of the Governor and his wife be dismissed?

On the next point, bullet No. 399, I think that Mr. Crawford has gone too far in his attempts at rebuttal. I said that "almost all the medical experts . . . held that No. 399 could not have done all the damage to Governor Connally, let alone Kennedy." Mr. Crawford totals up seven medical witnesses, and attempts to show four on my side and three against. Two of the autopsy surgeons, Humes and Finck, were asked specifically if No. 399 could have inflicted wounds on Connally. Humes said, "I think that extremely unlikely," and that he couldn't conceive from what part of 399 the fragments in Connally could have come. Finck said, "No; for the reason that there are too many fragments described in that wrist." Dr. Gregory and Dr. Shaw had been the physicians who attended Governor Connally. Dr. Shaw said it was "difficult to believe" that No. 399 did the damage because of the amount of metal in the Governor's wrist. Dr. Gregory had doubts whether the bullet had sufficient velocity to cause all the wounds, and he also held that the wound in Connally's wrist was caused by a distorted missile with sharp edges. Thus all four of these gentlemen held that it was unlikely or impossible for No. 399 to have done all of the damage. The three others cited by Mr. Crawford, Dr. Olivier, Dr. Dziemian, and Dr. Light, were not present at the autopsy; nor did they treat Governor Connally. They enter the case because they were assigned to test the penetration effect of bullets on goats and on simulated targets such as skulls filled with gelatin. Of the three, only Dr. Light is an M.D. Olivier is a veterinarian, and Dziemian a Ph. D. in physiology. (Their experiments, which the Commission took seriously, hardly inspire confidence, especially in the way Dr. Olivier extrapolated his findings in Connally's case.)

These three gentlemen were asked if they thought one bullet could have gone through Kennedy and Connally, and if they thought that the bullet that went into Connally had previously hit Kennedy. This is quite different from asking them if No. 399 could have done the damage. In fact, on two of the pages Mr. Crawford refers to (V:86 and V:92), bullet No. 399 is not mentioned. The answers offered by Drs. Olivier and Dziemian in no way deal with the question whether No. 399 is the bullet that did all the damage, or whether they think No. 399, in its present shape, could have done all of the damage. On V:90 Dr. Olivier is asked whether one of the fragments in Connally's wrist could have come from No. 399, and he said yes. He was next asked, "Do you have an opinion as to whether, in fact, bullet No. 399 did cause the wound on the Governor's wrist, assuming if you will that it was the missile found on the Governor's stretcher at Parkland Hospital?" (An assumption that is definitely not justified by the evidence.) Dr. Olivier's answer was, "I believe that it was. That is my feeling," which seems to refer to the bullet's location rather than its activities, and hardly seems expert testimony as to whether No. 399 could have done the whole job.

Dr. Dziemian, who said he thought the probability was very good that one bullet caused all the wounds to Kennedy and Connally, was never asked if No. 399 could have been that bullet, or if the fragments found in Connally were compatible with the supposition that No. 399 had done the damage. Hence his testimony is irrelevant to the point at issue. (It is interesting that Specter, in questioning Dziemian, gave the angle of declination in Kennedy as 45° and in Connally as 25°-27° [V:92].) Dr. Light, who did deal with the question of No. 399, said that he based his opinion neither on the condition of the bullet, nor on the anatomical findings, nor on Dr. Olivier's tests. He based his opinion solely on where Connally and Kennedy were sitting, and on the report that one bullet, No. 399, was presumably found on Connally's stretcher, and that no other bullet was found. Indeed, Dr. Light indicated he had reservations about his colleague's tests, and said that on the basis of the anatomical data and the tests alone, he couldn't draw a conclusion as to whether one bullet had hit Kennedy and Connally. I think an objective reading of the testimony of Olivier, Dziemian, and Light, leads to the conclusion that one of them (Dziemian) was not really asked whether No. 399 could have done all of the damage; that another (Light) gave an answer that is irrelevant, since he did not deal with the data; and that Olivier was not asked about the question at issue (*all* of the damage) and his answer is unclear. It is also questionable whether the three of them are experts in the sense that Humes, Finck, Shaw, and Gregory are. (Dr. Light, the only one of the three who is a medical doctor, pointed out that none of them had seen Connally's wounds "in the fresh state or at any other time" (V:96), and the testimony doesn't indicate that any of them saw No. 399. Light, in fact, said that "nothing about that bullet" led him to his conclusions.

In view of this, I think that Dr. Olivier is the only one of the three witnesses cited by Mr. Crawford who can be held to have offered "expert" testimony about No. 399, and he only testified as to whether it could have caused the wrist wound on Connally. The four I cited, Humes, Finck, Shaw and Gregory, who did get asked, and did answer whether No. 399 could have done all the damage, gave very skeptical or negative responses. So I think my original statement holds, and that the score is at best 4-1, at worst 4-0 against No. 399 by the medical experts, since Dziemian didn't answer the question at issue, and Light didn't deal with No. 399 *per se*.

The question of the weight loss to No. 399 is a bit cloudy, since no one knows its original weight. The FBI expert, Robert Frazier, said it had not necessarily lost any weight at all. The figures I gave were based on the average weights of pristine 6.5 bullets, which indicated that the estimated loss of 2.5 grains brought No. 399 close to the maximum weight of the samples. And Dr. Shaw did testify (IV:113), that, "There seems to be more than three grains of metal missing . . . in the wrist." Dr. Gregory, who minimized the weight of the fragment still in the wrist, admitted that the largest fragment or fragments extracted—"the major one or ones"—had been lost (IV:123), and thus could not be measured or weighed. There was also presumably some loss in Kennedy's clothes and body, in Connally's clothes, chest and femur.

A further point raised by Mr. Crawford is more serious. For those who do not accept the Commission's one-bullet hypothesis, there is a genuine problem of explaining where the bullets went. If one accepts the FBI reports as accurate, there is a bullet that entered Kennedy's back, did not exit, and was not in the body. If Kennedy's throat wound was an entrance wound, there is another bullet to account for. If No. 399 is not either of the first two bullets, what became of all of them? As of the present moment, I know of no satisfactory answer. The FBI expert, Frazier, was careful to leave open the hypothetical possibility that a bullet could have been deflected on striking the President and "may have exited from the automobile" (V:173). And two witnesses (Mrs. Baker [VII:508-509] and Mr. Skelton [VI:2382] believed they had seen a bullet hit the pavement near the Presidential car. The bullets that hit Kennedy and Connally may have fragmented, and some of the fragments may have disappeared. But I do feel that it behooves those of us who are critical of the Warren Commission account, to offer a satisfactory counter-explanation that deals with the details, as well as the larger issues. It may be, if the FBI reports are accurate, that at the present state of the evidence, neither the Commission nor its critics can offer a completely consistent explanation of what happened. I think Mr. Crawford has tried hard to offer a modified version of the Commission theory, but I do not feel that it really does the job. The discrepancies between the "official" autopsy report and the FBI accounts have not been explained away, nor has any genuine reason for credence in the "official" autopsy report been developed, since the first-hand testimony of several observers seems to support the FBI reports. Mr. Crawford's reading of the Zapruder pictures seems to be unique to him, and doesn't agree with either the Commission's readings, or those of the critics who have studied them. The problem of No. 399 remains, since Drs. Olivier, Dziemian, and Light offer us little or no information on the subject.

In view of all this, I think, as I said in my article, a new investigation is urgently required, and it should start by examining the fundamental data of the X-rays and the autopsy photographs, so that we can know what is really a possible explanation.

It will not help to resolve these problems to suggest, as Mr. Crawford does, that a one-bullet hypothesis is possible, if only Connally's position vis-à-vis Kennedy is considered. I think nobody doubts, in the abstract, that a one-bullet hypothesis could account for the wounds. The problem is whether it could in view of the known data, and whether No. 399 can be the bullet in question. I don't think Mr. Crawford has made a real case for the Commission's one-bullet hypothesis, since all of the problems with that theory still remain, and I think that we will only find out if the Commission's theory is at all possible, if we are allowed to settle the question of where Kennedy was wounded.

A final point I'd like to comment on is that raised at the end of Mr. Crawford's letter, namely whether the data offered by the Commission is honest, or whether some has been fabricated or suppressed (by the Dallas Police, the FBI, or the Commission). Unlike some of the critics, I do not believe an explanation based on malevolence is acceptable, unless it seems to be the only way to account for the data. I think there is a real difference between those who are willing to assume the worst—that the Dallas Police, the FBI, and the Commission were either part of the plot,

there objective grounds for crediting one rather than the other? I understood that the FBI statements are based on the testimony of two FBI agents, which in turn was based on conversations during the autopsy examination. In contrast, the location and measurements in the printed autopsy are based on a diagram made by the doctors during the examination, containing the same location and identical measurements. (See Comm. Exhibit 397 referred to at II 372.) It seems to me that the probability of error in evidence which is imprecise, second hand, and orally transmitted, is much higher than in evidence which is first hand, precisely measured, and immediately written down. Moreover, the FBI location of the wound is tied to statements concerning the angle of entry and the destiny of the bullet which contradict not only the autopsy evidence concerning the path of the bullet which I mentioned earlier, but also generally accepted evidence concerning the assassination sequence. Thus, during the shooting there is no possible assassination perch from which the angle of fire would remotely approximate 45 to 60 degrees downward. Also, there is no evidence that the bullet struck anything, either inside or before reaching the back, which would slow it down so much that a few inches of flesh could halt it.

A second argument that Dr. Popkin and others advance against the double hit is that it contradicts Gov. Connally's memory that he heard a shot, turned to look at the President, and had turned most of the way back before feeling any impact. The Governor gave this testimony, precise and insistent, in a context of strong admiration for the work of the Commission and acceptance of the official conclusions, not realizing that if he were right, they had to be wrong. However, if the Governor was hit at the point in the Zapruder film (*circa* Frame 231) at which he (and Dr. Popkin) think he was hit, his memory of the sequence is demonstrably incorrect. The only turn by Connally which the films show occurs *after* he was hit, not before.

It is argued that too much time elapses between Kennedy's reaction and Connally's for them to be caused by the same shot. If I read the Zapruder film correctly, this is not the case. Colored slides have been made of the individual frames comprising the assassination sequence, and I studied them carefully under a microscope at the National Archives. The evidence is strong that the Governor was hit no later, and probably several frames earlier, than he thinks. Up to Frame 224 Connally's position seems steady, his shoulders and head facing slightly to the right of the direction in which the car is moving, as if he were watching the bystanders ahead. By 229 his shoulders have moved somewhat forward and left, and his hands appear to be on their way to his chest. By 234 Connally's right shoulder is lower, as if sagging. By 236 he begins a turn to the right which takes 20 frames (over a second), his hands clutched to his chest, his face indicating pain, very like his wife's memory that "he recoiled to the right, just crumpled like a wounded animal. . . ." (IV 147). From 210 to 225 the intervention of a highway sign between most of the President's body and the camera prevents certainty as to when the President's reaction begins. Up to 210 there is no apparent reaction: The President's right elbow is resting on the car door, his right forearm and hand waving to the cowd, his left hand out of sight; by 225 his right hand is already at his throat. However, at 224 I noticed something the Commission doesn't mention: The left hand is even with the chest, and the right hand, though close to the waving position, seems to have the palm turned in, as if beginning its trip to the throat, where it arrives in the next frame. I conclude that Kennedy's hands start toward his wound on or shortly before Frame 224, and Connally's hands start toward *his* wound at 229, a delay of slightly over one fourth of a second.

A third argument against the double hit is that the Commission's Bullet No. 399 is supposedly not banged up enough to have traversed the President's lower neck, and the governor's chest and forearm, fracturing a rib and a radius along the way. In support of this argument, Dr. Popkin states, ". . . almost all of the medical experts, including two of the Kennedy autopsy doctors, held that No. 399 could not have done all the damage to Governor Connally, let alone Kennedy." Dr. Popkin is incorrect. Seven of the Commission's doctors spoke to this question (Humes, Finck, Olivier, Dziemian, Light, Shaw, Gregory). Olivier, Dziemian, and Light thought that Kennedy's back wound and all of Connally's wounds were caused by No. 399 (86, 92, 95). Gregory thought all of Connally's wounds could have been caused by 399, but doubted it had the velocity to have traversed Kennedy as well (VI 127). The others thought that 399 could have caused the Kennedy back and Connally chest wounds, but held it improbable (Shaw, Humes) or impossible (Finck) that 399 fractured Connally's wrist (IV 113, II 375, 382). Boxscore: 3 probables, 2 improbables, 1 impossible, 1 improbable on different grounds—which is hardly unanimous expert testimony proving impossibility.

It should be stated that Dr. Popkin and other critics are incorrect in assuming that the Commission's double hit theory requires all of Connally's wounds to have been caused by Bullet 399. Two of the doctors (Gregory, Light) suggest that the wrist wound could have been caused by a fragment of the bullet which had exploded in the President's skull (IV 128, V 97). This explanation is disputed by Olivier and doubted by Light himself, but not disproved (V 90, 97).

In this letter I have tried to show that asserting the impossibility of the double hit means, in effect, asserting the impossibility of one of the following:

a. That the President was sitting with his shoulders slightly rounded his head thrust slightly forward.

b. That his coat and shirt were hunched up 2 or 3 inches.

c. That the FBI statements concerning the autopsy findings are mistaken.

d. That Governor Connally's memory of the assassination sequence is mistaken.

e. That Connally reacted to the same shot ¼ of a second later than Kennedy.

f. That Kennedy's back wound, and the three Connally wounds, were caused by Bullet 399, either alone or with the help of bullet fragments from the President's skull wound.

The reader must judge whether Dr. Popkin's arguments prove, either that any of these links is impossible, or that any of them misstates the issue. I should like to add three things.

First, the above discussion was confined to refuting impossibility. However, in my own opinion, the theory that the same bullet caused the Kennedy back wound and at least the Connally chest wound, far from merely possible, is the only reasonable explanation of the evidence. Consider, in addition to the circumstances already mentioned, that the bullet was found in the President's body, that there is no evidence of any collision in the body which could have halted or deflected the bullet's progress, that the Commission's experiments on simulated tissue indicated that in traversing the body the bullet lost only 5-7 per cent of its velocity, that the Governor was seated directly in front of the President, that no evidence developed that the area immediately surrounding the Governor, nor in-

deed any place in the limousine or on the road nearby, had received this bullet. Under these circumstances, the difficulty is not to imagine the bullet's striking Connally, but to imagine its doing anything else.

Second, my letter assumes that the evidence, though possibly mistaken, is honest. There has not been space to answer those who fear that important data concerning, for instance, the condition of the President's body, or of the limousine, may have been fabricated or suppressed. But let me at least suggest an experiment, based only on evidence which the skeptics would consider reliable, which tends to corroborate the evidence they suspect. Forget, for the moment, the presupposition that all or any of the shots were fired from the Depository. Forget the autopsy data on the President's body, and the Secret Service testimony concerning the condition of the car. Note the course of the bullet through Connally, as described by Dr. Shaw, back to front, downward, at an angle of 25 degrees. Note the seating arrangement: photographs, testimony, and the design of the car all place the President immediately behind the Governor and somewhat to his right. Observe in the Zapruder film the position of the Governor when he is hit: his shoulders facing slightly right or forward. Observe the position of the President: erect, not slumped. Given these circumstances, construct a trajectory for the bullet back from the governor's body toward point of origin. A path through the man behind the governor is not inevitable, but it is quite plausible. This experiment does not, by itself, prove the double hit, but it does suggest that important evidence which is not suspect is consistent with and tends to support the evidence that has been questioned.

Third, the theory of a "Second Oswald" in no way conflicts with the conclusion that Kennedy and Connally were struck by the same bullet, and so remains unaffected by my arguments. Unless a general impression of Commission incompetence or legerdemain was meant to be Second Oswald's entree.

Curtis Crawford

New York City

Richard Popkin *replies:*

Mr. Crawford's careful argument for the possibility of the Warren Commission's single-bullet theory restricts itself to only a few of the problems involved. He rightly centers the issue first on the question, where the first bullet hit Kennedy. If the wound is where the FBI reports of December 9, 1963 and January 13, 1964 say it is, and if it had the character they give it, then one bullet could not have wounded Kennedy and Connally. The FBI reports place the wound too low to have made the journey supposed for the single bullet, and the FBI claim is that the bullet did not pass through Kennedy's body, and so could not have entered Connally's. I think Mr. Crawford would agree with me, and with other critics, that if the FBI reports are right, the Commission's single-bullet hypothesis is impossible.

Mr. Crawford chooses to accept the "official autopsy" report over the FBI reports on the grounds that the former is "based on a diagram made by the doctors during the examination," and is "first-hand, precisely measured, and orally transmitted." At first glance, these certainly seem good reasons for preferring to believe the doctors' report over the FBI ones. However, the choice is not so simple, and I believe that when all of the factors are considered, it is easier to accept the FBI reports as accurate than to accept the "official" autopsy report, at least until the doctors give us some explanation of the discrepancies.

To begin with, the crucial Exhibit 397 cited by Mr. Crawford, which fortunately or corrupt—and those who try to explain their failings by incompetence, blunder, and mistake. I still fall in the latter group, and in this I seem to be in agreement with the defenders of the Commission who have commented on my article. Epstein's work, plus some of the explanations that have been leaked in the press, indicate the kinds of incompetence that occurred with respect to specific episodes. This is still a long way from accounting for all of what happened. If the autopsy photos and X-rays confirm the FBI's accounts, it may be difficult, if not impossible, to maintain confidence in the integrity of some of those involved. Considering what is at issue, I think the Commission owes it to the public to answer the critics, to justify itself, and to produce the basic data of the X-rays and the photos. Then, either the public will be reassured, and the critics silenced, or we will know the lengths that our supposed best investigative forces and "impartial experts" have gone to curry to the public's desire for a simple satisfying theory that one lonely alienated nut, all by himself, killed John Fitzgerald Kennedy. If the FBI reports turn out to be accurate, the public should be immediately informed as to the identity of those superiors who are now telling Commander Humes what to say, and what not to say. If the FBI reports are inaccurate, we deserve an explanation of how this elite, expensive police force could have been so grossly incompetent in perhaps the biggest case of its career. □