

Chapter Five

Firearms, Wolfer, and the Forensic Panel

"(Wolfer) never takes sides on any issue, even when the accused are police officers. He is cautious, conservative, straightforward and a very thorough scientist."

Police Chief Edward M. Davis, May 29, 1971.

"Unquestionably, Wolfer's opinion testimony on acoustics and anatomy was negligently false... His testimony of his educational qualifications borders on perjury and is, at least, given with a reckless disregard for the truth."

Justice Robert S. Thompson, California Court of Appeals, in a decision concerning the Kirschke case, in which DeWayne Wolfer testified on scientific questions. December 2, 1975.

However serious the questions about bullet flightpaths or other aspects of the police investigation, the issues which for years aroused the deepest interest and skepticism had to do with questions relating to firearms identification. And although DeWayne Wolfer was a central figure in the reconstruction of flight paths and physical circumstances, it was his work on comparison of bullets that was surrounded with the greatest controversy. At best the questions of firearms identification comprised only a third of the issues relating to a second gun, and the answers that lay in this area have thus far proved to be particularly elusive. But if the numbers of bullets issue was hardly hinted at during the initial legal proceedings and if eyewitness and scientific

testimony on distance and direction were never seriously compared, at least the matching bullets proposition was addressed quite explicitly from the beginning. It was not initially a matter of any controversy.

Whenever a bullet is fired from a gun or rifle, the interior features of the weapon's barrel impress certain characteristics on the surface of the bullet as it passes through. If these characteristics are not too badly effaced on impact they can be used in comparisons with other bullets to determine if the bullets at issue were fired from the same gun. Just as no two fingerprints are said to be alike, theoretically the bores and firing characteristics of no two guns are precisely identical. This being so, the possibility exists, on the basis of microscopic bullet comparison, for an expert to determine that a particular bullet could have been fired by one gun only, "and no other gun in the world."

Some of these characteristics, known as "class characteristics," are common to all guns of a particular category. The number or spacing of lands and grooves, for example, will vary between different makes and models of guns, but will remain relatively consistent within a make and model. Other class characteristics are bore diameter, land width, direction of rifling twist, and angle or pitch of rifling. While class characteristics alone are never sufficient to identify two bullets as having come from the same gun, they can frequently eliminate certain guns as the weapon which might have fired particular bullets. The gun held by Sirhan Sirhan was an Iver Johnson Cadet model, eight shot, .22 caliber revolver, serial number H53725. Among its basic class characteristics were six lands and grooves, a right twist of rifling, a land width of approximately .054 inches, and an angle of rifling of approximately 181 minutes. This was the only suspect gun taken into

566-S



Photograph of Sirhan's gun, number H53725, taken on June 7, 1968. The eight objects below the barrel are cartridge cases removed from the chamber.

3

D

custody in the Robert Kennedy investigation, and its specifications are known on the basis of outside examinations. No record of any of them was made by DeWayne Wolfer.

In addition to class characteristics, two other kinds of markings are also imparted to any given bullet by the gun through which it is fired. "Accidental-characteristics" result from random and non-repeating factors, such as barrel fouling, metal particles, powder residue and dirt in the rifling. These not only provide no help in firearms identification, but because they represent a variance which cannot be related to the specific gun characteristics, they impede the identification process by creating a kind of background "static" against which individual characteristics must be distinguished. "Individual characteristics" are those markings of the bore of a particular weapon which have some degree of reproduceability from shot to shot and which may enable that gun to be distinguished from all others. The matching of individual characteristics is the basis on which firearms identifications, or "makes," or "matches" are made.

While bullets as manufactured have no individual characteristics, they do have various class characteristics, and if the type of bullet fired in a particular case is known, this information is also important for the process of scientific comparison. Make, manufacturer, weight, caliber, jacketing or coating, and number and spacing of annelures are all basic class characteristics of bullets. Separate batches of ammunition can also usually be distinguished by minute differences in their chemical composition, and the differences in the traces of various

elements in batches of bullets can be measured by various processes, among them spectrography and neutron activation analysis. The cartridges found in Sirhan's revolver all were identical, and seemed to be consistent with most of the victim bullets recovered. Based on these factors the bullets he apparently fired were .22 caliber, long rifle, hollow point, mini-mage, copper coated two cannellure bullets, manufactured by the Cascade cartridge company of Lewiston Idaho.

Because neutron activation analysis has never been performed on any of the recovered bullets, their chemical composition is not known. DeWayne Wolfer claimed that he had done spectrographic tests, but any documentation or records which existed of these were later said to be lost.

At the time of the original investigation, the first legal necessity was to connect the defendant, Sirhan Sirhan, with the gunshots which caused Robert Kennedy's death. One method of doing this was to produce eyewitnesses who had seen Sirhan shooting. Such witnesses were duly produced, although the implications of their testimony concerning Sirhan was thrown into considerable doubt in succeeding years. A second, independent method, however, was to link the gun fired by Sirhan with the bullets recovered from victims, and, in particular, with those which struck Robert Kennedy. The man called upon to do this, both at the Grand Jury and the trial eight months later, was police department criminalist DeWayne Wolfer.

Sirhan's gun was wrenched from his hand by Roosevelt Grier, and left the pantry in Rafer Johnson's pocket. At 1:45 a.m., the gun was

was received from Johnson by LAPD officer Robert L. Calkins, and it was booked into evidence as item #11 at approximately 5:00 a.m. (M) Eight expended brass cartridges were found in the cylinder with C.C.I. marked on the base of each. At an unknown time, the gun was released by Central Property to police department officer Moser, and according to his work log DeWayne Wolfer first saw it at 1:45 p.m., 13½ hours after the shooting. He immediately set about examining it. The gun remained in Wolfer's possession until the Grand Jury proceedings on June 7, at which time it was booked into evidence as Grand Jury Exhibit Number 7. Since that time, it has been continuously in the custody of the court or county clerk.

The last witness called at the Grand Jury was DeWayne Wolfer, and in contrast to his appearance at Sirhan's trial, the questions he was asked related only to one area. His answers, however, provided a final link in the corpus delicti, connecting Sirhan Sirhan with the murder of Robert Kennedy:

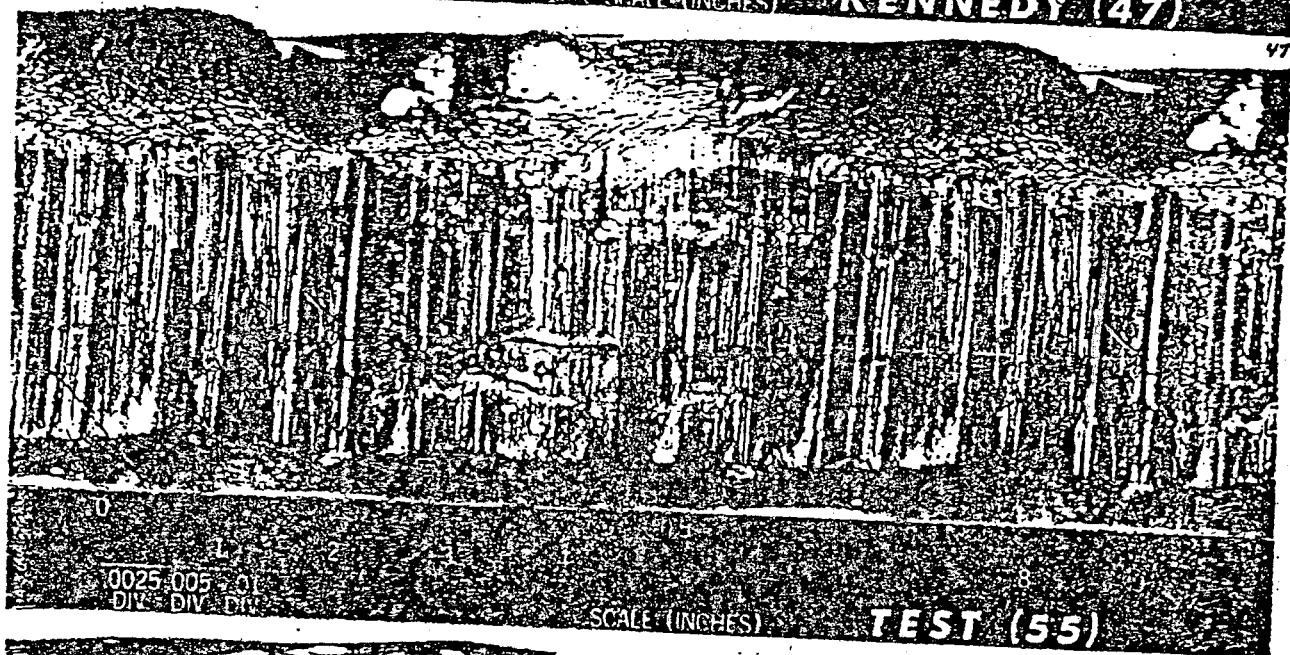
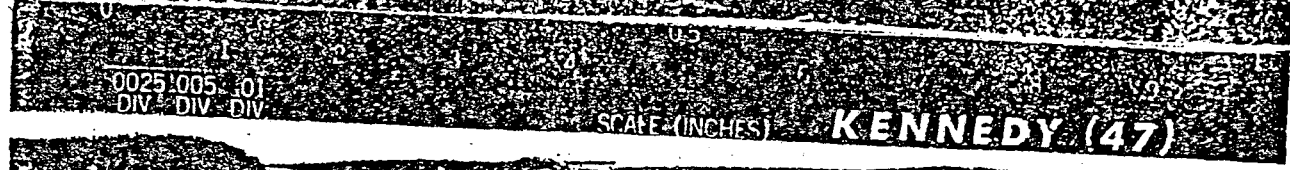
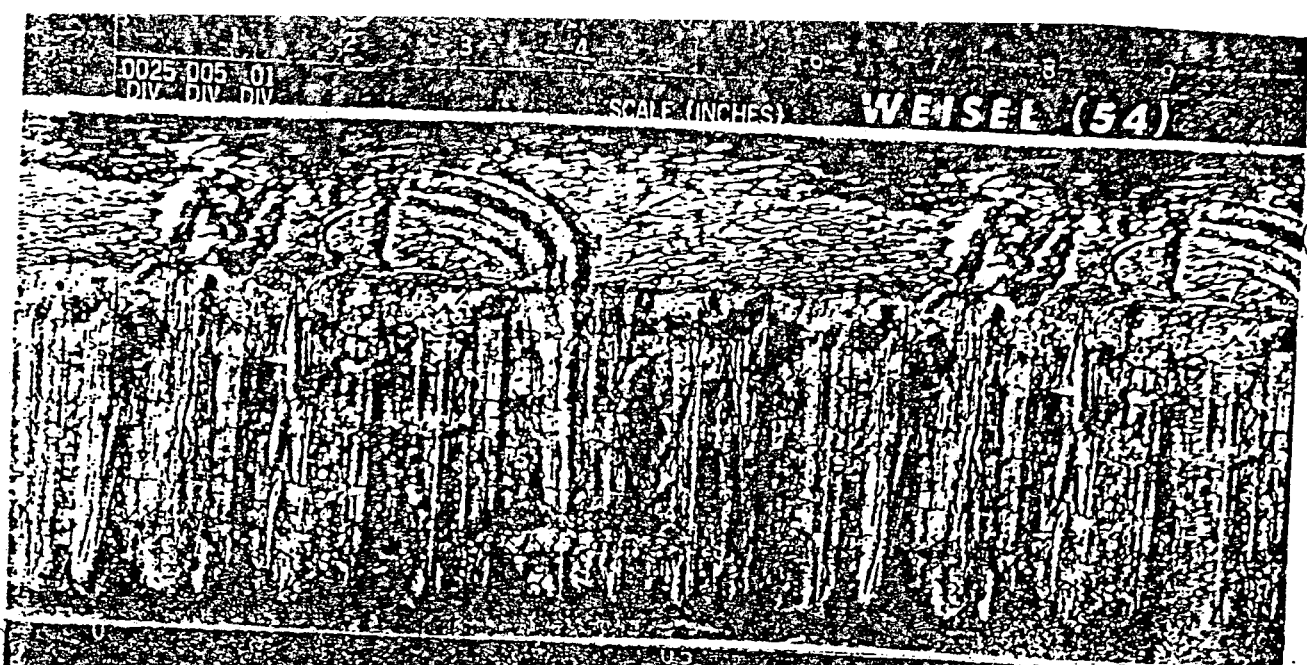
- Q - ... from your comparison of the two bullets were you able to form any opinion as to the bullet 5-A? (the Kennedy sixth cervical vertebrae bullet)
- A - I was
- Q - What is that opinion?
- A - That the bullet in People's 5-A here, marked the bullet from Robert Kennedy was fired in the exhibit, the revolver here, People's Exhibit Number 7 at some time. Yes, it was fired in the weapon.
- Q - Any question about that?
- A - No. (GJ p. 257)

Only one victim bullet, Exhibit 5-A, was introduced at the Grand Jury, but four test bullets, Exhibit 5-B, were submitted to support Wolfer's match of the Sirhan gun. Although three other test bullets, designated exhibit 55, were entered at the trial (N), Wolfer's testimony on identifications was the same. At the trial he also testified that

exhibit 54, the bullet taken from victim Weisel, and exhibit 52, the bullet taken from victim Goldstein, had likewise been fired from Sirhan's gun. No attempt was made to challenge any of these conclusions.

A year and a half after the trial, however, they began to be challenged. Late in 1970, in the course of their legal appeals, Sirhan's attorneys approached Pasadena criminalist William W. Harper and asked him to examine some of the bullet evidence in the case. Questions had previously been raised concerning distances and the number of bullets fired, and those questions suggested that a fresh bullet examination would also be in order. This was the beginning of Harper's involvement in the case, and the questions raised by his study became the chief basis for the renewed concerns which arose about firearms issues. Harper was cut off midway in his studies by the sudden unavailability of the bullet evidence, but bits of information about some of these questions continued to dribble out. Based on the information which gradually became available, Harper was joined in his questions and suspicions by other firearms experts as well. A thickening shroud of suspicions and doubts began to surround the firearms aspect of the case.

Harper's direct examination of the bullets took place during several trips to the county clerk's office as a "representative and expert witness" (8/27/70) of Sirhan's defense. During these trips he was able to examine the Sirhan weapon, bullets, and shell cases. He was able to weigh the bullets (no record of weights had ever been made by Wolfer) and he was also permitted to make several circumferential photographs of key



Ballistic camera photographs taken by Forensic Scientist William Harper of the Weisel bullet (Exhibit 54); the Kennedy bullet (Exhibit 47); and the test bullet (Exhibit 55). THE INITIALS OF POLICE CRIMINALIST W. HARPER

90

bullets by means of a "balliscan" camera.

During the same period Harper also obtained copies of nine official reports which were filed by Wolfer during the Kennedy case. This was a surprisingly small number in a case of such importance, and the reports, themselves, proved only to be summaries of general conclusions, with no background of evidence, notes, or other substantiation. (N) Based on Wolfer's testimony and reports and on the time he was allowed to examine the original exhibits, Harper arrived at a number of conclusions which contradicted those of Wolfer.

Wolfer had testified that a number of the more damaged bullets were demonstrably "mini-mags", a brand name used to designate a particular type of bullet manufactured by Cascade. Harper did not believe that such a determination was possible. Wolfer had testified that three victim bullets could be identified as having been fired from Sirhan's gun. Although he had not yet conducted comparison microscope examinations when his access to the evidence was barred, Harper saw no convincing evidence that this was so. He also had doubts, on the basis of rifling angle differences and other factors, as to whether the Weisel and Kennedy bullets had even been fired from the same gun. Wolfer discerned indications of "rifling specifications" on the Kennedy bullet and the Schrade bullet, and these, Harper concluded, could not be found. But the simplest discrepancy discovered by Harper was one which, though obvious, had not been noticed by either the judge, the prosecution, or the defense at Sirhan's trial. Wolfer testified at the trial that the test bullets he was presenting could be positively identified with the Weisel, Goldstein, and non-fatal Kennedy bullets. Yet while the number

Ch VII - 747

15

LOS ANGELES POLICE DEPT.
CRIME LAB TEST SHOT

NAME Sirhan, S. B. DATE 6-6-68

ADDRESS _____

MAKE I. J. CAL. 22 TYPE Rev.

NO. H18602 DR. 68-521466

CRIME 187 P.C. OFFICER _____

H-18602 - CADET MODEL

71656

The evidence envelope in which three test bullets fired by DeWayne Wolfer were submitted to the court. According to the notations shown, the gun used in the test firing was Iver Johnson Cadet revolver number H13602.

①

Ch.

⑤7

of Sirhan's gun was H53725, the serial number printed on the test bullet envelope was H18602. The official evidence on record at the trial was that the only gun that could be positively linked with the shooting of Robert Kennedy was a gun other than Sirhan Sirhan's.

In fact, a gun with the serial number H18602 had been used in tests relating to the case, and the discrepancy, when reported, was dismissed as a simple "clerical error." This was certainly a plausible explanation, and one which Harper and others might normally have been glad to accept. But the authorities were strangely reluctant to substantiate this claim, and when substantiating evidence was sought, in the form of a test-firing of gun H18602, the authorities reported that the gun had been destroyed. When a test firing of the gun H53725 was requested, the authorities adamantly opposed it for 4½ years.

H18602, like Sirhan's gun, was an Iver Johnsons Cadet model .22 caliber revolver. According to Wolfer's reports, it was used both for muzzle distance tests on June 11, 1968 and for sound level tests at the Ambassador on June 20. Yet the peculiarities surrounding the reporting of its use were considerable. The first peculiarity was that a different gun than Sirhan's had been used for such tests at all, since the effects of Sirhan's gun were the ones being simulated. The reply was given that Sirhan's gun had already been booked in evidence, but this explained little since it could easily have been obtained by court order.

ChVII 7/28

A. 110

112570 1810

CCS 1410

N CII 503 OCS

SO SAN ANA

ATTN SGT ADELSPERGER/ID SGT

11-25-70 1203 PST

REUR 68 CCS DATE

EUR FILES REVEAL A .22 CAL IVER JOHNSON SERIAL H13602 REPORTED
DESTROYED 7-00-68 BY PD LOS ANGELES CR 67 021065
NO WANTS

CII PROPERTY IDENT UNIT MC GILLIVARY AM/RM

30

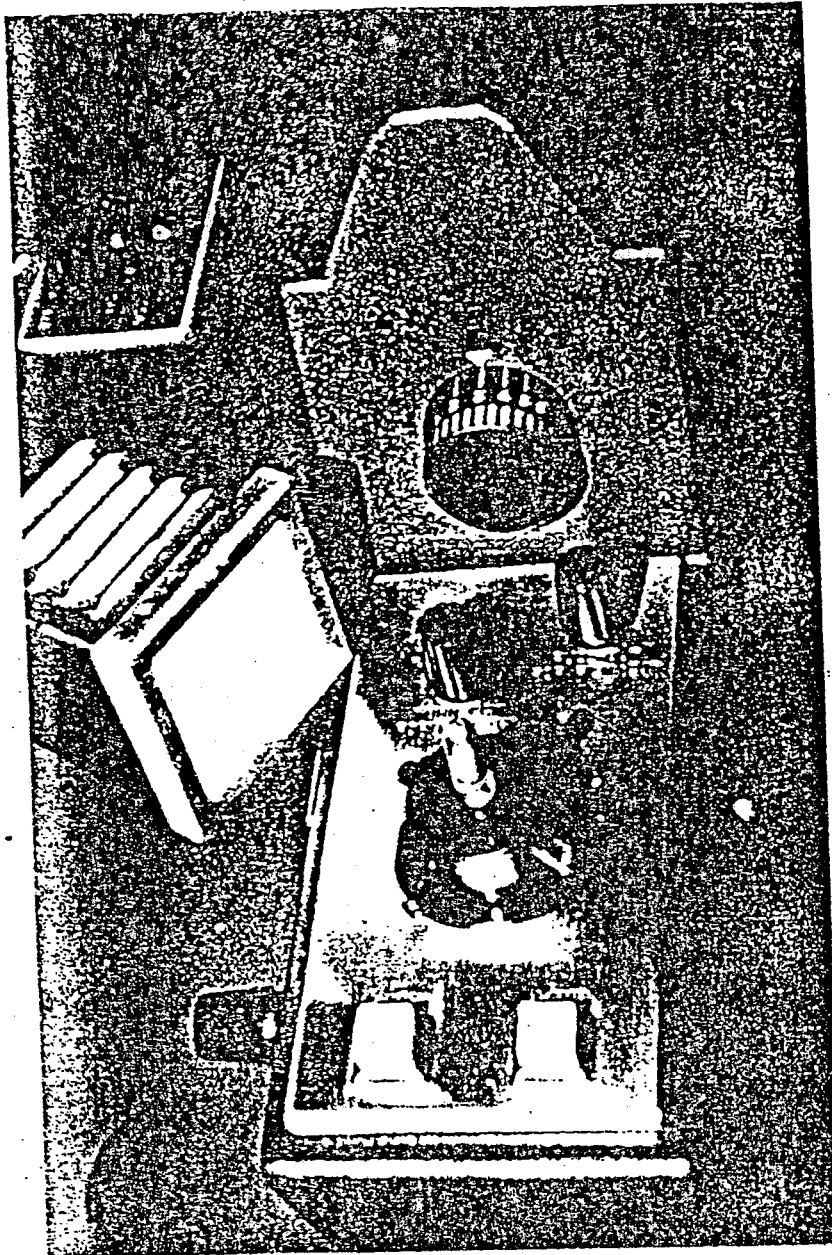
7-657

Police teletype report stating that revolver
number H13602 was destroyed in July, 1968. In 1971
it was claimed by police that the gun was not actually
destroyed until a year later.

2

Chief of Detective Robert Houghton naturally assumed that it had been, for example, and wrote, in Special Unit Senator, that when the sound level tests were conducted "Sirhan's gun was fired." (H-118) The same assumption was also made by chief Sirhan prosecutor David Fitts, who informed the jury that the gun used for muzzle distance tests was "the Iver Johnson which was recovered from this defendant." (N-3029) Fitts' error was later contradicted in the testimony of Wolfer, but not without the addition of a new piece of misinformation. The gun he had used, Wolfer said, although not Sirhan's was a gun of "the exact make and model and within a very close serial number." (4181) Questioned about this gun later, Wolfer reiterated that it was "the same model and make, the same everything." (4201) Moreover, he also stated in his testimony that "the revolver is still available." If the gun used by Wolfer on June 11 had "a very close serial number" to Sirhan's it could hardly have been H18602, a gun which had been manufactured 35,000 weapons before the Sirhan gun. And although Wolfer claimed that the gun was "still available" an official police record clearly stated that it had been destroyed by the LAPD in July, 1968, seven months before that claim was made. In 1971, the record was "corrected" to show that the gun had been destroyed not in July of 1968, but in July of 1969. Yet the destruction of a gun used for such tests would have been highly improper even in 1969, since the Sirhan case was still on appeal. Another apparent clerical error. As with the first "clerical error," moreover, no documentation or proof was provided to substantiate the new claim.

A third apparent clerical error also added to the confusion surrounding firearms aspects of the case. At 8:40 a.m. on the morning of June 6, near the end of the Kennedy autopsy, Dr. Thomas Noguchi extracted



37

7 m 7.5

11

37. Hycon Balliscan Camera used by forensic scientist William Harper, Pasadena, California, in photographing the bullet extracted from Senator Kennedy's neck (Exhibit 47); William Weisel's abdomen (Exhibit 54); and Dr. Wayne Wolfer's test bullet (Exhibit 55).

5.9

the bullet lodged in the neck near the sixth cervical vertebrae. He examined the bullet, marked his initials on its base, placed it in an envelope which he labelled, and handed it to police Sergeant William Jordan, who returned it to central property. Though all the bullets fired from Sirhan's gun had six grooves, however, the notation on the envelope said "five grooves." This could easily have been an error, as Dr. Noguchi has freely admitted, and under the circumstances, in the midst of a complicated autopsy procedure, it would have been understandable. Later, however, this envelope was received by Wolfer and the bullet it contained studied at greater length. Yet not only did Wolfer not make any record of the number of grooves on any of the bullets, and not only did he not correct the "5 groove" notation of Dr. Noguchi, but he added his initials to the ~~same~~ envelope before it passed on into records.

However plausible any of the claims of "clerical errors" might have been, such a profusion of carelessness and poor record keeping hardly inspires confidence in the most important murder investigation ever conducted in Los Angeles, nor does it make the case any easier to evaluate. But the errors Harper was concerned about were not limited to clerical ones, and until convincing answers were forthcoming, doubts about discrepancies would persist.

Wolfer had possession of the Sirhan revolver for only 48 hours, and it was during this time that any test-firing of the gun must have taken place. Strangely, however, in the work log which became available several years later, many minor matters were recorded but not notation was made of any test-firing of the gun. In view of the other activities during the period which the work log did list, when such a firing might have occurred remains unclear. In his Grand Jury testimony, moreover, rather than clarifying this process, Wolfer dealt with the whole procedure

68-5731

CASE #.....

NAME Robert Kennedy.....

CONTENTS bullet.....

DATE JUN 6 - 1968 TIME 8:40 am.....

SIGNED The bullet (22 CAL Bullet

Lubricate coating) is used

1-1 5 grooves (barrel) with

(2) 22 Cal Long

at a range of 200 yards

*This bullet is
the one that
Thomas Noguchi*



oll

Envelope in which Dr. Thomas Noguchi placed a bullet he had extracted from Robert Kennedy's neck during the autopsy. The envelope contains the notation "5 grooves" and is signed by Noguchi and initialed by Wolfer.

For file

5.10

5.11

hypothetically, casting no light at all on how the test was performed.

If the recording of the test-firings is confusing, however, still more confusion exists with respect to the microscopic comparisons which Wolfer said he had made. The only victim bullet which Wolfer testified about at the Grand Jury was the one recovered from Kennedy, but, as with the test firings, no record exists in the work log that this comparison was ever made. Of the seven bullets recovered from victims, Wolfer noted that four of them were "too badly damaged for comparison purposes," a judgement later confirmed by experts who studied them in subsequent years. Yet his log states that he received the Kennedy bullet on 3:15 p.m. on June 6, and explicitly records what is described as "comparison of Kennedy and Goldstein bullets" between 9:00 and 1:00 that night. A "microscopic examination of Goldstein and Stroll bullets" had likewise taken place earlier in the day. When then were the test shots compared, and why does no mention of these comparisons, or even of the existence of the test shots, exist?

When questioned later about his bullet examinations, Wolfer stated that he compared each of his test bullets with each of the evidence bullets with which identification was sought.¹ A very time-consuming process. Yet according to Chief Houghton, by June 9, 1968, at the time of the first Special Unit Senator meeting, Wolfer had completed identifications not only of the Kennedy bullet, but of the Weisel and Goldstein bullets as well, and had drawn his key conclusions concerning the Evans, Schrade, and fatal Kennedy bullets. (N) When Wolfer found time to perform these examinations was a mystery even before the



Police photograph of a revolver used in the Sirhan case, possibly H13502. The ammunition shown is the same as was fired by Sirhan in the Ambassador pantry.

release of his work log, and the new information it provides does little to elucidate the situation. No mention is made of the Weisel, Schrade, or Evans bullets, either specifically or in general terms, and according to the work log the fatal Kennedy bullet, which Wolfer claimed to have studied before June 9, was not even "received" by him until June 13. According to his later account, Wolfer retained three test bullets after his Grand Jury testimony. Yet he also reported (B-105) that these were stored in his desk drawer between the Grand Jury and trial, suggesting that they were never taken out. This implication is supported by the fact that no record appears in the official work log of any later comparisons of these bullets prior to June 19. Without such later comparisons, however, Wolfer would have had to complete all his bullet studies prior to the Grand Jury, a herculean task. (The task would have been further complicated since Wolfer had placed no "phase marks" on the bullets, markings which enable them to be lined up more easily and quickly for comparison purposes.) Astonishing as this is, it corresponds well with the explanation of his examination given by Wolfer when questioned about it later.

Q - How long a time did you have to examine the bullets?

A - Well, I had the gun and the bullets for -- I would say I had one day to examine them.

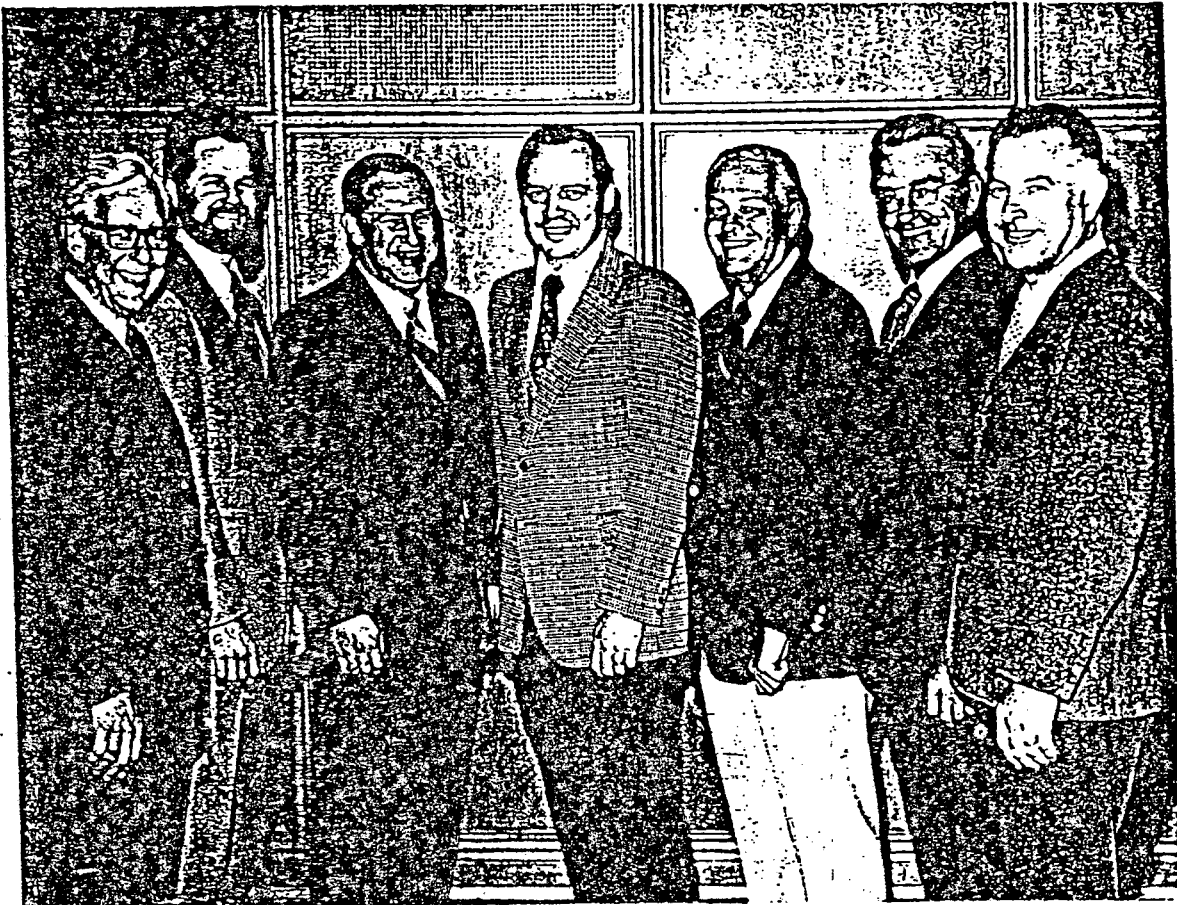
Q - 24 hours?

A - Yes, I was working on other things... But I examined them on one day prior to -- as I recall -- the Grand Jury hearing. (Blehr, 102)

This period of these early examinations is critical, and the work log casts other confusion on it as well. Wolfer testified in 1971 that the gun H18602 was obtained from the Property Section of the Los Angeles Police on June 10, 1968, a date which his attorney confirmed. Yet on

2

The seven court-appointed criminalists who conducted the re-examination of firearms evidence from the Kennedy case in September and October of 1975. From left to right: Turner, Merton, Berg, Garland, Cunningham, Bradford, Biasotti.



B

5.12
5

June 8, 1968, according to Wolfer's work log, he ran "chronographs on mini-mag ammunition," with a "2 inch Iver Johnson." Since the Sirhan gun had been submitted in evidence on June 7, this gun could not have been Sirhan's, and since H18602 was not received until June 10, it could not have been that gun either. Yet no record exists either of the identity of the June 8 gun or of the nature or results of the tests it was used for. The question further arises as to why, if an Iver Johnson pistol had been procured by June 8, a new one had to be obtained on June 10. Or is this another "clerical error?"

To add to the doubts, there is also the matter of the ammunition used in the test-firings. For absolute accuracy, it would be important that Wolfer obtain bullets very similar to Sirhan's and at the trial he testified that he did:

Q - ...what did you do in choosing ammunition for these test shots?

A - I took the batch number, and, further, having information of where the ammunition was purchased from, went to the location and purchased an additional batch number of this ammunition for the purpose of these test firings.

Q - Did you purchase the ammunition from the Lock, Stock 'N Barrel?

A - That is correct, in San Gabriel.

Since the test shots fired with Sirhan's gun must have been completed before June 7 when the gun was turned in, the effect of this sworn testimony is that the visit to Lock, Stock 'N Barrel was on or before June 7. Yet Wolfer's schedule was apparently quite full on the fifth and sixth with other activities, and, as listed in his report, the only date he visited the gun store and purchased bullets was Monday, June 10, at 11:45 a.m.

How could bullets have been fired before June 7 which were not

purchased until June 10? Where is the receipt for Wolfer's purchase made before June 7? Why is there no entry in the records for this previous visit? And why, if he had been there less than a week before and purchased bullets of the same batch as Sirhan's, did Wolfer return to the Lock, Stock 'N Barrel again on June 10 "for ammunition?" (N-drive) The recorded gun shop visit was well after he claimed to have test-fired the Sirhan gun, at a time, in fact when that gun was no longer even in his possession. He did, however, on the very same day, come into possession of gun H18602.

As mentioned above, spectrographic tests were said to have been performed during this general period, but no records of them were preserved. No account was ever made of the specific test bullets with which each of Wolfer's identifications was made, although such a procedure would not only be routine, but by narrowing the number of bullet comparisons required would have saved time as well. In view of the fact that many of the recovered bullets were badly damaged, Cornner Noguchi suggested the use of a neutron activation test, a more sophisticated and precise version of the spectrograph, to enable a possible determination of a common batch origin of the bullets at issue. This test, however, was opposed by Wolfer, and although repeatedly requested in the years since that time, it has never been made. Of the tests which were performed, such as sound tests, muzzle distance tests, x-ray examinations, chronograph tests, and bullet comparisons, no records or documentation whatever were kept in the files of DeWayne Wolfer.

At one point three years later, Wolfer was asked about instructions

he might have received with respect to the Sirhan gun.

A - Well, Counsel, undoubtedly I was given instructions. I have no qualms about what the instructions were. I would not know.

Q - Do you recall?

A - I would assume in a case of this nature that the instructions were to be extremely careful with the evidence. (Blehr, 98.)

If such instructions were ever transmitted, it appears that they fell on deaf ears.

Wolfer's Grand Jury testimony was brief and to the point, if not always precise. Exhibit 5-A, the bullet recovered from Kennedy's neck, had been put into evidence. Asked about the date when he had received the Sirhan gun, Wolfer first said he had seen it on June 6, but then changed the date to June 5. Asked about how bullet comparisons are conducted, he gave a general, though hypothetical, description of test firing and microscopic comparison. The imperfections in the barrel of a gun, he said, "produce in the bullet a series of valleys and ridges which we call striation marks." If in comparing a test bullet and an evidence bullet "we can line up a majority of the lines, we can say it was fired from this revolver and no other." (255) He told the jurors that he had "some of the test shots" with him, and these were entered in evidence as exhibit 5-B. Then he was asked about the significance of the test shots.

Q - Do they have markings on them that are readable, so to speak?

A - These markings do have -- these bullets do have markings on them, yes.

Q - They were fired -- that gun (Sirhan's) was fired in the water tank to get these slugs?

A - That's correct.

Q - Did you compare the markings on the test slugs in 5-B with the questioned bullet, 5-A?

A - I did.

- Q - And from your comparison of the two bullets, were you able to form any opinion as to the bullet 5-A?
 A - I was. (emphasis added)

The opinion, quoted above, was that Sirhan's gun had fired the bullet removed during the autopsy of Robert Kennedy.

From this testimony, there can be no doubt that the jurors were left with the impression that the test bullets had come from Sirhan's gun. It is also clear that Wolfer stated that he had compared the markings on these four test bullets with those on the questioned bullet 5-A and that this was the basis of his conclusion of a match. However, in a deposition taken by attorney Blehr in September, 1971, Wolfer testified in a very different vein:

Q - What did you mark the bullets with? Did you mark them in any way, the bullets that went to the Grand Jury?

A - I put my initials on them, yes.

Q - Which one of the four did you identify as the matching bullet taken from the victim?

A - I did not identify any of those four. I said these were bullets that were used. But actually one of the three bullets that I took - the better bullets -- would be the better matching bullets. (Blehr, 100)

Mrs. Blehr was hardly satisfied with this answer.

Q - ... Well, you testified in the Grand Jury proceedings that the bullets that were contained -- the four bullets that were contained in the envelope, whatever designation it had, matched the bullets taken from the victim; is that correct?

A - The Kennedy?

Q - Yes.

A - No, I believe that my statements in the Grand Jury were that the four bullets that were used, were used in this comparison, ~~but I never~~ said that I made any positive identification with those four bullets. There were points of identification with three better bullets that had more points. They were used for my identification. (emphasis added.) (Blehr, 100)

Why then when three "better" bullets existed were four inferior ones entered at the Grand Jury? Wolfer had explicitly testified at that time that he had compared the test slugs in 5-B with the questioned Kennedy bullet. Yet the more Wolfer was questioned, the more inexplicable this exercise came to appear.

Q - ... but you did not tie up the so-called Sirhan gun with the bullets taken from the victim in that Grand Jury?

A - Yes, I said they were used in the comparison, but the three better bullets were kept for me. In other words, in comparison that you have no bullets that are better than the others (?) The four that were introduced in the Grand Jury were poor bullets, and there were no points of identification, but the ones, the three that I kept, had more points than any of those.....

Q - Did you run all seven bullets through the comparison microscope?

A - Yes, I believe I did.

If the bullets which were submitted as evidence to support Sirhan's indictment had "no points of identification," they were, presumably, totally useless. If, moreover, in comparison, "you have no bullets that are better than the others," then the other three bullets should have been useless also. Yet, Wolfer also stated that his three remaining bullets had "more points than any of those," meaning, apparently, more points than zero, or at least one. As with numerous other cases, the logical confusion evident in the phrasing of Wolfer's testimony adds immeasurably to the problem of divining its meaning.

Asked at the Grand Jury if the 5-B bullets had "markings on them that are readable," Wolfer replied affirmatively. Asked if he had compared the 5-B bullets with the 5-A one, he said "I did." No mention was made that although there were "readable" markings there were also "no points of identification." No mention was made that although the 5-B bullets were compared others "were used for my identification." Not

a hint was provided to the Grand Jurors that the evidence being solemnly presented before them would later be labelled as worthless, or that the expert who swore under oath that they were the basis of a scientific identification would later casually disown any such interpretation. Such are the mysteries and irregularities in the official evaluation of this evidence.

After retruning from the Grand Jury, Wolfer said, he locked the three remaining test bullets in his desk drawer.

Q - Is it your general practice to store evidence in your desk drawer?

A - No

Q - Where did you generally put it?

A - In the evidence files.

Q - Why didn't you put it there?

A - Because I locked it in my desk drawer. It is not a normal lock. It is a -- because of the nature of the evidence, I locked it up there. (Blehr, 110.)

The bullets thus located were not labelled at the time, according to Wolfer, because there was no reason to do so. "I could see no reason that I had to write out an envelope," he said, although one reason might have been to avoid the kind of "clerical error" he was simultaneously claiming had occurred. And although he conceded that he generally stored evidence "in the evidence files," he asserted concurrently that storage in his desk was "normal."

The use of this desk may also have been responsible for the disappearance of the spectrographic results.

Q - Do you have those spectrograms?

A - I want to say yes, but I wouldn't say for sure because I have moved my desk two or three times and those spectrographs -- well, they either could be attached to the reports or they could be under things in my desk, or they could be in the spectrograph room, or they might have been destroyed...

Q - Why would they have been destroyed?

A - Well, in moving my desk on three occasions, it is possible that since there wasn't any questions about them, and the case was over, they were never used in court evidence, that possibly I destroyed them. (Blehr, 149)

In view of the vagueness of memory which Wolfer later showed when questioned about the case, it might have been advisable for him to have maintained his records more carefully and to have kept them elsewhere than in his desk. No count or description was ever made of the identifying points between the bullets at issue, either the victim bullets, the exhibit 5-B bullets, or the exhibit 55 bullets. No photomicrographs were introduced at the Grand Jury or trial to support his identifications, although photographs were employed in an unconvincing attempt to prove that the fatal bullet must have been a mini-mag. Wolfer said he fired eight test bullets through the Sirhan gun, and yet he also testified that every time a gun is fired its identifying characteristics are altered, thereby reducing the possibility of positive identification. Were this the case, however, and if, as seems unlikely, eight test shots were necessary, each test shot should have been given a number so that the last bullet recovered could be checked against the first bullet. This is good practice in any case but no record exists that it was ever done.

When, in 1971, access to the original evidence was cut off, the uncertainty of the case was compounded, and only the ballistics shots taken at that point by Harper were available. Based on these black-and-white photographs it appeared that bullet #47 had only one cannellure while others taken into evidence had two. This question was investigated by Professor Herbert MacDonnel, a firearms expert from New York,

who ascertained that Cascade Cartridges had never manufactured a 1-cannelure .22 long rifle bullet. Since all of Sirhan's bullets had been manufactured by Cascade, the discrepancy, in MacDonnel's opinion, constituted strong evidence of a second gun. Wolfer was silent on this question, however, and had kept no known records on the presence or absence of cannellures. Meanwhile, in spite of the fact that MacDonnel and other firearms experts had joined Harper in his doubts, access to the actual bullets continued to be barred.

As the facts surrounding the official investigation became more widely known, and as satisfactory answers continued to be withheld, momentum grew to reopen the case. Its growth, however, was erratic and unsteady. In 1971, all access to the bullets was cut off. Barbara Warner Blehr succeeded in obtaining some useful information in 1971, but important records and documents remained unavailable. (N) Although demands for retesting increased in 1971, they were successfully weathered by the authorities, and the issue entered a period of dormancy. After the election of Evelle Younger as state Attorney General in 1970 Joseph P. Busch, an Assistant D.A., had been appointed to replace him, and Busch continued the policy of stonewalling questions about the assassination. In 1972, Busch was challenged in the election by Vincent T. Bugliosi, who had already expressed concerns about questions relating to the Kennedy case. Busch was elected by a margin of less than 1% of the vote.

Meanwhile, however, available information continued to be sifted and studied, and nothing that was learned erased the questioners' doubts. In 1973, The Second Gun, a film in which many of these questions were aired, was released, and was favorably reviewed in a number of quarters.

THURSDAY MORNING - FEBRUARY 20, 1975

"THE SECOND GUN"

BALLROOM B

9:00 a.m. Showing of "The Second Gun" - a documentary film
on the assassination of Robert F. Kennedy.

10:40 a.m. Break

10:50 a.m. PANEL DISCUSSION

Chairman: CYRIL H. WECHT, M.D., J.D.
Coroner, Allegheny County
Pittsburgh, Pennsylvania

Panel: LOWELL W. BRADFORD
Consultant in Physical Evidence
San Jose, California ✓

MCCARTHY DeMERE, M.D., J.D.
Chairman, Medicine & Law Section
American Bar Association
Chicago, Illinois

VINCENT P. GUINN, Ph.D.
Professor of Chemistry
University of California
Irvine, California

GODFREY ISAAC, J.D.
Attorney
Beverly Hills, California

HERBERT L. MacDONELL
Ballistics Expert, Director ✓
Laboratory of Forensic Science
Corning, New York

THOMAS T. NOGUCHI, M.D.
Medical Examiner/Coroner
Los Angeles County
Los Angeles, California

SEYMOUR POLLACK, M.D., Director
University of Southern California
Institute for Psychiatry and Law
Los Angeles, California

B. EDWARD WHITTAKER, JR. ✓
Supervisor
Dade County Crime Laboratory
Miami, Florida

Program on the Robert Kennedy case at the
twenty-seventh annual meeting of the American
Academy of Forensic Sciences.

In 1974, a hearing was held by Los Angeles Supervisor Baxter Ward, at which Mac Donnel, Noguchi, and others testified. In preparation for this hearing, Ward succeeded, for the first time since 1970, in gaining limited access to the original bullets, and new sets of balliscan photographs were taken. These matched very closely the photographs of William Harper. This was especially significant since official spokesmen had claimed that the bullets might have deteriorated somehow in storage, yet no deterioration was evident between November 1970 and April, 1974. Following his hearing Ward proposed a full-scale re-examination of this evidence, but his motion to this effect failed by a margin of 3-2.

In December of 1974 Paul Schrade and one of the authors held press conferences calling for five separate measures to resolve the assassination controversy, two of which dealt with its firearms identification aspects. "We offer no answers today," the public statement said, "only questions. Nor have we any prejudice or preconception about what may ultimately be found to be the whole truth about the assassination of Senator Kennedy. In short, facts must be determined free of any dogged precommitment to any theory." The official response in Los Angeles, however, was not encouraging.

In February, 1974, the assassination issue received considerable attention at the annual convention of the American Academy of Forensic Sciences in Chicago, and a panel discussion was held which focused primarily on firearms identification questions. The following month, as controversy in Los Angeles and elsewhere continued slowly to rise, a Presidential Committee of the Academy was appointed to examine the matter. It was charged "to determine what, if any, questions surrounding (the) assassination are worthy of investigation, and to review any and

all statements which (the) committee may consider ambiguous, inaccurate, or unanswered as a result of improper criminalistics investigation...." The committee was provided with detailed information on the available record of the case and was directed to report back to the Executive Committee of the Academy with conclusions and recommendations.

This committee met in May and June and its final report was issued on July 2. "The Ad Hoc Committee," it concluded, "as a result of examination of numerous documents, transcripts of trial and grand jury testimony, believes that legitimate forensic questions in the Robert F. Kennedy case have been raised. The committee also feels that, given access to the original evidence, there is more than a reasonable possibility that these questions can be answered." The committee called for a "vigorous attempt" to answer the remaining questions in the Robert Kennedy case, "while the evidence is still apparently available," and issued specific suggestions for procedures for implementing such an effort. (N - See Appendix ____, "Report of Select Ad Hoc Presidential Investigative Committee.")

After consideration of these findings, the Executive Committee of the American Academy of Forensic Sciences released, on July 13, the following statement:

The Executive Committee of the American Academy of Forensic Sciences has reviewed a committee report related to the Robert F. Kennedy assassination, and concludes that a reexamination of the physical evidence in the case could provide additional information which could be of value in clarifying the circumstances of the death of Robert F. Kennedy. (N)

This statement, from a national, prestigious organization with expertise in the field at issue, gave the effort to review the evidence greater respectability than it had ever been accorded in the past and insured that the issue no longer could be ignored. In spite of continued resistance by the police and District Attorney's office, legal and other measures continued to gain momentum. On August 4, a suit was filed on behalf of Paul Schrade and CBS, requesting a review of evidence and a re-firing of the Sirhan weapon. On August 12, in a reversal of its previous position, the Los Angeles Board of Supervisors voted unanimously to seek a review of aspects of the case, and the Los Angeles City Council voted on August 20 by a margin of 11-1 in support of making public files and other items of physical evidence. On August 14, 1975, Judge Robert Wenke, presiding Judge of the Los Angeles Superior Court ordered an examination of bullet evidence in the case, advising counsel for the parties to the proceeding to meet and arrive at mutually acceptable procedure for the testing. The decision was widely reported and even hailed.

Six parties were continuously involved in the proceedings. The two initiating parties, CBS and Schrade, were both seeking additional information about the assassination. Sirhan Sirhan was represented by counsel by virtue of his status as respondent in Paul Schrad's civil suit which had given rise to the proceedings. (H) Also represented were the District Attorney of Los Angeles, the California State Attorney General, and the Board of Supervisors of Los Angeles County. Criminalist DeWayne Wolfer was also represented fleetingly when an attempt was made on his behalf to prevent the examination from taking place. This motion was denied, however, and Wolfer's counsel retired from the proceedings.

Three weeks after Judge Wenke's order, a specific plan was approved for the testing and experts were appointed to conduct it. The identity of the examiners was agreed upon jointly by the six parties, with each party selecting one expert subject to the approval of the other five. The experts were:

Stanton Berg - A private firearms examiner from Minneapolis. (nominated on behalf of the Board of Supervisors.)

Alfred A. Biasotti - A criminalist at the California state Department of Justice. (nominated by the District Attorney's Office)

Lowell Bradford - A private forensic consultant from San Jose, California, formerly chief criminalist of Santa Clara County. (nominated by CBS)

Cortlandt Cunningham - An expert at the Federal Bureau of Investigation. (nominated by the Attorney General's Office)

Patrick Garland - A criminalist with the Bureau of Forensic Sciences in Virginia. (selected by the six other experts)

Charles V. Morton - A criminalist with the Institute of Forensic Sciences in Oakland, California, President Elect of the California Association of Criminalists. (nominated on behalf of Sirhan Sirhan)

Ralph Turner - A professor at Michigan State University. (nominated on behalf of Paul Schrade)

Following the order prescribing the manner of the retesting, the evidence at issue was reviewed at two special hearings and DeWayne Wolfer was called to testify. Several days later, the seven forensic experts assembled in Los Angeles and on September 23 the began their work. Although they were charged with testing and verifying the results of the earlier investigation, the experts soon encountered hin-

derences and limitations which would seriously restrict them in this task. These were themselves a legacy of the earlier investigation and of official practices which had been in effect since that time.

During the twelve days the experts were in session, there were 24 bullets which they examined, bullets from five different ostensible sources. The first seven were the bullets which were said to have been recovered from victims, reputedly seven of the eight bullets which Sirhan's gun could have fired. Two additional bullets, reported to have been recovered from Sirhan's car, made up a second group. (A third bullet, however, which was taken from Sirhan's pocket at the time of his apprehension (N) was inexplicably missing. This bullet would normally have been examined along with the two bullets taken from the car.) A third group of bullets consisted of four test shots purportedly fired from Sirhan's gun by DeWayne Wolfer, and booked into evidence as exhibit 5-B on June 7, 1968. Three other bullets, also test shots, comprised a fourth group, having been entered at the trial of Sirhan as Exhibit 55. Because, however, question had long existed as to the source of the Wolfer test shots, and also because these earlier shots were found to have deficiencies for comparison purposes, the experts fired Sirhan's gun eight times themselves to obtain new test bullets.

These five sets of bullets, from the car, the victims, the Grand Jury, the trial, and the new test firings, added to 24 bullets in all. (Three of the crime scene bullets were in fragments.) By comparing each of these bullets with each other, 266 separate comparisons would have been possible. The examinations which were key, however, were much fewer in number, and only 18 specific comparisons were performed by all seven experts.

A number of other items of evidence were also ordered released by Judge Wenke although the focus of the experts was almost exclusively on bullets. Senator Kennedy's coat, for example, was made available but no examination of it was performed. Photographs of the crime scene on the night of the shooting and afterwards were released for the first time, providing critical information on possible bullet flight paths. Yet flight path study was also outside the established purview of the panel. Wolfer's report of his work activities for the 15 days after the assassination was also released. Property and booking reports of the evidence at issue were provided as well, yet only partial reports were ever received. Among the items of evidence which were examined by the experts were the balliscan photographs of exhibits 47, 54, and 55 taken by Harper in 1970, and the similar balliscan photos taken by William Lystrup of the County Clerk's office in preparation for the 1974 hearings of Supervisor Ward.

A solitary photomicrograph from the bullet examinations of DeWayne Wolfer was also provided. Yet the history of this particular item was a curious one. In 1971, for example, Wolfer had denied that he had taken any photographs of the bullets although he said he had examined them:

Q - Did you run all seven bullets through the comparison microscope?

A - Yes, I believe I did...

Q - Did you photograph them?

A - No I did not photograph them...

Q - Just photograph the bullets in normal photography?

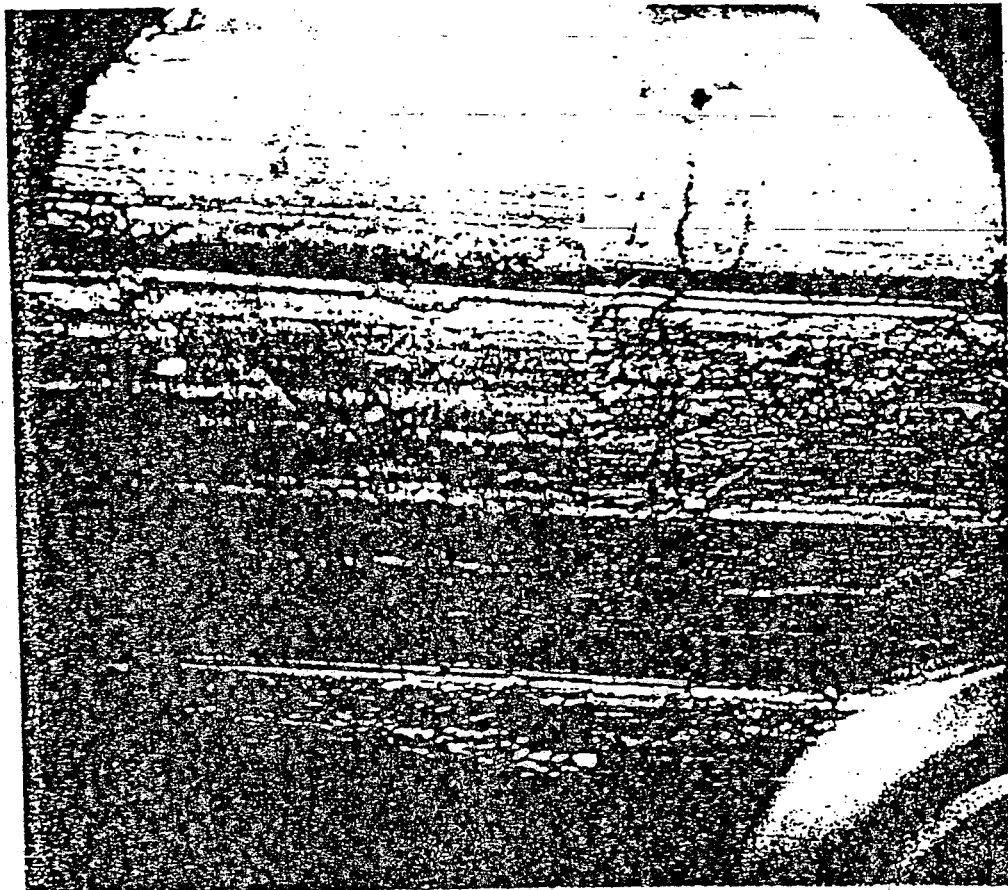
A - No, I did not, because I asked if they wanted photographs of the comparison of the bullets and everyone said no, they didn't care. (Blehr, 101-102.)

Five years later, however, a photomicrograph astonishingly emerged, although no identification was apparent on it. At a special hearing held on September 17, Wolfer was asked what the photomicrograph depicted,

ch VII

7.3

Figure 45



45

Fig. 4 Wolfer photomicrograph of exhibit 47 (Kennedy non-fatal) on left and exhibit 52 (Goldstein) on right. In September, 1975, Wolfer misidentified the bullet on the right as one of his test bullets.

12

51

as it was being booked into evidence for use by the forensic panel. (exact quote?) He replied that it showed a comparison between exhibit 47, the non-fatal Kennedy bullet, and one of his test bullets fired from the Sirhan gun. (Special Hearing, p. 55, lines 14 and 26.) It is reasonable to suppose that if only one bullet photomicrograph were taken in a case of international importance, even if it were forgotten three years later, that an identification of the bullets given under oath would be accurate. Yet according to the "Initial Joint Report" dated October 3 and signed by all seven firearms experts, "Special Hearing Exhibit 10, a photomicrograph depicting a bullet comparison, was found to be a comparison between PN 2 (Exhibit 47) and PN6 (Exhibit 52 - the Goldstein bullet)" What Wolfer had alleged to be one of his test bullets was in fact a bullet recovered from victim Goldstein. Yet since the key match to which Wolfer was testifying in court was the one to Sirhan's gun, why, if only one photomicrograph were to be taken, would it concern itself with a peripheral issue rather than a central one? How, in addition, could a man be capable of comparing bullets if unable, under questioning even to identify the bullets being compared? And why, finally, to conclude this curious affair, would a photomicrograph be taken which did not demonstrate a match in any case?

If the firearms examiners were forced to untangle this piece of inaccurate testimony on an apparently simple matter, they were hindered to a far greater degree by limitations imposed by inadequacies of the earlier investigation. Not only did these problems seriously restrict their potential ability to make clear findings on the critical questions at issue, but they also made it difficult or impossible to check Wolfer's prior work. Because only one bullet photomicrograph was available, definitive evidence was lacking on the issue of possible deterioration over

the last seven years, a cry which had been raised repeatedly by the authorities. (On the basis of the one photomicrograph available, they found that "It does not appear that PN 2 and PN6 have changed appreciably between June 6, 1968... and the present date.") When they fired Sirhan's gun, the panel took careful precautions to record the chamber through which each new test bullet had passed. Yet no such precaution was taken by Wolfer, and this information was not available to them either. The experts had carefully recorded the order in which each bullet was fired. As mentioned above, however, no such record was made by Wolfer, even though it would seem a routine precaution. The experts in 1975 took careful notes of their bullet examinations and would have benefitted from similar notes made earlier. But efforts which were made to locate original notes by Wolfer failed to turn any up. The spectrographic tests of the victims bullets which Wolfer reportedly conducted were also sought. All record of these as well, however, had likewise disappeared.

The absence of records was sufficiently disturbing, in fact, that it provoked criticism not only by attorneys for Sirhan and Paul Schrade but by Tom Kranz, the special counsel for the District Attorney's office. Remarking that "the only area where the reports are not complete is in the ballistic examination," Kranz said that the lack of reports by Wolfer raised doubts as to the substance of the evidence in the case." Although not a subject for the firearms examinations then underway, there were also no reports in existence of the ceiling panels and door frames from the pantry.

Had the gun H18602 been in existence at the time of the 1975 panel, it almost certainly would have been fired along with the Sirhan gun,

to determine if the three trial bullets might have come from it as the evidence label stated. As mentioned above, however, this gun was apparently destroyed in 1968 or 1969, although Sirhan's legal appeals were still then underway. Another avenue of investigation was thus blocked off.

Examinations of Wolfer's original test bullets revealed some problems as well. The test bullets were fired into a water tank specifically to preserve their rifling characteristics for comparison. This process was described by Wolfer in 1968 when he was asked to explain the function of a water recovery tank.

A - That is a tank that is approximately ten feet in length. It is imbedded in the floor of the Police Building, and into which, we fire into an eighteen-inch column of water for the purpose of recovering the expended projectile from the weapon and the water slows it down without any great damage to it and that allows us to have a good bullet for comparison purposes.

The test bullets which Wolfer recovered, however, were anything but "good bullets for comparison purposes." While none of the new test bullets were appreciably damaged, considerable apparent damage was attributed to each of the Wolfer test bullets, three of which were described by the experts as being "mushroomed," and the other four of which were given the notation of "nose crimped." If damage is measured by weight loss on impact, moreover, each Wolfer bullet weighed at least 1.9 grains less than the lightest of the new test bullets, and all but one of the Wolfer test bullets weighed at least 1.9 grains less than the lightest of the new recovered test bullets, and all but one of the Wolfer test bullets fired into a water tank weighed less after recovery than the two best of the seven bullets recovered from human bodies.

It appears, in fact, that these two bullets apparently shot at the crime scene (exhibits 47 and 54) were better suited to comparison purposes than bullets said to have been fired for that reason under scientific conditions by a police experts.

Of the seven test bullets submitted by Wolfer, the four from exhibit 5-B were clearly the worst. None of the seven experts, for example, could match any of the four Grand Jury test bullets conclusively with any other bullets, and no attempts were even made to match them with each other or with the new test bullets. Yet none of the exhibit 55 bullets either could be conclusively matched by any panelist either with each other or with the crime scene bullets or with the bullet from the Grand Jury exhibit.

All of the Wolfer test bullets were copper coated, a fact which was ~~clearly~~ accountable for some of the identification problems encountered. Because copper coating is particularly frangible and likely to strip away during the firing of a gun, bullets coated with copper are less capable of conclusive identification than bullets of lead, which preserve the rifling impressions of the gun bore more readily. Since all of the bullets recovered from victims had been copper coated, six copper coated bullets were fired by the panel in 1975. Two lead bullets, however, were also fired to obtain the sharpest possible bore impressions. The reported failure of Wolfer to fire any lead bullets was one more aspect of the insufficiency of the evidence to which the firearms panel was limited in 1975.

The re-firing of Sirhan's gun, the only public aspect of the re-testing, took place on September 26 and was followed by minute bullet examinations and comparisons. By October 3 and 4 two joint reports

were completed, detailing those findings about which all seven experts were in agreement. Each expert submitted individual reports as well, accompanied by a variety of work sheets from the individual bullet examinations. Because of their importance, and because of the nature of the media reaction which followed, these reports and their findings deserve careful examination.

On Tuesday, October 6, the courtroom was jammed with reporters and spectators. Judge Wenke took the bench promptly at 2:00 p.m., but the opening of the sealed material from the panel did not take place immediately. Various legal arguments and delays intervened and it was not until two hours had elapsed that the Comprehensive Joint Report was read. The interest focused on the release of the findings was substantial, particularly by the standards of past coverage of these issues. Yet in spite of the concentration of reporters and newsmen, there was rarely a commensurate appreciation of the complexity of the issues being addressed. As a result, the contribution of the firearms examination was largely negated by the manner in which it was reported and the exigencies of journalistic publicity disastrously blurred a situation which had finally begun to move toward clarity. Although the media competition with respect to speed was intense there was little similar competition with respect to accuracy. Following the accelerated release of the most cursory, and often careless summaries, the issue was largely abandoned, and the public was left with misinformation hastily generated by early, undigested accounts. Some major implications of the examiners' reports would not become apparent for days or weeks, but for most of the country the hasty initial reports of these findings were the only reports.

At 4:00 p.m. Judge Wenke opened the Comprehensive Joint Report and he was to read:

7 Experts Say RFK Slain by Single Firearm

BY JERRY BUCK

LOS ANGELES (AP) — Only one gun was used in the

Sirhan, a Palestinian, was convicted of the assassination and is serving a life-sentence at San Quentin Prison — his original death sentence having been voided by the U.S. Su-

pistol, contending that handling of the bullets and the would make any comparisons meaningless.

INVESTIGATIONS:

A Theory Disarmed

Who killed Robert F. Kennedy? Six and a half years ago, Sirhan B. Sirhan was convicted as the lone assassin, but doubters have long argued that a second gun—and a second gunman—may have been involved. After four years of wrangling, the proponents of that theory finally forced a court hearing in Los Angeles. But after ten days of tests—during which Sirhan's gun was refired—a panel of seven ballistics experts reported last week there was "no substantive or demonstrable evidence" to suggest that

Only One Gun

Seven experts have a theory that only one gun was used in the assassination of Sen. Robert F. Kennedy.

RFK second-gun theory ruled out

LOS ANGELES (UPI) — Seven of the most distinguished ballistics experts in the world have ruled out the possibility that a second handgun was used in the assassination of Sen. Robert F. Kennedy.

Experts Rule Out 2d Gun In Robert Kennedy Death

One Gun Killed Bobby: Experts

LOS ANGELES, Oct. 6 (UPI)—A panel of seven distinguished ballistics experts has unanimously ruled that only one handgun was used in the assassination of Sen. Robert F. Kennedy.

Los Angeles, Oct. 6 (UPI)—A panel of seven distinguished ballistics experts has unanimously ruled that only one handgun was used in the assassination of Sen. Robert F. Kennedy.

Panel: 1 Gun Used in RFK Slaying

No Second Gun in Kennedy Assassination, Panel Says

Experts Can't Find Any Evidence That More Than One Weapon Fired Bullets in Senator's Slaying

BY JOHN KENDALL
Times Staff Writer

and clothing that Kennedy was wearing was witnessed by a witness who testified that he was convicted of murder in 1968. His sentence was reduced to life in prison, which he is serving in San Quentin State Prison.

Combined News Services
Los Angeles—A panel of seven experts reported unanimously yesterday that they found no evidence that a second gun was fired in the 1968 assassination of Sen. Robert F. Kennedy.

The appointed panel's decision was read to a packed courtroom by Los Angeles County Superior Court Judge Robert A. Wenke, 13 days after the ballistics experts began their study. They said that working independently, they had arrived at the same conclusion after examining the bullets taken from the assassination scene and firing new bullets from the same gun.

Los Angeles, Oct. 6 (UPI)—A panel of seven distinguished ballistics experts has unanimously ruled that only one handgun was used in the assassination of Sen. Robert F. Kennedy.

Los Angeles, Oct. 6 (UPI)—A panel of seven distinguished ballistics experts has unanimously ruled that only one handgun was used in the assassination of Sen. Robert F. Kennedy.

The examiners working independently arrived at the same conclusions as follows:

1. There is no substantive or demonstrable evidence to indicate that more than one gun was used to fire any of the bullets examined....

This is as far as he got before signals began to fly around the courtroom. Why stay to hear any more? Newspaper men left their seats in the jury box, hurrying to send the word. Runners left hurriedly, and before the judge had finished reading the balance of the summary three page report a mass exodus of news representatives had occurred. ~~Outside the~~ courtroom, TV cameras were propped up in hallways to record the immediate reactions of principals in the case. By the time these same principals had been able to read the report, however, many of these cameras would long since have been gone. Meanwhile, the type was already being set to flash the authoritative headlines to the public: "Experts Rule Out Second Gun In Robert Kennedy Death," (NYT), "Seven Experts Say RFK Slain by Single Firearm" (BHA), "Panel: One Gun Used in RFK Slaying" (Newsday), "One Gun Killed Bobby: Experts." (Daily News) Each of these headlines was flatly incorrect but the avalanche of certitude which their simultaneous release created defined the atmosphere which would dominate public appreciation of this case in the coming months. Not one of the experts on the firearms panel had excluded the possibility of a second gun.

Also included in the Comprehensive Joint Report was the following finding: "It cannot be concluded that Exhibits 47 (the Kennedy non-fatal bullet, 52 (Goldstein bullet) and 54 (Weisel bullet) were fired from the Sirhan revolver." Had the news representatives heard this paragraph first, they might have considered more soberly the complexity of the issue they were reporting.

BULLET COMPARISONS ON WHICH CLEAR DISCREPANCIES EXISTED AMONG ONE OR MORE EXAMINERS

10/17

TOTAL

	TEST	ID-ID?-IC	BERG	BIA-SOTTI	BRAD-FORD	CUNNING-HAM	GAR-LAND	MOR-TON	TUR-NER
1.	2/6	3-1-3	ID	ID?	IC	ID	ID	IC	IC
2.	2/8	2-2-3	IC	ID?	ID	ID	ID	IC	IC
3.	6/8	3-2-2	ID	ID?	ID	ID	ID	IC	IC
4.	A/T7	1-0-6	IC	ID	IC	IC	IC	IC	IC
5.	B/T7	1-0-5	(IC)	ID	(IC)	(IC)	IC	(IC)	-
6.	C/T2	1-0-5	(ID)	IC	(IC)	(IC)	IC	-	IC
7.	C/T6	1-1-5	(ID)	ID?	(IC)	(IC)	IC	(IC)	IC
8.	T1/T2	1-1-5	ID	ID?	IC	IC	IC	IC	IC
9.	T2/T4	3-1-2-X	ID	ID?	IC	ID	N/A	ID	IC
10.	T2/T5	5-0-2	(ID)	ID	(IC)	(ID)	ID	ID	IC
11.	T2/T6	3-1-2-X	(ID)	ID?	(IC)	(ID)	ID	-	IC
12.	T2/T7	4-0-1	(ID)	ID	(IC)	(ID)	-	-	ID
13.	T2/T8	3-0-2	(ID)	ID	(IC)	(ID)	-	-	IC
14.	T5/T6	5-0-1	ID	ID	IC	ID	ID	ID	O
15.	T7/T8	6-0-1	ID	ID	IC	ID	ID	ID	ID
			12-0-3	7-7-1	0-2-13	10-0-5	7-0-5-X	4-0-7	2-0-11
			15	15	15	15	12	11	15

POSITIVE ID'S

BERG	12/15
CUNNINGHAM	10/15
* BIASOTTI	7/11
CARLAND	7/12
MORTON	11/15
* TURNER	2/15
* BRADFORD	0/15

If the firearms panel had concluded either that one or more of the bullets fired at the assassination scene could not have come from Sirhan's gun, or that the critical Kennedy bullet had, fundamental uncertainties of the case would have been eliminated. Since, however, neither of these conclusions could be made by any of the seven experts, the major questions at issue were left unresolved. The panelists did put to rest a number of smaller questions, however, as well as consolidating existing information and sharpening the focus with which further questions could be considered. Meanwhile, the findings intensified the doubts about the earlier investigation which had initially brought the panel into being.

Even when limited to the issues upon which all seven experts agreed, the findings which the panel was able to make were valuable and significant. Within the scope of the tests they had undertaken, for example, they agreed that a second gun possibility was neither sustained by the evidence nor precluded by it. Apart from the specific comparisons which were made among pairs of bullets, information was recorded concerning eleven separate facts about each bullet, (N) many of these dealing with basic "class characteristics." Among the bullets which were subject to testing for particular class characteristics, none were discovered which significantly at variance. Thus, for example, if different guns fired the Kennedy, Weisel, and Goldstein bullets guns with similar class characteristics and similar ammunition would probably have had to be used. Such a simple precaution would hardly be surprising in the planning of a sophisticated murder. Apart from the absence of conflicting class characteristics, however, there was little unanimity of findings in the bullet comparisons. Only a few of the bul-

WEIGHT OF EACH BULLET (OR BULLET FRAGMENT) AND NUMBER OF COMPARISONS PERFORMED ON EACH

	WEIGHT (GRAINS)	# COM- PARISONS		WEIGHT (GRAINS)	# COMPAR- ISONS
1	37.8	17	D	36.4	13
1A	36.5	18	E	34.8	12
2	37.4	58	F	35.0	12
(3	25.6	0	G	36.5	23
3A	0.3	0			
(4	2.6	0	T ₁	39.4	7
4A	8.7	0	T ₂	39.6	68
5	36.6	26	T ₃	39.6	12
6	37.2	41	T ₄	39.6	17
7	30.6	0	T ₅	39.6	25
8	37.4	38	T ₆	39.4	43
A	36.9	65	T ₇	39.6	45
B	37.5	50	T ₈	39.6	18
C	37.0	52			
		365			

lets, in fact, were in sufficiently good condition that useful observations could be made concerning individual characteristics at all.

Of the eight bullets reputed to have been fired in the pantry, one was completely unavailable. This was the bullet which was said to have travelled in and out of Kennedy's chest and which had officially been described as "lost in the ceiling interspace." Three of the others (the Evans, Schrade, and fatal Kennedy bullets - all of which were fragmented) were described by the experts as "of no value for classical comparison microscopy because of their physical condition resulting from impact..." (IJR, p. 2) Of the four remaining victim bullets, moreover, one, the Stroll bullet, was incapable of being matched with anything by any of the experts, although 20 different attempts were made. The findings obtained in comparisons with the other three bullets differed from expert to expert, yet none of the seven experts could duplicate the central finding of DeWayne Wolfer. His peripheral findings likewise, with few exceptions, could not be duplicated either.

As succinctly stated by the District Attorney's office in July of 1975, DeWayne Wolfer "unequivocally concluded that the bullets extracted from Kennedy, Weisel, and Goldstein, People's 47, 54 and 52 respectively, were fired from Sirhan's gun." Although in 1971 Wolfer attempted to disavow any such identification based on the four bullets submitted at the Grand Jury, he never wavered from this central, pivotal conclusion, which apart from eyewitness testimony that Sirhan was shooting was the only evidence directly establishing the defendant as the murderer. Wolfer testified to the Kennedy bullet match at the Grand Jury and to all three matches at the trial (p. 4160), and he

NUMBERING OF VARIOUS EXHIBITS
ENTERED INTO EVIDENCE.

EVIDENCE	DOORING NUMBER	GRAND JURY NUMBER	TRIAL NUMBER	PANEL NUMBER
2 SIRHAN CAR BULLETS	46	—	38	1, 1A
NON-FATAL KENNEDY BULLET	53	5-A	47	2
FATAL KENNEDY BULLET FRAGMENTS	26, 27	—	48	3, 3A
SCHRADE BULLET FRAGMENTS	57	—	50	4
TROLL BULLET	105	—	51	5
GOLDSTEIN BULLET	113	—	52	6
EVANS BULLET FRAGMENTS	45	—	53	7
WEISEL BULLET	56	—	54	8
3 WOLFER TEST SHOTS	—	—	55	A, B, C.
4 WOLFER TEST SHOTS	—	5-A	—	D, E, F, G.
SIRHAN GUN	11	7	6	—
SIRHAN GUN CARTRIDGES	12	—	—	—
				5, 33

reported the matches as well in his lab reports. In the report dated 7-15-68, for example, the following section appears:

The Iver Johnson, Cadet Model .22 caliber revolver #53725 (taken from Sirhan) had been identified as having fired the following bullets:

1. The bullet from Senator Kennedy's 6th cervical vertebrae.
2. The bullet removed from victim Goldstein.
3. The bullet removed from victim Weisel.

The doubts about these conclusions of William Harper and others led to the controversy about Wolfer's firearms procedures, and stimulated the demands for new testing. They were, in fact, the cornerstone of the prosecution's scientific evidence.

The joint and individual findings of the firearms panel, however, flatly failed to support these findings. "It cannot be concluded," they wrote, "that Exhibits 47, 52, and 54 were fired from the Sirhan revolver. The reasons for this are that there are insufficient corresponding individual characteristics to make an identification." (CJR, pp. 1,2. emphasis added.) The report of panel member Bradford was even more explicit: "The examination results contradict the original identification made at the trial of Sirhan B. Sirhan in that there is no basis for an identification of any of the victim bullets through the classical process of microscopically comparing them with test bullets..." (p. 4) The experts were unable to sustain Wolfer's most critical conclusion either on the basis of comparisons with Wolfer's seven copper coated test bullets, or by matching the three victim bullets with the copper and lead bullets which they had fired themselves.

Apparently the original bullet identifications, testified to under oath by the official police expert, were wrong. The only conceivable

escape from this finding is a claim that somehow the bullets had deteriorated in the intervening period, making unreachable in 1975 a comparison which was possible in 1968. It was this theory, in fact, energetically voiced, which was the chief basis for the objections which had been made by authorities to attempts to re-test the evidence at all. When the tests took place, however, the panel found that it had little substance. As stated in the "Initial Joint Report," a microscopic examination of PN's 1 (Ex. 38), 1a (Ex. 38), 2 (Ex. 47), 5 (Ex. 51), 6 (Ex. 52) and 8 (Ex. 54) and A through G (Ex. 55 and Grand Jury Ex. #5B) does not reveal any unusual amount of oxidation or deterioration of a nature which would substantially affect a classical microscope comparison examination." (p. 3) Moreover, on the basis of the single photomicrograph available the same report also concluded that "It does not appear that PN 2 (Ex. 47) and PN 6 (Ex. 52) have changed appreciably between June 6, 1968... and the present date." (p. 4) Not only were comparisons made between the Wolfer test bullets and the victim bullets, but every expert compared the victim bullets with the new test bullets as well. Yet even on the basis of the eight new bullets, no examiner could conclusively substantiate any of the three positive matches asserted "unequivocally" by DeWayne Wolfer.

If bullet deterioration did somehow occur, it was of a very peculiar kind. Seven test bullets were introduced by Wolfer to support his identification, and three victim bullets were found by Wolfer to be suitable for comparison purposes. If only one bullet from each group had remained in reasonable condition, a replication of at least one of Wolfer's matches would presumably have been possible. No such replication occurred. In fact, some members of the panel saw matches

among the better preserved of the victim bullets, a result which hardly suggested that these bullets had significantly deteriorated. Yet while copper coated bullets fired into human bodies were found to be capable of being matched, copper-coated bullets fired into a water tank were not. Of all of the expert discoveries, this was one of the most peculiar. Since there is no known reason why test fired bullets should deteriorate during storage while victim bullets would not, it is difficult to account for such a result unless the test bullets supposedly "good for comparison purposes" were, in fact, even at the beginning, not very good after all. Even so, with seven original test bullets, eight subsequent ones, and at least three victim bullets capable of serious comparison, 45 separate opportunities existed (7 - 8 - 15, 15 - 3 - 45) for each of the seven expert to make one conclusive identification between Sirhan's gun and bullets fired during the Ambassador Hotel shooting. No definitive match emerged. (N)

The panel was unable to sustain other Wolfer conclusions as well. While recognizing that the bullets other than the Weisel, Goldstein, and Kennedy non-fatal ones were "too badly damaged for comparison purposes" (7/15/68) Wolfer did draw a number of other conclusions about them, in attempting to link them with the bullets which were fired at the scene. At the trial, for example, Wolfer testified that not only the Kennedy fatal bullet, but the Evans and Schrade bullets as well were all demonstrably mini-mag ammunition (4160-4165). "(T)his," he said, "has all been studied to indicate the brand of ammunition by the color applied and the nature of the alloy, the copper applied, and so they (?) can say this is Mini-Mag ammunition." (4164) (N- 4165, 23-25) Since the time it was given, this testimony had been challenged by other firearms experts, and it could not be sustained by any of the examiners on the

01270



18A

Part of the recovered portion of the Kennedy fatal bullet. Photograph by William Harper.

12

5.37

1975 panel. In listing both the type and make of the bullets at issue, none of the seven panelists reported that these bullets were mini-mags. In contrast to Wolfer's claims about copper coating, moreover, none of these three bullets was listed in the Initial Joint Report among those which could be determined to be "the same with respect to... copper colored coating as .22 long rifle bullets manufactured by Cascade cartridges." In the findings of this report, "microscopic examinations" of these bullets and two others "were not indicative of the origin of manufacture because of their physical condition resulting from impact damage and/or contamination." "Mini-mag" is a trade name of one specific bullet manufacturer. If not even the manufacturer could be determined it was hardly possible to conclude that a bullet was mini-mag.

Wolfer testified also that some of these same bullets had rifling specifications, and that these were consistent with those in his test bullets. Thus they could be tentatively linked with Sirhan's gun. With respect to the fatal bullet, for example, Wolfer testified at the trial that it was "fired from the gun of the same ballistic rifling specification as that of People's No. 6, but because of the damage I cannot say positively that it was fired from that gun." (4161) (N) This conclusion was subsequently challenged, particularly by Harper, who could find no discernible rifling specifications at all on the fatal bullet, a bullet of which only two-thirds was recovered, and which was fragmented into six pieces. "Bullet fragments from Senator Kennedy's head," claimed a Special Unit Senator Progress Report dated July 18, 1968, "were fired from a weapon with the same rifling specifications as the Sirhan weapon." This claim was based on Wolfer's Employee's Report of three days before.

BULLET COMPARISONS ON WHICH CLEAR DISCREPANCIES EXISTED AMONG ONE OR MORE EXAMINER

TEST	BERG	BIASOTTI	BRADFORD	CUNNINGHAM	GARLAND	MORTON	TURNER	TOTAL ID-ID?-IC
1 2/6	ID	ID?	IC	ID	ID	IC	IC	3-1-3
2 2/8	IC	ID?	ID	ID	ID	IC	IC	2-2-3
3 6/8	ID	ID?	ID	ID	ID	IC	IC	3-2-2
4 A/T7	IC	ID	IC	IC	IC	IC	IC	1-0-6
5 B/T7	IC*	ID	IC*	IC*	IC	IC	—	1-0-5
6 C/T2	ID	IC	IC*	IC*	IC	—	IC	1-0-5
7 C/T6	ID	ID?	IC*	IC*	IC	IC	IC	1-1-5
8 T1/T2	ID	ID?	IC	IC	IC	IC	IC	1-1-5
9 T2/T4	ID	ID?	IC	ID	N/A	ID	IC	3-1-2
10 T2/T5	ID*	ID	IC*	ID*	ID	ID	IC	5-0-2
11 T7/T6	ID	ID?	IC*	ID*	ID	—	IC	3-1-2
12 T2/T7	ID	ID	IC*	ID*	—	—	ID	4-0-1
13 T2/T8	ID	ID	IC*	ID*	—	—	IC	3-0-2
14 T5/T6	ID	ID	IC	ID	ID	ID	○	5-0-1
15 T7/T8	ID	ID	IC	ID	ID	ID	ID	6-0-1
TOTAL (ID-ID?-IC)	12-0-3	7-7-1	6-2-13	10-0-5	7-0-5	4-0-7	2-0-11	42-9-45

* NOTATION FOR ONE BULLET OMITTED ON COMPARISON WORK SHEET.

Yet according to the Initial Joint Report of the 1975 examiners, this bullet has "no value for classical comparison microscopy," and neither is it listed as one of the six crime scene bullets which "have rifling impressions which are available for microscopic comparison with test bullets." None of the experts, moreover, in their individual work-sheets, listed any indication of a single demonstrable land or groove mark on the fragments which remained of the fatal bullet. (L, G, L, G for comparison.)

If Wolfer's apparent error on test bullet identifications was central to the official case, the errors on mini-mag identification and rifling specifications were not. What is most significant, however, about each of these errors, is that routine conclusions of the official police expert, about evidence in the most important case of his career had been rendered untenable. This suggested further questions about the care, competence, and even integrity of the original examination of physical evidence.

None of this could have been guessed, however, from the official statements which followed the release of the examiners' reports. "After years of unwarranted attack on criminalist DeWayne Wolfer," Police Chief Ed Davis asserted, "his integrity and professional excellence have been vindicated." According to City Attorney's office counsel Dion Morrow, the findings constituted a "complete vindication" of the LAPD bullet examination. "It will be gratifying to LAPD criminalist DeWayne Wolfer," Morrow said, "that his professional judgement and the quality of his work has been upheld."

Apart from their uniform absence of findings to support the original police conclusions, the experts were unanimous about some

CATEGORIES OF POSSIBLE COMPARISON
AND THE EXAMINERS WHO MADE
THEM

	9 EVIDENCE BULLETS ①	3 TRIAL TEST SHOTS ② (#55)	4 GRAND JURY TEST SHOTS ③ (#5-B)	8 NEW TEST SHOTS ④
9 EVIDENCE BULLETS ①	ALL SEVEN	—	—	—
3 TRIAL TEST SHOTS (#55) ②	BIASOTTI BRADFORD TURNER	ALL SEVEN	—	—
4 GRAND JURY TEST SHOTS (#5-B) ③	BRADFORD TURNER	ALL SEVEN	NONE	—
8 NEW TEST SHOTS ④	ALL SEVEN	ALL SEVEN	NONE	ALL SEVEN

① BULLETS RECOVERED FROM SHOOTING VICTIMS
IN PANTRY AND FROM SIRHAN'S CAR. PANEL
NUMBERS: 1, 1A, 2, 3, 3A, 4, 4A, 5, 6, 7, 8. TRIAL
EXHIBITS: 38, 47, 48, 50, 51, 52, 53, 54

② PANEL NUMBERS A, B AND C.

③ PANEL NUMBERS D, E, F, AND G.

④ PANEL NUMBERS T1-T8, T3 AND
T4 WERE LEAD BULLETS; THE REST
WERE COPPER-COATED.

CATEGORIES OF POSSIBLE COMPARISONS
AND NUMBERS OF EXPERTS MAKING A
PARTICULAR KIND OF FINDING WITHIN EACH.

	9 EVIDENCE BULLETS	3 TRIAL TEST SHOTS (#55)	4 GRAND JURY TEST SHOTS (#5B)	8 NEW TEST SHOTS
9 EVIDENCE BULLETS	ID- 3 ID?- 2 IC- 7			
3 TRIAL TEST SHOTS (#55)	ID- 0 ID?- 1 IC 3	ID- 0 ID?- 1 IC- 6		
4 GRAND JURY TEST SHOTS (#5B)	ID- 0 ID?- 0 IC 2	ID- 0 ID?- 1 IC- 7	NO COMPARISONS MADE	
8 NEW TEST SHOTS	ID- 0 ID?- 1 IC- 6	ID- 2 ID?- 1 IC- 7	NO COMPARISONS MADE	ID- 7 ID?- 1 IC- 5

additional issues of consequence as well. In the Initial Joint Report, for example, they agreed that the non-fatal Kennedy bullet, exhibit 47, had "the same number and position of cannellures as a known CCI caliber .22 Long Rifle copper-coated hollow point bullet." (IJR, p. 2.) The quality and the absence of color in the "Balliscan" photographs ("Harper Ex. 47, Ex. 54" and "Hearing Ex. 47 and Ex. 54") did not permit the determination of the number of cannellures on FN 2 (Ex. 47). The traces of this apparent second cannellure were so faint that five of the examiners were still uncertain as to its existence after examining it visually under a microscope. Only when the bullets were photographed with a sensitive color process did additional traces of what seemed to be a cannellure become clear.

Because of concern about the extent of the damage to bullets 47 and 54, only "preliminary" rifling angle measurements were attempted. ((CJR, p. 2.) Because such damage might prevent the precise measurement of bullet axis, and since, as became apparent in subsequent questioning, research into the measurement and evaluation of rifling angles is still progressing, conclusive judgements were deemed difficult on the basis of present knowledge. Only partial tests were conducted. "The results," the experts concluded, "are not definitive based on the data presently available."

One of the more confusing findings listed in the joint reports was the statement that "The examiners make no recommendations for additional types of testing of the physical evidence in this case." This was widely interpreted, not perhaps unnaturally, as meaning that agreement had been reached that no further scientific tests would be of value. But since only bullet examinations were being considered in the first place

any findings of the experts in relation to further testing could have applied only to this area. At the questioning of the experts in November and December, however, this phrase turned out to mean only that the experts could not agree among themselves on specific additional tests and thus could jointly "make no recommendation." A number of the experts listed additional tests which might be performed on the firearms evidence and which offered reasonable prospect of helpful information. All acknowledged the importance of testing valid evidence which suggested the presence of more than eight bullets.

Although less definitive than many had hoped, the conclusions about which the experts were unanimous were helpful in clarifying a number of issues which had long been in dispute, as well as shedding light on others which had not formerly been closely considered. They concluded, in sum, that none of the evidence examined either supported or ruled out a second gun. In fact, such a conclusion could only have been "supported" by evidence that suggested or proved that the bullets under examination had passed through different gun barrels. But since the class characteristics capable of being determined were all similar, it seemed likely that all of the bullets under examination had been fired from the same class of gun. The class of ammunition used likewise appeared to be the same. Since any class of guns contains hundreds or thousands of individual weapons, and since ammunition of the same class is even more widely available, this finding hardly did more than narrow the field of possible second guns. Differences in class characteristics would have been attributed with confidence to the use of more than one gun, but differences in individual characteristics could not be relied upon to demonstrate that more than one gun within a class had been used.

CATEGORIES OF POSSIBLE COMPARISON
AND TOTAL EXPERT FINDINGS:

9 EVIDENCE BULLETS 3 TRIAL TEST SHOTS (#55) 4 GRAND JURY TEST SHOTS (#5-B) 8 NEW TEST SHOTS

9 EVIDENCE BULLETS	ID- 8 ID?- 5 IC- 44			
3 TRIAL TEST SHOTS (#55)	ID- 0 ID?- 3 IC- 15	ID- 0 ID?- 3 IC- 18		
4 GRAND JURY TEST SHOTS (#5-B)	ID- 0 ID?- 0 IC- 13	ID- 0 ID?- 1 IC- 46	NO COMPARISONS MADE	
8 NEW TEST SHOTS	ID- 0 ID?- 4 IC- 49	ID- 4 ID?- 4 IC- 52	NO COMPARISONS MADE	ID- 41 ID?- 3 IC- 16

5, 41

As noted before, any given shot by a gun will produce a number of "accidental" markings which will not recur with any predictability. Since "accidental" and "individual" characteristics cannot reliably be distinguished, while similar striations on different bullets may demonstrate that they were fired from the same gun, dissimilar striations almost never prove that they were fired from different guns. According to the report of FBI expert Cunningham, for example, "Although the T2 through T8 test bullets from Sirhan's revolver can be identified with each other, there are significant differences between the individual characteristics on these bullets and the marks present on PN 2, 6, and 8." (p. 1, emphasis added.) But though there were different markings on panel and victim bullets, this did not establish that the victim bullets were fired from a gun other than Sirhan's. Such a ^{DING} finding, in fact, is nearly unheard of in comparisons of ~~bullets of~~ the same class characteristics. Although the bullet worksheets used by the experts included notations for "identifications" and "inconclusive," therefore, no listing whatsoever was made for the third obvious category: "differentiation." However different specific individual characteristics may seem "differentiation" on the basis of these alone is almost never possible.

This being the case, any "second gun" of the same class characteristics as the "first gun" would have been nearly un-detectable on the basis of the tests performed. Some of the bullets, moreover, were so severely damaged that even class characteristics could not be determined. None of the experts would establish the make of the fatal Kennedy bullet, or of at least four other bullets they examined (1, 1a, 4, and 7.) Two of the bullets were completely indeterminate even as to caliber (4 and 7). On four of the bullets, the number of lands and

NUMBER OF EXAMINERS WHO ATTEMPTED EACH OF THE POSSIBLE COMPARISONS

38 38 47 48 48 50 50 51 52 53 54 55 55 55 58 58 58 58

		1	IA	2	3	3A	4	4A	5	6	7	8	A	B	C	D	E	F	G	T1	T2	T3	T4	T5	T6	T7	T8	
0	38	1																										
6	38	1A	6																									
2	47	2	6	6																								
0	48	3	0	0	0																							
0	48	3A	0	0	0	0																						
0	50	4	0	0	0	0	0																					
0	50	4A	0	0	0	0	0	0																				
6	51	5	0	0	6	0	0	0	0																			
13	52	6	0	0	7	0	0	0	0	6																		
0	53	7	0	0	0	0	0	0	0	0	0																	
20	54	8	0	0	7	0	0	0	0	6	7	0																
5	55	A	0	0	1	0	0	0	0	1	2	0	1															
13	55	B	0	0	1	0	0	0	0	1	3	0	1	7														
21	55	C	1	1	1	0	0	0	0	1	2	0	1	7	7													
13	58	D	0	0	1	0	0	0	0	0	1	0	2	7	1	1												
12	58	E	0	0	1	0	0	0	0	0	1	0	1	6	2	1	0											
12	58	F	0	0	1	0	0	0	0	0	1	0	1	6	1	2	0	0										
23	58	G	0	0	1	0	0	0	0	0	1	0	1	7	6	7	0	0	0									
		T1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7								
		T2	1	2	3	0	0	0	0	2	2	0	3	6	6	6	0	0	0	0	0	0						
5		T3	1	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17		T4	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	0	0				
18		T5	0	1	4	0	0	0	0	1	2	0	3	0	0	0	0	0	0	0	0	7	0	0	6			
40		T6	1	1	2	0	0	0	0	1	2	0	0	7	7	7	0	0	0	0	0	5	0	0	1	1		
38		T7	0	1	4	0	0	0	0	1	3	0	3	7	6	6	0	0	0	0	0	5	0	0	0	2	7	
18		T8	0	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	5	0	0	0	2	7	
330			17	12	46	0	0	0	0	20	28	0	18	66	37	31	0	0	0	0	7	30	7	0	7	3	7	0

5142

grooves was not apparent (1a, 3, 4, 7) and on two even the direction of the rifling could not be established (4, 7). Although the heaviest of the victim bullets recovered weighed 37.4 grains, only about two grains short of the original bullet weight, the lightest weighed 11.3 grains and 25.9 grains respectively. Under these conditions not even elementary information could be obtained about some of the bullets in evidence, to say nothing of the eighth acknowledged crime scene bullet on which no information was available at all. Where class characteristics were available, they could only succeed in narrowing the field of possible guns from millions to thousands. Referring to one particular class characteristic of three separate bullets, expert Cunningham, for example, wrote that "the widths of the land impressions in these bullets are the same as those produced by Sirhan's revolver." (p. 1.) But the necessary implications of this fact were slender: "wherefore, these bullets could have been fired from this revolver, or another revolver which produces the same width land impressions." (p. 1, emphasis added.) Helpful as they were, therefore, in their factual determinations and in the light which they shed on the previous examination, the findings on which the experts were unanimous failed to resolve the central issues of the case.

One finding which was not unanimous, however, did command a considerable amount of attention. None of the experts could conclusively match the Sirhan gun with any of the crime scene bullets, but four of them did make various matches among the three victim bullets in the best condition. Bradford, Cunningham, and Garland, for example, made a conclusive match between the Weisel, Goldstein, and Kennedy non-fatal bullet. Stanton Berg made a positive match between the Kennedy and

RESULTS OF ALL COMPARISONS OF IDENTICAL

NON-FATAL BULLET (EXHIBIT 17):

	BERG	BIA-SOTTI	BRAD-FORD	CUNNINGHAM	GARLAND	MOR-TON	TURNER	
1	IC	IC	?	IC	IC	IC	IC	0-0-6
1A	IC	IC	?	IC	IC	IC	IC	0-0-6
3, 3A								
4, 4A								
5	IC	IC	?	IC	IC	IC	IC	0-0-6
6	ID	ID?	IC	ID	ID	IC	IC	3-1-3
7								
8	IC	ID?	ID	ID	ID	IC	IC	3-1-3
A			IC*					0-0-1
B			IC*					0-0-1
C			IC*					0-0-1
D			IC*					0-0-1
E			IC*					0-0-1
F			IC*					0-0-1
G			IC*					0-0-1
T1								
T2	IC*		IC-2	IC*	IC*			0-0-4
T3	IC*		IC-2					0-0-2
T4	IC*							0-0-1
T5	IC*	ID?		IC*	IC*			0-1-3
T6	IC*					IC		0-0-2
T7	IC*	ID?		IC*	IC*			0-1-3
T8		ID?					IC	0-1-1

and Goldstein bullets, and the Goldstein and Weisel bullets, but could not match the Kennedy and Weisel bullets directly. Two other panelists, Morton and Turner, found insufficient evidence for any of these matches, though they observed some similarity in individual characteristics and did not deny that the three bullets might have come from the same gun. Panelist Alfred Biasotti, finally, found a three way match of Kennedy, Weisel, and Goldstein highly probable, but not sufficiently clear to make an unequivocal, objective determination. (This position he designated by the symbol "ID?".)

In spite of the expert split on this question, the suggestion that these three bullets were fired from the same gun was important. There is some possibility that a second gun and not Sirhan's had fired the shots which struck Weisel and Goldstein and conceivably one or more other victims as well as Kennedy. It is also not impossible that bullets from more than one gun struck Kennedy, with a bullet from Sirhan lodging in the neck. Neither of these possibilities had been considered extensively before the firearms panel, and neither can be finally ruled out. Because of the possible implications of a match between the Goldstein, Weisel and Kennedy non-fatal bullets, it seemed especially important to test these bullets more thoroughly, using neutron activation analysis, for example, to determine if they came from the same batch. This step was endorsed by some of the experts.

All of the bullet conclusions, of course, are conditional on the integrity of the evidence, and lingering questions in this regard deserve to be mentioned. Of the seven victim bullets recovered, the Kennedy neck bullet was one of the two in best condition, and it was also the most pivotal to all the conclusions to be reached. Since

EXAMINERS' FINDINGS IN CASES IN WHICH A POSITIVE I.D. WAS MADE BY ONE OR MORE EXAMINERS.

TEST	BERG	BIASOTTI	BRADFORD	CUNNINGHAM	GARLAND	MORTON	TURNER	TOTAL
Z/6	ID	ID?	IC	ID	ID	IC	IC	3-1-3
Z/8	IC	ID?	ID?	ID	ID	IC	IC	2-2-3
6/8	ID	ID?	ID?	ID	ID	IC	IC	3-2-2
A/T7	IC	ID	IC	IC	IC	IC	IC	1-0-5
B/T7	(IC)	ID	(IC)	(IC)	IC	(IC)	-	1-0-5
C/T2	(ID)	IC	(IC)	(IC)	IC	-	IC	1-0-5
C/T6	(ID)	ID?	(IC)	(IC)	IC	IC	IC	1-1-5
T1/T2	ID	ID?	IC	IC	IC	IC	IC	1-1-5
T2/T4	ID	ID?	IC	ID	N/A	ID	IC	3-1-2
T2/T5	(ID)	ID	(IC)	(ID)	ID	ID	IC	5-0-2
T2/T6	(ID)	ID?	(IC)	ID	ID	-	IC	3-1-2
T2/T7	(ID)	ID	(IC)	ID	-	-	ID	4-0-1
T2/T8	(ID)	ID	(IC)	(ID)	-	-	IC	3-0-2
T3/T4	ID	ID	ID	ID	ID	ID	ID	7-0-0
T5/T6	ID	ID	IC	ID	ID	ID	(IC)	5-0-1
T5/T7	-	-	-	-	-	ID	-	1-0-0
T6/T7	-	-	-	-	ID	-	-	1-0-0
T6/T8	-	ID	-	-	-	ID	-	2-0-0
T7/T8	ID	ID	IC	ID	ID	ID	ID	6-0-1

(5.44)

the bullets examined were taken from human tissue, "contamination" by organic matter would naturally be expected adhering to their surfaces. According to Wolfer's work log, the fatal Kennedy bullet was "cleaned" on June 14, 1968, and yet in spite of this fact, contamination was noted on it by several of the experts. Of the seven victim bullets, in fact, the only one on which no contamination was noted was the one which was recovered from Kennedy's neck. For years, the District Attorney's office had been most articulate about the possibility that the evidence bullets might have been mishandled. Accepting this concern; however, it is difficult to deny that the greatest potential for the tampering with evidence occurred not after it was in the possession of the court, but before it was ever received into evidence. "In view of the absolute centrality of this bullet to any scientific consideration of a second gun," the petition filed on behalf of Paul Schrade made a proposal in this connection on December 4, 1975. All appropriate authorities should be consulted, it said, "to ascertain appropriate measures to determine if this bullet ever entered a human body..." (p. 22. check.)

The most important expert disagreement appeared to center on the Weisel, Goldstein, and Kennedy comparison, but this was by no means the only one. 36 comparisons were made by five or more panel members. Although on 14 of these the panelists agreed, they disagreed on 15 others, and 7 more contained a potential disagreement due to the use of an intermediate category of judgement (ID?) by Biasotti. One of the differences which existed between the experts had to do with their respective "thresholds" on judgements concerning positive identification. Lowell Bradford, for example, who made only two positive identifications in the 15 cases in dispute seemed to have a relatively

high threshold in comparison with the other panel members. Stanton Berg, on the other hand, made 12 separate positive identifications out of the same 15 cases, and seemed to have a relatively low one. Yet even these differences did not hold consistently throughout the comparisons, and "high threshold" examiners sometimes found a match where "low threshold" examiners could not, and vice versa. On three separate occasions, for example, Berg found an ID whereas Cunningham found an IC. In another case, however, Cunningham found an ID although Berg could not. Bradford made two identifications in cases where Turner found an IC; yet Turner made two other identifications in cases where Bradford found an IC. In the comparison of the Kennedy and Goldstein bullets, Berg found an ID, while Bradford found an IC; however, in the comparison of the Kennedy and Weisel bullets, Bradford found a ID while Berg found an IC. Similar cross-overs also emerged in comparisons between Berg and Garland, and Berg and Biasotti, suggesting that discrepancies in judgement were not even predictable on the basis of normal individual predilections. Although demonstrating independence on the part of the experts, the patternless quality of these disagreements could also be expected to cause some confusion for laymen interpreting the results.

The expert reports seemed at first both consistent and definitive, but this interpretation was to prove somewhat superficial. Some issues were conclusively resolved, but these were not the ultimate issues, and the more closely the reports were studied the more important areas of differences and inconclusiveness came to seem. Beneath what seemed to be a veneer of unanimity, confusion and discrepancy remained. This became more apparent in November and December, when the experts were

questioned individually on their findings over four days in court.

According to one expert, for example, matches of copper coated .22 caliber bullets are so rare as to occur only approximately 20% of the time, even when the bullets are fired from the same gun consecutively. Another expert, however, said that such matches were routine and expected. Since a non-match might mean either that different guns were fired or that the same gun had not reproduced sufficient matching individual characteristics for identification, the probability of matches of bullets fired from the same gun was an important factor in assessing which of these alternatives was more likely.

Similarly, the question of the consistency of individual characteristics in a gun barrel from shot to shot was important. If a gun barrel remained consistent in its basic identifying characteristics over hundreds of shots, identification could reasonably be expected even when a substantial number of shots had intervened. Yet while it was clear that "accidental" characteristics might appear on any given shot, without being evident on prior or subsequent ones, there was no agreement amongst on the issue of how many consecutive appearances would be required to qualify a marking as an individual characteristic. One expert stated that if a gun had been fired a dozen or more times between the evidence bullet and the comparison test bullet, the chances of a match were only miniscule, due to the changes in the bore caused by the intervening shots. According to another expert, however, this degree of continuity of individual markings would not only be expected, but would be required in order to qualify any particular marking as a "true" individual characteristic. Since the heart of the experts' findings had to do precisely with judgments of matches and non-matches among bullets, this amount of uncertainty on the basic questions of

of the likelihood of a match and the nature and consistency of the markings on which it was based added to the difficulty of interpreting the significance of the critical data at issue. Not only was there disagreement on specific matches but on the very standards by which the meaning of matches and non-matches could be evaluated.

In addition to examining bullets themselves, the panel members also attempted to study the bore of Sirhan's gun. This examination was described in a special account by expert Patrick Garland, who reported that during the microscopic examinations of the muzzle "several gross imperfections were noted. In an effort to reproduce these defects, with a view towards orienting them with the gross imperfections noted on the bullets, casts were made of the forward end of the barrel." Due to shrinkage and inadequate reproduction of the casts, however, the effort was only partially successful, and according to Garland "orientation was not possible between casts and test bullets." Yet some expert testimony asserted that an apparent protrusion at the muzzle of Sirhan's gun may have been responsible for gouge marks which were evident on some of the bullets fired. But out of 128 attempts to match Wolfer's test bullets at the Grand Jury or trial, only 3.1% of the cases resulted in a match, and these matches themselves were made by only two of the seven experts. One expert (Cunningham) found a gouge mark on exhibit 47, but another expert, (Morton) did not. Although one expert (Morton) found distinctive irregularities on the first and sixth lands of some of the bullets, another (Biasotti) found such irregularities on the second instead. And while Cunningham stated in his individual report that there were "significant differences" between new panel bullets and bullets taken from victims, panelist Biasotti found none.

It had seemed to be settled in the Initial Joint Report that the

critical bullets did not reveal "any unusual amount of oxidation or deterioration of a nature which would substantially affect a classical microscope comparison." But the Comprehensive Joint Report, signed the following day, listed as one of five factors which might hinder identifications, "possible loss of fine detail over intervening years." Lack of evidence, apparently, did not preclude possibility. Although the "no recommendation" section of the comprehensive report seemed bleak and terminal at first, it turned out to mean only that no recommendations had been jointly agreed upon. Although the joint findings appeared to leave the rifling angle issue in limbo, expert Turner announced at the hearings in November that he hoped to embark on a research project which he believed might clarify it. And although the final report opened with the stark declaration that there was "no substantive evidence" to support a second gun, the findings which followed made clear that there was "no substantive evidence" to disprove it. The findings which emerged were not always what they initially had seemed.

In spite of their achievements, finally, the examinations did contain some gaps which were unfortunate. Although Senator Kennedy's coat was made available to the panel, no examinations were made of it, contrary to some press reports. Even in the bullet examinations themselves certain seemingly important comparisons were omitted. Expert Biasotti attempted to match exhibit 55 bullets with the Goldstein and Stroll bullets, but not with the Weisel and Kennedy bullets, the latter of which was more critical and both of which were apparently in better condition. Yet four other experts made no attempt to match the trial bullets with any of the crime scene bullets at all. And although the

original court order specifically requested a finding on the validity of the original bullet comparison conclusion only one expert of the seven attempted to match exhibit 47 with any of the exhibit 55 test bullets. His result was an "inconclusive." Only two panelists attempted to match the Grand Jury bullet with the crime scene bullets, and none attempted to match them either with themselves or with the new test bullets. Although unanimous in the finding that the barrel of Sirhan's gun when encountered had extreme or severe leading, none of the experts apparently considered the implications of this finding - none at least called any attention to it. It was not until more than six weeks later that these implications were stumbled across in the course of one of the subsequent court sessions.

It is likely as well that most of the experts were basically unfamiliar with the breadth of the questions which existed about the case and may have presumed that these were limited solely to the firearms evidence before them. Coming primarily from backgrounds in law enforcement, where most firearms identification work is naturally done, it is also possible that some may have been unconsciously influenced in their attitudes and procedures by habits developed in the course of work done for the prosecution.

Whatever the hopes may have been for definitive findings from the firearms panel, the disappointment of these hopes cannot in the main be blamed on the panel itself. Given the limitations imposed by the inadequacy of the prior investigation, the condition of the evidence, and the nature of the art, the scope of the findings which might have been possible was severely restricted. Many of the initial expectations, moreover, were founded on hope more than reality and on a naivete about the

field of firearms identification. Although relying on scientific procedure, the practice of firearms identification does not, unfortunately, have magical properties enabling conclusive or omniscient judgements regardless of the state of the evidence. It is still primarily an art, and is heavily dependent on subjective determinations. Where evidence is initially clouded, sweeping determinations may not be possible, and even more modest conclusions may only be attempted at the risk of ambiguity or expert disagreement. Terminology itself is often not standardized (N), and the field is no more immune to the problem of divergences in professional judgement than those, for example, of psychiatry or law. The recognition of these realities only came slowly as the evidence was sifted, and led, among other things, to the requests for further tests to clarify what had thus far remained obscure. If the findings of the experts were uncertain in their details and implications, however, to much of the media they were unclear even in their broadest outlines.

The examiners' reports were released on October 6, 1975, and though the media inaccuracy was not uniform, it was very widespread and extraordinarily damaging to the general public understanding of the case. For years the case had suffered primarily from obscurity, and the inability to win adequate coverage of basic questions was an impediment which was overcome only through the most difficult and laborious process. When this effort was at last unsuccessful and a first step had finally been secured in the initial testing, the report of the examination which occurred was misinterpreted so gravely as almost to cripple any future effort to clarify the situation. As reported in the New York Times, "the experts said results of the ballistics tests... were

Inconclusive and neither supported nor refuted the second gun theory." That description was accurate and fair but it did not appear until February, 1976. The reports during the intervening period, however, were very different. In spite of the absence of a single expert statement to that effect, the overwhelming account which emerged through the news outlets was that the panel had definitely concluded there was no second gun.

The coverage in the Los Angeles Times was, perhaps, as starkly inaccurate as in any newspaper in the country. "No Second Gun in Kennedy Assassination, Panel Says" the front page headline read. Interspersed throughout the article were accurate accounts and quotations of aspects of the examiners' findings, but the dramatic opening paragraphs left no doubt of what the Times decided they amounted to:

No second gun.

That was the crucial conclusion Monday in a joint report of seven experts appointed to examine evidence in the assassination of Senator Robert F. Kennedy.

"Experts Can't Find Any Evidence That More Than One Weapon Fired..." read the article's subtitle, but although an alert reader might have noticed the contrast with the main headline, it is unlikely that it impressed itself on many. In paragraph ten another panel conclusion was reported: "The panel also said they could not conclude that the bullet that struck Kennedy's neck and the bullets taken from Goldstein and Weisel were fired from convicted assassin Sirhan B. Sirhan." Yet nowhere was it pointed out that these were the three best of the victim bullets, and that the others were even less capable of any match with Sirhan's gun. Nor, although extravagant official praise of Wolfer was quoted later in the article, was even a sentence devoted to the fact that the match of these three bullets, unsupported in a single case

by any expert, was the heart of the firearms case of the prosecution seven years before, and the basis for critical questioning ever since.

It might conceivably have occurred to a few Times subscribers that since there was no demonstration that Sirhan's gun was used, just as there was no demonstration of a second gun, the emphasis given to those particular conclusions might equally well have been reversed. With exactly the same logic, the headline would then have read, "No Sirhan Gun in Kennedy Assassination, Panel Says." This title could then have been buttressed by an accurate subtitle: "Experts Unable to Conclude that Sirhan's Gun Fired Bullets in Senator's Slaying." In the article actually printed the conclusion was drawn that "For the moment, it appeared that the experts had put 'the second gun' theory to rest..." This could easily have been altered to read: "For the moment, it appeared that the firearms claims of the Los Angeles Police Department had been put to rest." It had long been the standard assumption that Sirhan was guilty and the the firearms evidence used to convict him had been accurate and sound. If anywhere, these conclusions must have seemed secure at the Los Angeles Times, which had castigated editorially every new effort even to check the doubts. Yet since the first of these contentions could not be substantiated and the second was thrown into the deepest doubt, on the hallowed journalistic principle that "man bites dog" is news, rather than vice versa, a very appropriate story might have been written about the lack of proof that Sirhan was the assassin and the accumulation of evidence that the police conclusions were incompetent at best. No such story appeared.

However elementary the distinction between the disproof of a proposition and the failure to substantiate it, this contrast was lost

on others besides the Los Angeles Times. And if the dramatic erosion in the official police contentions was disturbing, the significance of this factor and even its existence was drowned out by the effusive self-praise of Los Angeles law enforcement.

The substance of each news article would typically contain correct quotations from the panel reports, but almost without exception in headlines and elsewhere the contradictory statement would also be made that the experts had ruled out the possibility of a second gun. "The inability of the experts," said the New York Times in a front page story, "to say positively whether all three bullets came from the Sirhan gun appeared to leave unanswered at least one question raised by observers." Apart from the fact that not only three but all of the victim bullets could not be identified with Sirhan's gun, this statement was accurate. And the question which was left "unanswered", moreover, was precisely the question of "Who Killed Robert Kennedy?" Yet according to the headline of the same article, "Experts Rule Out 2d Gun in Robert Kennedy Death," this very question had already been answered. "The experts said that the deterioration of the bullets over the years had made identification impossible," the Times reported. In fact, however, as the Initial Joint Report states quite explicitly, no evidence was uncovered of any "deterioration which would substantially affect a classical microscope comparison examination." (IJR, p. 3)

The inaccuracy of much of the early reporting may have been partially due to the pressure for early stories and to the timing of the report's release. The network report on NBC, for example, was hastily relayed only minutes after the reading of the Comprehensive Joint Report, barely in time to be included on the evening news. The fol-

lowing morning on the Today Show, a different report was aired, in which the same reporter, a particularly able and careful one, gave an accurate and much more balanced picture, clearly reflecting the study which had occurred since the initial, rushed story. In some of the news magazines and later accounts, the most blatant errors and simplifications of the earlier stories similarly were eliminated. For the most part, however, initial, inaccurate accounts were filed and disseminated before the reports had even been studied. By the time that careful study became possible, however, the early accounts were in print and the case was already considered closed. The first, and in most cases only, accounts of the findings were, almost without exception, clear, concise, dramatic, and wrong.

In the atmosphere of stampede which existed in these first hours and days, it was very difficult even for those long familiar with the case to maintain a sense of balance, much less to study and absorb the details of the findings in question. The fatigue of maintaining the effort to test the evidence had been so great, and the flood of simplification and misinterpretation so vast, that the temptation was very deep to let the matter rest and abstain from the effort required to point out the issues which remained. Some of the doubts, after all, had been eliminated, the one gun theory had not been conclusively disproved, and at least one important area of evidence had been examined in good faith, by experts of competence and experience. Partly due to naivete about the firearms identification field, different or at least more conclusive findings had initially been expected by many of those who had pressed for the tests. Yet the more it became possible to study the official reports, the clearer it became that none of the fundamental questions had been resolved.

Before such a judgement became possible, however, the reporting of the issue was dependent primarily on the pronouncements of official spokesmen who saw no need for delay. Apart from the astonishing claim that the "professional excellence" of DeWayne Wolfer had "been vindicated," numerous other jubilant claims were voiced. "What is most significant about the findings," said special counsel Thomas Kranz, "is the conclusion that no second gun was fired...." Acting District Attorney John Howard was more expansive. "I would hope this would lay to rest the divisive and destructive rumors surrounding the investigation and prosecution of this case," he said. Yet he feared that trouble might be stirred up in the future, and voiced his concern that "the mentalities of the various assassination theorists" would make it impossible for them "to abide by this decision." Chief of Police Davis, who had previously refused even to answer questions about the case, was still more emphatic. However forcefully Wolfer's work had been upheld, he said, "this will not stop the conspiracy theory profiteers or the conspiracy theory nuts from drumming up additional allegations which will tend to undermine the workings of the police, the prosecution, and the courts.

The same line was echoed by a number of editorials which appeared shortly thereafter. "Will the unanimous conclusion of the experts satisfy those who have been clamoring for seven long years (sic) for a reopening of the ballistics phase of the case?" asked the Los Angeles Times. "We doubt it. But the suspicion that there was more than one assassin no longer has the slightest credibility."

"The suspicion that there was more than one assassin," announced the Los Angeles Herald Examiner, breaking a long editorial silence on the issue, "has no credibility whatsoever. We hope this recent inves-

tigation will end the matter for all time and we can place our efforts on more constructive matters." If the Herald Examiner seemed to echo the Times, the New York Daily News on the East Coast appeared to echo Chief Davis. In spite of the conclusive findings, it said, "We have a feeling that kooks, crazies, and zanies will still come forth with elaborate conspiracy theories," and would win recognition from segments of the press. Not only, however, did the Daily News editorial mistitle the final examiners' report and repeat the standard fallacy that "it concludes that only one gun... was involved in the 1968 killing," but it formulated the further novel inaccuracy that the experts had actually declared that the "one gun" involved was "that fired by Sirhan Sirhan."

This new revelation was mercifully absent from the Herald Examiner editorial, entitled "Only One Gun" and it did not appear either in the editorial of the Los Angeles Times. The Times, did, however, run a cartoon graphically demonstrating the explosion of a symbolic second gun. Apart from expounding this judgement in their own behalf, which though mistaken would at least have been honest, the Times repeated the original misattribution of this conclusion to the experts themselves. "Seven experts," their editorial stated, "all conducting separate studies of the ballistics evidence, have come up with an identical conclusion: There was no second gun in the assassination of Sen. Robert F. Kennedy in the pantry of the Ambassador Hotel on June 5, 1968." Since this finding was absent from each of the separate studies cited, it could hardly have been the "identical conclusion" of all of them, but the day which had elapsed since the original release of the examiners' report had not apparently enabled this fact to become clear. Although,

more than a month later, the Times' news columns would report that even Stanton Berg, one of the panel members most skeptical of second gun possibilities "admitted that all possibility of a second gun had not been eliminated" (11/18) no acknowledgement was ever made of the error of earlier reports and editorials which explicitly stated the opposite. Since, moreover, one of the experts, Lowell Bradford, had stated quite explicitly in his report that "the question of a second gun is open..." (p. 4) it is difficult to understand how the Times could make the contrary claim with so much conviction after more than a day had elapsed since the release of the reports.

Perturbed by the first burst of reporting, in which this statement was ignored and the guardedly worded conclusions of the experts misconstrued, on October 7, Bradford issued his statement protesting the misuse of the experts findings. But though a follow-up story did appear on CBS that evening, most information outlets continued to allow the initial hasty and inaccurate accounts to stand. Not even the objection of one of the experts whose credibility had been enlisted and views distorted in the earlier accounts could spur retraction, correction, revision, or amplification.

Nonetheless, it was becoming progressively clearer that the inconclusiveness of the first tests necessitated an effort to organize further ones, despite the renewed public misunderstanding about the state of the evidence. A press conference to this effect was held in Los Angeles on the Wednesday after the Monday court hearing. This was well attended and received local coverage, but most of the national media, including the wire services, passed up the opportunity for a more sober and deliberate look at the expert findings, and even failed to cor-

COMPARISON WORK SHEET NO. 1

TEST vs. TESTS	EXAMINER	DATE	
	Berg	9/28/75 ^{4x}	
Items PN #	Ex. #	ID or IC	Remarks
A/B	55	IC	Bullets can be phased - number of similarities no No positive identification can be made due to the lack of well defined distinctive characters.
A/C		IC	Bullets can be phased - A number of similarities Noted. No positive identification can be made to the lack of well defined distinctive characters.
B/C		IC	Bullets can be phased - A number of similarities were noted. No positive identification can be made due to the lack of significant number well defined distinctive characteristics on b.
A/D	55/5B	IC	D is in very poor condition - heavily mushroomed. Surface Alloy Coating almost all missing.
E		IC	Surface is in poor condition on E. Indist. markings. Most of Alloy Coating is missing.
F		IC	F is also in very poor condition. Heavily mushroomed. Most of surface coating is missing. Bullets can be phased.
G		IC	Surface condition of G does not permit identification. Much surface coating is missing. Bullets can be phased.
B/G	55/5B	IC	Bullets can be phased. Surface condition of G as well as lack of sufficient distinctive well defined characteristics.
C/G		IC	Bullets can be phased. Surface condition of G as well as lack of sufficient distinctive well defined characteristics.
			9/29/75
T1/T2	NONE	ID	Bullets easily phased. A number of areas of matching striations were noted.
T3/T4		ID	Bullets easily phased. Very good matching areas were noted.
T5/T6		ID	Bullets easily phased. Good matching areas of striations were noted.
T7/T8		ID	Bullets were easily phased. Some good areas of matching individual markings noted.
			Bullets were easily phased. Areas of

Page from comparison work sheet of one of the
firearms examiners.

rect the misinterpretations which Bradford had protested.

When the experts were questioned in November and December their findings were further clarified, but problems of mis-reporting and non-reporting remained. An effort was initially made to schedule these hearings without consulting all counsel, and the date which was arbitrarily set was one at which Schrade's representatives would not have been able to be present. This date was averted with difficulty, however, and a new one was set at which all parties to the action could be present and the various aspects of the reports and work sheets could be explored with greater care.

In many cases of the early reporting the first sentence of the Comprehensive Joint Report was cited as if it comprised the entirety of the experts' findings, but the detailed ramifications of those findings now became more obvious. None of the experts testified that their findings had precluded the possibility of a second gun. The fact was acknowledged that only a limited portion of the evidence had been reviewed and that neither had the examiners been charged with evaluating the other aspects, nor, in most cases, were they even familiar with them. When apprised by attorney Vincent Bugliosi of the evidence he had uncovered bearing on flight paths none of the experts denied the legitimacy of such further tests, and several recommended other appropriate measures which could be taken in the firearms area as well. The inability of any to reproduce the test bullet identifications Wolfer said he had made was reiterated.

On the second day of the proceedings this element was dramatically underscored during the questioning of expert Bradford. In the past, Bradford said, the official findings of the Wolfer examination had created a reasonable presumption in favor of a one-gun theory, not-

withstanding the skepticism which had been voiced by outside observers on the basis of limited access to the evidence. In the past, Bradford observed, the official findings of the Wolfer examination had created a reasonable presumption in favor of a one-gun theory, notwithstanding doubts expressed about it. The examinations conducted, he said, had settled the cannellure issue and the rifling angle issue had at least been neutralized. Since, however, as he had stated in his original report, "the examination results contradict the original identification made at the trial of Sirhan B. Sirhan" the stronger presumption which had existed in favor of the official theory had been demolished. Based on these conclusions, Bradford testified that in his judgment the second gun possibility was "stronger" as a result of the examiners' tests than it had been before. On the basis of the existing public understanding of the experts' findings, this conclusion was truly startling. Yet not only was it not even reported elsewhere, but no mention of either the statement or of Bradford's testimony as a whole appeared the following day in the news columns of the Los Angeles Times.

The most dramatic finding to emerge from the hearings was uncovered almost by chance, and was not volunteered by any of the experts. All of the examiners had agreed that the bore of Sirhan's gun was heavily leaded when submitted, and this was depicted as responsible for the relatively poor quality of some of the newly test fired bullets, particularly the first few. Yet the implications of this leading had not been apparent to laymen examining the reports, nor had it been noted or explained by any of the experts. Leading in a gun barrel is caused normally only by the passage through the barrel of a lead bullet, causing some of the lead from the bullet's surface to wipe off inside the bore. (E)

When copper coated bullets are fired, not only does the copper coating eliminate contact between the bullet lead and the inside of the bore, but it carries away any lead which may already be present. Yet the only recorded bullets fired through Sirhan's gun since the afternoon of June 5, 1968, had been copper coated. All eight bullets said to have been fired by Sirhan in the Ambassador pantry were apparently copper coated (N), as were all the eight bullets said to have been test-fired before the 7th of June by DeWayne Wolfer. Wolfer never mentioned that any other bullets might have been fired. Yet if the last 16 bullets fired through the gun had been copper-coated, the leading discovered on the gun when examined by the experts would have been impossible.

On December 16, 1975, Patrick Garland, the seventh expert to testify, was asked about this discrepancy. Garland was the expert who had actually fired the gun and he had issued the special report on "Test Firing Procedures." When questioned about the "severe leading" which the report had described inside the gun barrel, Garland described it as "strange." Asked whether he knew of any other explanation for the leading that the passage of lead bullets through the gun, he said he could think of none. Asked if he felt it was likely that 16 presumed firings of copper coated bullets would have had to be followed by the firing of uncoated lead ones, Garland said that he did.

Thus did a study which was begun as a result of peculiarities in evidence end with the discovery of additional peculiarities. And since the validity of any examinations was dependent on the integrity of the evidence examined, this question as well was thrown into doubt. Since no word existed of when the gun was test-fired, and since there

was no corroboration for Wolfer's account of the event, his word alone was the sole basis for the presumption that no uncoated bullets had been used. Yet if Wolfer's word was in doubt on one question, why should this doubt not extend to other questions as well, including those of ceiling panels and the recovery of bullets. If the handling of the evidence had been deliberately misrepresented in this case, what credibility remained for any of the other reports the public was asked to believe about the handling of the evidence? Evidence had been destroyed, reports had never existed, or could not be found, and the only apparent basis for the conclusions offered was the increasingly less imposing account of DeWayne Wolfer.

If concern about these questions was troubling the Los Angeles authorities, little indication of this fact was given. For 4½ years, requests for re-testing had been resisted. Yet now the authorities were attempting to attribute uncertainties in the evidence to consequences of their policy of delay. The gun H18602 was allowed to be destroyed, and other evidence, including a bullet reportedly recovered from Sirhan's pocket was discovered to have disappeared as well. An attempt was even made in court to suggest that lead bullets might have been pounded through the Sirhan gun with a rod and mallet while it was in the custody of the county clerk. And however much alarm officials might have displayed in the past about the mishandling of evidence after it had left police control, questions of what might have gone on prior to that time remained unpursued.

On January 5 of this year, the long-awaited CBS documentary on the RFK assassination was aired. No mention was made either of the barrel loading or of the failure of the experts to substantiate Wolfer's findings. Also omitted in the discussion of the firearms tests was

the statement by CBS' own expert that the tests had strengthened rather than weakened the second gun possibility. The program did, however, cite the results of a nationwide poll in which questions were asked about the Robert Kennedy case. 41% of the persons questioned felt that the case should be reopened. 54% felt that others besides Sirhan had been involved. The findings of the firearms panel, valuable as they were in many respects, could neither confirm nor eliminate these doubts.