



The Assassination of President  
John F Kennedy

Acoustics Discussion Paper

*by Chris Scully*

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*Paul Hahn 5/10/83 comment at end*

## 1. Introduction:

On September 24, 1964, the Warren Commission published its report which concluded that Lee Harvey Oswald, a deranged loner, was solely responsible for the assassination of President John Fitzgerald Kennedy in Dealey Plaza, Dallas, Texas, on November 22, 1963. The Warren Report stated that no indication of a conspiracy has been found, and that if evidence of any such conspiracy existed it was "beyond the reach of all the investigative agencies and resources of the United States". It is of significance in the context of this paper that among the 26 volumes of supporting documentation published by the Commission were three "official" transcripts of radio transmissions over the Dallas Police radio on the day of the assassination. While all three transcripts differed significantly, the Commission published all three without ever questioning the many discrepancies.

The final report of the United States' House of Representatives Select Committee on Assassinations, the HSCA, was published on July 29, 1979. This second official investigation into the Kennedy assassination found that President Kennedy was "probably assassinated as a result of a conspiracy", although Lee Harvey Oswald did fire three of the four shots, and he fired the shot which actually killed the President. The HSCA's report stated that "scientific acoustical evidence establishes a high probability that two gunmen fired" at the President - Oswald from the Texas School Book Depository building above and behind the President, and a second, unidentified, gunman from the grassy knoll ahead and to the right of the motorcade. The HSCA recommended that the U.S. Department of Justice review the Committee's findings and determine whether further official investigation was warranted. The Justice Department's findings were to be reported to the House Judiciary Committee.

On December 1, 1980, the Federal Bureau of Investigation (FBI) released a report dated November 19, 1980 and prepared by its Technical Services Division, which found that the HSCA's conclusion of conspiracy based on the acoustical analysis of sounds transmitted over channel 1 of the Dallas Police Department (DPD) radio at the time of the assassination by a microphone which was jammed in the 'transmit' mode, was both invalid and unproven.

In order to obtain a private and independent review of the acoustics evidence, the Justice Department turned to the National Research Council, the principal operating agency of the National Academy of Sciences (NAS). On October 1, 1980, the Justice Department asked the Council to perform a study of the methodology used by the HSCA's acoustics experts, and the validity of their conclusion of a shot from the grassy knoll. The Council's Commission on Physical Sciences, Mathematics, and Resources created a "Committee on Ballistic Acoustics" under the chairmanship of Professor Norman Ramsey of Harvard University to perform the analysis. The Ramsey Panel, as the NAS committee has become known, reported on May 14, 1982 that "the acoustic analyses do not demonstrate that there was a grassy knoll shot", and that "reliable acoustic data do not support a conclusion that there was a second gunman".

In compliance with the HSCA's recommendation, the Ramsey panel's report has been submitted to the Justice Department for evaluation, and, with the as-yet unpublished conclusions of the Justice Department, it will no doubt be forwarded to the House Judiciary Committee under the chairmanship of Hon. Peter W. Rodino.

Because of the Ramsey panel's rejection of the acoustics evidence, it would now be very easy - and predictable, in the minds of many - to dismiss the HSCA's conclusion of conspiracy in sweeping terms. However, there still remain a number of questions relating specifically to the acoustics data which must be addressed, and which must be satisfactorily resolved before

any decision regarding the need for further investigation of the President's assassination is reached. It is to these questions that this paper is directed.

Before reviewing the findings of the Ramsey panel, one observation should perhaps be made. To conduct scientific acoustical analyses on its behalf, the HSCA employed the services of three acknowledged experts in the field of acoustics: Dr. James E. Barger, Chief Scientist of the Massachusetts firm of Bolt Beranek and Newman Inc (BBN); Professor Mark Weiss of the Department of Computer Science at Queens College, City University of New York; and Weiss' Queens College associate, Dr. Ernest Aschkenasy. The Ramsey panel, for all the undoubted scientific expertise of its distinguished members, did not - to the best of my knowledge - have among its number one scientist whose specialist knowledge lay in the area of acoustics. If this is true, it is surely a remarkable omission.

The Ramsey panel faulted Dr. Barger's finding that there were probabilities of 88%, 88%, 50%, and 75% respectively that four shots were fired at the President. Using Barger's base data, they recalculated the probabilities for each of the four shots as 53%, 53%, 22%, and 40%. The panel then said that these figures may be too conservative, and offered another set of probabilities of 70%, 70%, 33%, and 55% respectively for each of the four detected shots. Weiss and Aschkenasy's work in respect of the third shot, the one from the grassy knoll, was also criticised by the panel. The calculation of a 95% probability that a shot was fired from the knoll was reduced to one of 78%, and Weiss, Aschkenasy and Barger were taken to task for their use of "subjective procedures" and a methodology which was "insufficiently tested and calibrated".

While these criticisms undoubtedly reduced the strength of the HSCA's acoustics evidence in terms of its being the 'proof of conspiracy', the objections and criticisms raised by the panel hardly seem sufficient to justify the total rejection of the HSCA's conclusions. Yet, on the basis of these points alone, the Ramsey Report claims that no member of the group was convinced of the validity of the acoustics evidence which indicated a shot from the knoll.

Whatever the strength of those convictions, the panel did receive a body of evidence in the first weeks of 1981 which constituted a serious obstacle to the conclusions of the HSCA. The panel's report devoted considerable space to an exhaustive - and highly conclusive - analysis of a statement made over channel 2 of the police radio, which was simultaneously recorded on channel 1 by the open microphone at the time of the shooting. According to the Ramsey panel, the channel 2 order by Sheriff Bill Decker to "hold everything secure" was actually given at least 30.9 seconds after DPD Chief Curry had instructed the motorcade to "go to the hospital" after the shots were fired. However, since the Decker statement appears on channel 1 at the same time as the impulses said by the HSCA's experts to represent the third and fourth shots, and since the panel established that the crosstalk from channel 2 to channel 1 occurred at the time the channel 2 recording was made, and was not the result of subsequent re-recording, the panel was forced to conclude that the impulses studied by the HSCA's acoustics experts were not caused by the recording of shots on channel 1. Quite simply, the HSCA experts were apparently looking at "shots" which were fired at least half a minute after the assassination.

The panel found "no evidence" to indicate that the channel 2 order from Decker had been superimposed onto the channel 1 recording at any time after the assassination. The converse hypothesis, that the inaudible shot sounds were later recorded over the Decker message on channel 1, was not apparently considered by the panel, since they believed that they were in possession of the original channel 1 recording, and that dictabelt record contained no physical manifestation of any such over-recording.

The authenticity of the channel 1 dictabelt recording which currently exists, which the panel glossed over in its report, is perhaps the single most important issue still outstanding, and will be discussed in detail in this paper. Suffice to say at this point that, if the authenticity of the channel 1 recording cannot be unequivocally established, it is technically possible for both the HSCA and Ramsey panel experts to be correct. If that were to be proven, the acoustics evidence - officially, the only basis for a conclusion of conspiracy in the assassination of President Kennedy - would again become a moot issue.

This paper reflects the results of my research into certain aspects of the acoustics evidence, which I began in June 1980. The paper is essentially in two parts: part one deals with the authenticity of the police radio recordings which currently exist, in terms of the chain of possession of those recordings from 1963 up to the present time; part two looks at some of the still-unresolved questions regarding the actual content of the recordings. There then follows a 'working hypothesis' which I believe is consistent with the facts currently available. As with any similar discussion paper, facts may emerge in the fullness of time which refute some - or even all - of the points raised on the pages which follow, and I will be happy to discuss conflicting ideas, points of view, and basic facts with anyone who wishes to do so.

No research on such a comprehensive subject could be undertaken without the help of others. I would therefore like to thank those people in particular, without whose assistance and cooperation I would not have been able to immerse myself in this subject. Paul Hoch and Gary Mack have supplied me with much of my prime research data, and their comments on a variety of points have been very thought provoking. Harry Irwin has given more than generously of his time in the onerous task of checking references, for which I am most grateful. To these three good friends, I am deeply indebted.

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March 1983

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## 2. Authenticity:

### 2.1 Two Basic Issues

Before discussing the authenticity of the extant evidence, two aspects of the recording technique utilized by the DPD must be addressed, since they both form important parts in the overall picture.

On November 22, 1963, the DPD used two radio channels, identified simply as Channel 1 and Channel 2. Channel 1, the significant one in the context of this paper, was the channel ordinarily used to handle DPD radio communications, and was designated for the transmission of routine police radio messages on the day of the assassination. Channel 2 was an auxiliary channel generally used to handle the additional radio traffic generated by special events, and was designated for use by DPD officers in the motorcade on November 22, 1963.

Channel 1 transmissions were recorded on thin blue polyester dictabelts moving slowly under a stylus on an A2TC Model 5 Dictaphone machine. This machine operated two drive mechanisms running off the same motor, thereby allowing a fresh dictabelt to be in "standby" at all times. In this way, the Dictaphone could automatically begin recording on a new belt when the other belt ended.

Channel 2 was recorded onto  $8\frac{1}{2}$  inch flexible discs by means of a Gray Audograph recorder. This recorder was voice-activated, either by radio communications from officers in the motorcade, communications to those officers from the DPD Dispatcher, or one of the regular time annotations given by the Dispatcher.

While there is no doubt that Channel 2 was voice-activated, there is now a question over whether or not Channel 1 was a continuous recording or a voice-activated one.

Prior to July 1981, it was generally accepted that Channel 1 was a continuous recording - the dictabelts continued to record, even during periods of radio silence. In their report to the HSCA, the BBN scientists noted that Channel 1 was "recorded continuously on a Dictabelt recorder". The HSCA's final report also noted that "Channel 1 transmissions were a continuous record of Dallas police activity". In his testimony before the HSCA, Dr. James Barger of BBN said the recording was "continuous".

In a memorandum to his fellow NAS panel members, dated July 24 1981, Jerome Elkind referred three times to a gap which he said he detected in the Channel 1 recording. This gap, which occurred about 208 seconds after the impulses identified by the HSCA's acoustics experts as probable shot-sound impulses, lasted for approximately 51 seconds, according to Elkind. Elkind also noted that this gap was longer than the one identified by former DPD Sergeant Jim Bowles, who was Communications Supervisor of the DPD at the time of the assassination. Elkind implies that the gap is identified in the transcript provided to the panel by Bowles, but such a gap is not so identified in the Bowles transcript published in the panel's final report.

This mysterious gap is again commented upon in a further memo from Elkind to the panellists, dated November 9, 1981. That memo states, in part: "But Ch 1 was recorded on a sound-activated Dictaphone, and we can be sure it recorded continuously only when the microphone was stuck open, which occurred during only about 6.5 minutes of this 14 minute interval (between 12:23 and 12:37). During the remainder of the time, the recorder might have stopped..."

On March 22, 1982, Dr. Barger wrote to Elkind, and with reference to this 51 second gap and the question of Channel 1 continuity said: "There is no evidence that the Channel 1 recording is not continuous from 12:23 through 12:36. In fact, Ramsey told me last week that a dictabelt expert

has said that he thinks the Channel 1 recording is continuous at these times."

This issue has only come to light following release of the NAS/Ramsey panel's "Public Access File", made available in late 1982. Thus far, it has not been possible to determine whether the gap exists in a recording made from the dictabelt, or in the dictabelt itself. If the gap exists only in a copy of the dictabelt, its significance is greatly diminished, although the quality and accuracy of the data with which the panel was working might well be called into question. If, however, the gap exists in the dictabelt itself, it greatly impacts any previous analyses and findings, all of which were based on the premise that the Channel 1 recording was a continuous one.

The second issue under review here is the duration of each individual dictabelt. The normal setting on the Dictaphone machine used by the DPD allowed for 15 minutes worth of continuous radio traffic to be recorded on a single dictabelt. The machine did, however, have the capability of being "geared down", to allow 30 minutes of continuous transmissions to be held on each belt.

It has been a long-maintained belief that the original Channel 1 dictabelts were 15 minute recordings, and Sergeant Bowles is to this day convinced that the original belts were of 15 minutes duration each. It has now been established, however, that the dictabelts given to BBN by the HSCA - and therefore the belts given to the Ramsey panel by the Department of Justice - were 30 minute belts. This immediately poses the question of whether or not the belts now in existence are, in fact, the true originals. This subject will be discussed in detail later in this paper.

Two important questions have been raised in this section, concerning the recording techniques used by the DPD in respect of Channel 1 on November 22, 1963:

- Was the Channel 1 Dictaphone recording continuously, or was it operating on a voice-activated basis?
- Was the Channel 1 Dictaphone machine set up to record 15 or 30 minutes worth of radio traffic on each dictabelt?

While neither question is, of itself, a basis for the acceptance or rejection of the acoustics evidence, both are significant in the overall context of establishing the accuracy, completeness, and authenticity of the evidence on which the question of conspiracy (officially, at least) stands or falls.

## 2.2 Chain Of Possession

The authenticity of the currently-existing dictabelts is greatly dependent on the establishment of an unbroken chain of possession for the belts, from 12:30 pm on November 22, 1963 up to the present time. This section looks at the chain of possession which can be established from documentary and other evidence currently available.

Former DPD Sergeant Jim Bowles was interviewed by the FBI on August 27 and September 15, 1980. The interview report, dated October 1, 1980, and covering both interviews, states in part: "The original belts and discs, containing recordings of radio transmissions at or about the time of the assassination of President Kennedy were provided to the FBI within a few days of that event. Several days later an FBI Agent returned the belts and discs to Captain Bowles personally". In an interview with local researcher Gary Mack in March 1982, Bowles corrected his statement to the FBI, and said that it was the Secret Service who "took those blue belts" out of the DPD building a few days after the assassination. Asked when the belts were returned, Bowles said "not for a few days, we were awfully busy then". Bowles also told Mack that he could not give any assurance that the belts which were returned were the ones which left the possession of the DPD.

It would appear that Bowles' 1982 recollection about which government agency had the dictabelts was more accurate than his 1980 recollection for the FBI. Secret Service records show that on or before November 29, 1963, DPD Chief Lumpkin provided the recordings to Special Agents Roger C. Warner and Elmer W. Moore for "transcription". 'Transcription' meant 'copying' in this instance, because SA Warner copied the recordings to tape. This tape was then sent to the Secret Service Protective Research Section in Washington for "filtering, rerecording and transcription", after which it was supposed to be returned to the Secret Service office in Dallas. In 1970, researcher Paul Hoch asked both the Secret Service and the National Archives to search for this tape, but no trace of it could be found. On September 23, 1981, Hoch suggested to Professor Ramsey that a search for Warner's tape - requested by the Ramsey Panel as opposed to an individual researcher - might be worthwhile. There is no evidence to indicate that such a search was undertaken.

The Warner tape was copied in Washington, and a transcript was made. This transcript first came to light in 1982, when researcher Mark Allen found it among the records of the Secret Service. The transcript was apparently excluded from the agency's material given to the Warren Commission in 1964. Between September and November 1982, I asked both the Secret Service and the National Archives to renew their search for the tape made in Dallas by Warner and the further copy made by the PRS in Washington. However, no trace of either recording could be found.

DPD Sergeant Gerald Dalton Henslee prepared an edited transcript of the channel 1 transmissions in the first few days of December 1963, although there is nothing to indicate whether the transcript was made from the belts themselves or from a tape recorded copy. The record does show that Henslee's transcript was given to Police Chief Jesse Curry on December 5. Curry gave the transcript to Secret Service Inspector Thomas Kelley, who forwarded it to his superior under date of December 6. The transcript was later entered into the records of the Warren Commission as Sawyer Exhibit B on April 8, 1964.

In mid-December 1963, the DPD internal investigation into the murder of Officer J.D. Tippit and the lack of security at police headquarters at the time of Oswald's murder by Jack Ruby was abruptly ended. All materials gathered in the course of that investigation, including the recorded radio transmissions, were handed over to Chief Curry.

On March 23, 1964, Dallas Police Inspector J. Herbert Sawyer, via the FBI, provided the Warren Commission with another transcript of the channel 1 transmissions. This transcript, which was prepared by Sergeant Bowles following a request from the FBI on March 6, identified the police officers using channel 1 by their radio "call number" rather than by name, and subsequently became Warren Commission Exhibit (WCE) 705. It is this March transcript to which Bowles was probably referring in his 1980 interviews with the FBI, when he said that he prepared a transcript for the FBI after they had experienced "difficulty in preparing a transcript of those recordings due to a lack of familiarity with the Dallas Police Department radio parlance and terminology."

While making the above transcript in March 1964, Bowles made four tape recorded copies of the dictabelts, which, he recalls, were still in very good condition at that time. Of the four copies he made, Bowles kept one for his own files, one was given to Chief Curry, and the other two (one "filtered" and the other "unfiltered") were given to the FBI. One of the FBI's tapes, which became the Warren Commission's official copy of the dictabelts, was later deposited with the Commission's files at the National Archives, from where it was reported "missing" in 1976. The whereabouts of the other FBI copy of the dictabelts is currently unknown, although Bowles told Gary Mack in March 1982 that he vaguely recalls learning that it was sent to a laboratory in a state other than Texas, possibly Oklahoma.

The FBI's request to the DPD for a transcript on March 6 followed a letter dated March 3 from J. Lee Rankin, Warren Commission General Counsel, to FBI Director J. Edgar Hoover. Rankin was apparently unhappy with the Sawyer/Bowles transcript supplied by the FBI, and was presumably aware of the early access to the dictabelts, and the transcript made from them, by the Secret Service, because he subsequently contacted the Dallas Secret Service office with a similar request. On May 28, 1964, Rankin wrote to Forrest V. Sorrels, Special Agent In Charge (SAIC) of the Dallas Secret Service, and asked if he would "please arrange to record the Dallas Police Department tapes of radio broadcasts over police channels 1 and 2 on November 22, 1963, between the hours of 12:30 and 2:00 pm." Unfortunately, neither the Secret Service nor the National Archives could find any reply from Sorrels to Rankin when requested to do so in September and November 1982.

On July 16, 1964, Rankin went back to Hoover, and asked that "your Bureau obtain the original tapes of the radio broadcasts and prepare a new transcript from these tapes". Rankin also asked that "the name of the reporting police officer be listed alongside each message."

Five days later, Chief Curry made a series of ten dictabelts available to an unidentified FBI agent, who reviewed and transcribed them at DPD headquarters during the period July 21 to July 24, inclusive. The belts covered the period 10:00 am to 3:00 pm on the day of the assassination, and the belt representing the actual time of the shooting was number 5 of the series. This belt began at 11:51 and ended at 12:40. It is perhaps worth noting at this point also that, on July 21 at least, DPD Lieutenant Doug H. Gassett was in attendance with the FBI agent. Gassett, no longer with the DPD, is currently believed to be working in Austin, Texas.

The FBI's verbatim transcript was completed on or before August 11, 1964. On that date, the transcript and a covering memorandum was sent from Dallas to Washington. The memo reported that the "dictabelts are badly worn from being played and, in many places, the dictabelt skips and some messages are garbled."

A copy of the FBI's transcript was obviously given to DPD Chief Curry, because on August 20, 1964 Curry wrote a letter to Texas Attorney General Waggoner Carr, attaching a copy of the transcript. The letter, signed by Deputy Chief E.W. Stevenson, is crystal clear in establishing



the origin of the transcript.

The FBI, however, was less than prompt in forwarding the transcript to the Warren Commission. On August 21, the day after Curry sent a copy of the transcript to the Attorney General of Texas, Hoover wrote to Rankin. That letter confirms that the transcript was completed, but adds: "However, due to the badly worn condition of the original tapes, certain portions are being checked for accuracy. The transcription will be furnished to you in the immediate future." I have been unable to ascertain when the transcript, which subsequently became WCE 1974, was actually handed over to the Commission.

Sometime prior to early 1967, DPD Sergeant Gerald Hill made yet another tape recording from the original dictabelts. He gave the tape, or a copy of it, to author Judy Bonner, who was at that time writing her book "Investigation Of A Homicide". Ms. Bonner's tape was later given to, or copied for, Dallas researcher Mrs. Mary Ferrell, from whose tape most of those currently in the hands of researchers originated.

DPD Chief Curry retired in 1969, and was succeeded by Chief Charles Batchelor. In a locked metal filing cabinet outside his new office, Chief Batchelor found the evidence turned over to Curry by his internal review team in December 1963. Batchelor called Paul McCaghren, then Director of the DPD's Intelligence Division and a member of Curry's investigative team, into his office and told him to "take charge of the material. Make sure no unauthorized person comes in contact with the material." McCaghren kept the evidence in a box, measuring 2½ by 1½ feet and 1 foot deep, in his office until 1971 or 1972, at which time he decided to remove the box to his home for safe keeping, where it remained until 1978. According to McCaghren, he "had control of this property at all times, from 1969 until this year (1978). No one, no one tampered with that material."

If the early chronology has become somewhat vague through the ravages of time, the more recent chain of possession is a monument to documented inaccuracy, if not indeed downright dishonesty. Much of the blame for this, unfortunately, rests fairly and squarely with the HSCA.

In the last few months of 1976, Gary Mack discovered the existence of Mary Ferrell's copy of the DPD radio transmissions, and obtained a copy from her in January 1977. Mack, an audio specialist, made a very detailed study of the channel 1 recording and, with the help of sound engineers and sophisticated recording studio equipment, filtered out much of the identifiable background noises and interference during the period of the open microphone. This study, conducted over a period of months, finally led to the production of a "filtered" version of the recording which showed a series of noises coinciding with what Mack believed to be the very moments of the assassination. These noises, seven in all, were not repeated anywhere else on the tape, and Mack concluded that what he had in fact discovered was the only known sound recording of the actual shooting in Dealey Plaza - although he was equally aware that it was on the radio channel which had been designated for the non-motorcade radio messages. This apparent discrepancy could easily be explained, however, as it was possible to switch the motorcycle radios from one channel to another simply by flicking a switch.

In August 1977, an article detailing Mack's research and conclusions was published in "The Continuing Inquiry", a monthly newsletter distributed by Dallas researcher and author Penn Jones, Jr. In the early to middle part of September 1977, shortly after the August issue of Jones' newsletter was mailed to subscribers, Mack received a telephone call at work from a male HSCA attorney. The attorney told Mack that the HSCA was aware of his research, and wanted the tape recording which he had used. Mack suggested that the Committee obtain the tape owned by Mary Ferrell, from which his

own had been made, but the attorney insisted that the HSCA had to have Mack's tape, and would be prepared to issue a subpoena to get it. Several days passed before Mack could copy his tape; in the interim, the attorney had contacted Mack's boss at radio station KFJZ-FM in Fort Worth, and once again threatened in a polite way to issue a subpoena. Mack made a copy of his tape in due course, and the HSCA had it no later than the third or fourth week in September.

Gary Mack's account of the HSCA's acquisition of a copy of the channel 1 recording differs significantly from that told by HSCA Chief Counsel, G. Robert Blakey. According to Blakey, the tape was first brought to his attention on September 17, 1977, at a conference of Warren Commission critics which the HSCA had convened in Washington. At about 4:30 pm that day, says Blakey, Mary Ferrell mentioned the fact that she had obtained a copy of the DPD radio dispatch tapes, and the Committee "immediately" got her tape from her. Blakey makes no mention of Gary Mack or his tape, so there is no direct evidence to indicate whether or not the HSCA had both copies of the channel 1 recording before the end of September. However, Gary Mack has recently confirmed that this was the case, and that the HSCA did get Mrs. Ferrell's tape first.

Chief Counsel Blakey's chronology suggests that BBN received - and rejected because of its poor quality - Mary Ferrell's copy of the channel 1 recording sometime between October 9, 1977, and early February 1978. As Blakey told the story, the HSCA assigned investigator Jack Moriarty, a former homicide detective, to search for a better quality copy of the recording after BBN rejected Mrs. Ferrell's tape. The search was necessary because, even before Mrs. Ferrell's tape had been sent to BBN, the DPD had been unable to help the Committee. Unaware of McCaghren's box of material, it seems, the DPD had told the Committee that they thought all of their assassination evidence had been turned over to the FBI.

According to Blakey, Moriarty's search "located" Paul McCaghren on or about February 11. McCaghren's version is slightly different, however. He said that he was sitting in on an interview which Moriarty was conducting with a former colleague when he mentioned to Moriarty that he had some material which would be of interest to the HSCA. Whichever story is true, McCaghren handed over the material in his possession to the HSCA in March 1978. The cardboard box containing the vital evidence became item number JFK 007415 in the files of the HSCA.

Prior to February 11, 1978, when McCaghren and Moriarty first met, there seems to have been little question about what acoustics-related evidence existed. All references were to a series of dictabelts (for reasons to be discussed later, we will assume a series of 10 for now), covering the period 10 am to 3 pm on the day of the assassination, on which were recorded all transmissions over channel 1 of the DPD radio during that time span. But what did McCaghren turn over to the HSCA?

Thus far, it has not been possible to obtain a complete inventory of the material given to the HSCA by McCaghren, although attempts are currently being made to obtain such a list. We must therefore rely on the HSCA's published record, at least for the present.

In his narration prior to McCaghren's public testimony before the Committee on September 11, 1978, Chief Counsel Blakey referred to "the dictabelts that recorded the transmission from the motorcycle with the open mike" which McCaghren had been holding since 1969. However, three times during his testimony, McCaghren remained silent while Deputy Chief Counsel Gary T. Cornwell referred to "a dictabelt". The HSCA's final report refers to "dictabelts", but Blakey's book "The Plot To Kill The President", published in 1981, refers to "a Dictabelt and a tane...covering from 10 a.m. to 2:15 p.m." The issue of whether McCaghren handed over a dictabelt or a set of dictabelts, and the period of time which it - or they -

represented, is an important one. Certain aspects of this will be covered later, but the record is currently such that no definitive statements or observations can be made.

In addition to the dictabelt (or dictabelts), McCaghren also gave the HSCA a tape recording, which BBN subsequently identified as an "original dub" made by the DPD. According to Gary Mack, this tape was one of the four made by Sergeant Bowles early in 1964. McCaghren's testimony indicates that the tape was among the material given to Chief Curry in 1963 by his internal investigation team. Either way, however, the tape was made from the original dictabelts, according to BBN.

The dates on which the material was handed over to BBN is also subject to question. In his September 11, 1978 narration, Blakey said the evidence obtained from McCaghren was "promptly" sent to BBN. The HSCA's final report says that in May 1978, the Committee contracted with BBN to perform the acoustical analysis. The report further states: "Prior to the BBN analysis of the original Dictabelt and tapes, (sic) the firm was given a tape that had been supplied to the Committee by a Warren Commission critic... BBN determined that this tape was a second generation copy... it was not used in the BBN work. The Dallas Police dispatch materials given to BBN to analyse in May 1978 were as follows: The original Dictabelt recordings made on November 22, 1963, of transmissions over channel 1; A tape recording of channel 1 Dictabelts; A tape recording of transmissions over channel 2."

These quotes from the report seem to set the record straight. BBN were given Mary Ferrell's tape recording, which was a second generation copy as BBN confirmed, sometime prior to May 1978, as implied by Blakey's narration. Then, when the material was obtained from McCaghren, BBN were contracted to do a proper acoustical analysis, and the data was handed over to them in May.

BBN's Chief Scientist, Dr. James E. Barger, tells a slightly different story, however. Both during his public testimony in September and December 1978 as well as in his final report to the HSCA, Dr. Barger claimed to have received no material from the HSCA prior to May 1978, and only received the McCaghren evidence two months later, in July. The following excerpts from Barger's testimony and report serve to illustrate this anomaly: "When were you first approached by this Committee with the Dallas Police dispatch tape? I believe it was in May 1978."; "On May 12, 1978 (BBN received from the HSCA) the following material: Tape recordings reportedly made of the sounds in Dealey Plaza around 12:30 pm on November 22, 1963"; "The first tape we received on May 12... had a very scratchy overlay of needle noise, indicating that it was a very poor or multiple-generation dub of a recording."; "In July, the Committee gave us an electromagnetic tape recording that was identified as an original dub made by the DPD, as well as the original Dictabelt record."; The July "Dictabelt record" consisted of "a plastic continuous blue colored belt that was marked as 'Being recorded from Channel 1' in a white marking pencil. It had the appearance of having been played a great deal and being quite old. The margins of the belt were cracked and it was necessary to tape them together to prevent further deterioration".

Throughout both his testimony and report, Dr. Barger referred to a dictabelt rather than dictabelts when discussing the material given to him by the HSCA. Nothing in the public record indicated whether this was a case of simple inaccuracy, or actual fact. In an effort to clarify both the content of the material given to BBN by the HSCA and the precise date on which the evidence was handed over, I wrote Dr. Barger on January 24, 1982. His reply, dated January 29, said that "the first tape we received on May 12, 1978, covered the time span from about 10:00 A.M. until 3:00 P.M.... We subsequently received a better quality magnetic tape recording of the

series of dictabelts...one of the dictabelts was rather centered on 12:30 P.M."

Thus it would appear that BEN received a series of dictabelts, one of which was fortunately centered on the time of the shooting, but not in May 1978, as the HSCA claimed. The Committee had both Mary Ferrell's and Gary Mack's so-called "critic's tape" sometime in September 1977; they had McCaghren's box of evidence in March 1978; yet BEN were not given anything until May 1978, and even then they were not given the "best evidence" until July 1978. This sequence of events is difficult to reconcile with Dr. Blakey's claim that the material was "promptly sent" to BEN.

Whatever the reason for these delays in processing the evidence, one might reasonably expect that the chain of possession of such vital material was carefully analysed by the HSCA. However, the only public record of any such study appears in the transcript of the public testimony of DPD motorcycle officer H.B. McLain, taken on December 29, 1978. During McLain's testimony, two Committee members asked a series of questions regarding the authenticity of the dictabelt evidence. The replies to those questions, by Chief Counsel Blakey and Deputy Chief Counsel Cornwell, were as follows: "Paul McCaghren - he was an officer in the Dallas Police Department, and he had custody of a large number of records relating to the Kennedy assassination, and he retained that custody in a large trunk, and when the material was turned over to one of our investigators, Jack Moriarty, it was taken from that same trunk. I might also indicate that an effort was made to match the transcript that we have of channels 1 and 2 to the material appearing on both the Dictabelt and the tape belt that we have. Consequently, the authenticity of the tape appears to be adequate, appears to have been adequately established... the Dictabelt that was found among this material is the same kind of Dictabelt that the Dallas Police Department was using at that time... What appears on the Dictabelt and the tape recording of the Dictabelt are indeed the same sounds, the same information that we have based on the transcripts that we had of channel 1 and channel 2 that go back to 1963-64... The transmissions on the tapes do correspond with the Warren Commission testimony of various officers who described doing certain things and then reporting it over the radio, and therefore there is substantial corroboration of that nature, that the kinds of transmissions we have on these tapes were of the events that were actually happening on November 22."

So, the HSCA's "chain of possession" began in 1969, and was essentially based on the fact that the extant recordings are consistent with the DPD and FBI transcripts of 1963 and 1964, insofar as those transcripts can be roughly reconciled with the testimony of police officers before the Warren Commission!

Partly to protect the original dictabelts, but also to validate the claim that the tape recording received from the HSCA was an "original dub made by the DPD", BEN made their own magnetic tape recording from the dictabelts provided to them. Comparison of their own recording with the DPD tape recording showed the two tapes to be "virtually identical", and Dr. Barger's report indicates that the DPD recording was subsequently used during the BEN study.

Following Dr. Barger's testimony on September 11, 1978, the HSCA requested a refinement of his conclusions from Professor Mark Weiss and his assistant, Ernest Aschkenasy, of Queens College, City University of New York. Weiss and Aschkenasy were authorized by the Committee on October 24 1978 to conduct an independent study of the evidence relating to the shot which Barger testified had probably been fired from in front and to the right of President Kennedy in Dealey Plaza. A comprehensive body of data was given to Weiss and Aschkenasy, including BEN's own recording from the dictabelts and the "virtually identical" DPD recording. The dictabelts themselves were not, however, handed over.

In view of the HSCA's recommendation that the Justice Department review the acoustics evidence, it seems reasonable to conclude that the dictabelts were handed over to Justice sometime in 1979, following the disbandment of the House Select Committee. The next known access to the dictabelts was by the NAS/Ramsey panel.

The Ramsey panel report merely states that the panel "obtained access to the original Gray Audograph and Dictaphone recordings from the Department of Justice". No date for this access is quoted. However, in view of other statements in the report, and memoranda released as part of the panel's Public Access File, it seems highly likely that the panel received the dictabelts about mid-November 1981. The panel accepted the "original" belts at face value - there was no review, once again, of the chain of possession of the evidence. The panel did establish that the belts they received had not been over-recorded, and also identified some of the handwriting on the dictabelts as that of Ms. Doris Schwartz, who serviced the DPD Dictaphone in 1963. However, for reasons which will be discussed in detail in section 3 of this paper, the panel's findings in these respects cannot be regarded as conclusive.

The channel 1 dictabelts are, presumably, now back in the possession of the Justice Department. Following the Justice Department's report to the House Judiciary Committee, which has not yet been made, the dictabelts will probably be returned to the National Archives for inclusion in the files of the HSCA.

The chain of possession of the channel 1 dictabelts, from November 22, 1963 until November 1981, is set out in tabular form in Figure 1 on the next three pages. It should be pointed out that certain issues not yet discussed in this paper have been included on Figure 1, since they relate specifically to the authenticity of the evidence which exists today. These issues will be dealt with in part 3 of this document.

DPD Channel 1 Dictabelts:  
Chain of Possession

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"Within a few days of" November 22, 1963 Original channel 1 belts, 10 in all,<sup>1</sup> provided to FBI - or more probably the Secret Service - and taken from DPD offices. Returned to DPD Sergeant Jim Bowles "several days later".<sup>2</sup>

November 29-30, 1963 DPD Chief Lumpkin "provided for transcription" the "Police recordings of channel 1" to Secret Service Agents Roger Warner and Elmer Moore. These were "recorded by SA Warner and were sent to Washington Protective Research Section for filtering, rerecording and transcription", and were to be returned to the Dallas Secret Service office.<sup>3</sup>

Start of December 1963 Recordings could not be found by Secret Service or National Archives in 1970,<sup>4</sup> and again in 1982;<sup>5</sup> a transcript was found in the Archives in 1981.<sup>6</sup> The crucial belt began at 12:27 pm.<sup>7</sup>

Mid-December 1963 DPD Sergeant Gerald D. Henslee prepared edited transcript (from belts?)<sup>8</sup> Transcript given to DPD Chief Jesse Curry on December 5,<sup>9</sup> and to Secret Service on December 6.<sup>10</sup>

March 3, 1964 Henslee transcript entered into Warren Commission evidence on April 8, 1964, as Sawyer Exhibit B.<sup>11</sup>

March 6, 1964 Dictabelts handed over to Curry for inclusion in DPD internal investigation files.<sup>12</sup>

Pre-March 23, 1964 J. Lee Rankin, Warren Commission General Counsel, asked FBI Director J. Edgar Hoover to provide the Commission with a transcript.<sup>13</sup>

March 23, 1964 Transcript requested from DPD by FBI.<sup>14</sup>

May 28, 1964 DPD Sergeant Bowles prepared transcript from belts<sup>15</sup> which he said were in "very good condition";<sup>16</sup> the crucial one of which began just after 12:25 pm.<sup>17</sup>

Bowles made 4 copies of the dictabelts: 2 for the FBI (one "filtered", the other "unfiltered");<sup>18</sup> 1 copy for Chief Curry;<sup>19</sup> and 1 copy for himself, from which he later made his own transcript.<sup>20</sup>

One of the FBI copies is believed by Bowles to have been sent outside Texas, to a laboratory in (he thinks) Oklahoma;<sup>21</sup> the other FBI copy was reported missing from the National Archives in 1976.<sup>22</sup>

DPD Inspector J. Herbert Sawyer, via the FBI, provided the Bowles transcript to the Warren Commission;<sup>23</sup> transcript became Commission Exhibit 705.<sup>24</sup>

Warren Commission's Rankin asked Dallas Secret Service SAIC Forrest V. Sorrels to "record the Dallas Police Department tapes of radio broadcasts over channels 1 and 2 on November 22, 1963, between the hours of 12:30 and 2:00 pm".<sup>25</sup>

In 1982, neither the National Archives nor Secret Service could find anything to show that this request had been met, or, indeed, any evidence relating to it.<sup>26</sup>

July 16, 1964 Rankin asked Hoover to provide transcript from "the original tapes of the radio broadcasts".<sup>24</sup>

July 21-24, 1964 Chief Curry provided 10 dictabelts for review and transcription by unidentified FBI agent.<sup>25</sup> Belts covered period 10:00 am to 3:00 pm on November 22, and were described as "badly worn from being played".<sup>26</sup>

Crucial belt, according to transcript, covered the period 11:51 to 12:40 and was belt 5 of the series.<sup>27</sup>

DPD Lieutenant Doug Gassett, now believed to be in Austin, Texas,<sup>28</sup> was present with FBI agent on July 21.<sup>29</sup>

August 11, 1964 Transcript, which later became Warren Commission Exhibit 1974, was completed, and covering memo from FBI office in Dallas was written.<sup>30</sup>

August 20, 1964 Copy of FBI transcript attached to letter from Curry, signed by Deputy Chief M.W. Stevenson, to Texas Attorney General.<sup>31</sup>

August 21, 1964 Letter from Hoover to Rankin said transcript would be sent to Commission "in the immediate future", and referred to the "badly worn condition of the original tapes".<sup>32</sup>

Early in 1967 Belts copied to tape for author Judy Bonner by DPD Sergeant Gerald Hill;<sup>33</sup> Bonner's tape later given to, or copied for, Dallas researcher Mary Ferrell.<sup>34</sup>

1969 Material, which as well as the tape copy made for Curry in 1964 by Bowles, was variously described as containing "the dictabelts", "a dictabelt", "dictabelts", and "a Dictabelt and a tape...covering from 10 am to 2:15 pm",<sup>35</sup> was found in a locked cabinet outside Curry's office.<sup>36</sup> Material given to DPD Intelligence Dept Director Paul McCaghren.<sup>37</sup>

1969 to 1978 McCaghren kept the material in his office until 1971 or 1972, when he moved it to his home for safekeeping.<sup>38</sup>

End September 1977 HSCA in possession of Mary Ferrell's tape,<sup>39</sup> as well as a "filtered" copy of her tape, obtained from Gary Mack.<sup>40</sup>

February 11, 1978 McCaghren told HSCA investigator Jack Moriarty about the material in his possession, and handed it over to HSCA shortly thereafter.<sup>41</sup>

May 12, 1978 Tape, probably Mrs. Ferrell's, given to Dr. James Barger of BEN by the HSCA.<sup>42</sup>

July 1978 Material, believed to be from McCaghren, and consisting of the Bowles/Curry tape from 1964 and "the entire series of dictabelts", given to Barger by HSCA.<sup>43</sup>

Crucial belt was "rather centered on 12:30",<sup>44</sup> was apparently quite old, had been played a great deal, was in poor condition, and was marked as "Being recorded from Channel 1".<sup>45</sup> Belt was copied to tape by Dr. Barger and found to "virtually identical" to the Bowles/Curry tape copy.<sup>46</sup>

October 1978 Dr. Barger's tape copy, and the Bowles/Curry tape, given to Mark Weiss and Ernest Aschkenasy by HSCA.<sup>47</sup>

1979 All HSCA acoustics material apparently handed over to Justice Department by HSCA.<sup>48</sup>

November (?) 1981

Ramsey Panel obtained "original Dictaphone recordings" from DOJ. Crucial belt covered the period 12:05 to 12:40 and was in poor condition, "shrunken and stiffened". Contained handwriting "11-22-63, PL2, 10" by Doris Schwartz, who serviced DFD Dictaphone in 1963. Also contained handwritten times 12 5 and 12 40 and the letters J and H, not written by Ms. Schwartz.<sup>54</sup>

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References

Note: The following abbreviations are used throughout -

- WCE - Warren Commission Exhibit
- WH - Warren Commission Hearings. Thus, 23 WH 832 is Volume 23 of the Warren Commission's Hearings, page 832
- TCI - The Continuing Inquiry newsletter
- SS - Secret Service Document, on file at the National Archives. Thus, SS 324 is Secret Service Document Number 324
- EOC - Echoes Of Conspiracy newsletter. Thus, 4 EOC 1 is Volume 4, issue Number 1, of Echoes of Conspiracy
- B/B - "The Plot To Kill the President", by G. Robert Blakey and Richard N. Billings (New York: Times Books, 1981)
- HH - Hearings before the House Select Committee on Assassinations. Format of reference as for WH.
- HR - Report of the HSCA
- RR - Report of the NAS/Ramsey panel

1. Although there is dispute over the number of dictabelts created on Nov. 22, 1963, the figure quoted here is from the only documented count currently available, in WCE 1974 at 23 WH 832 ff.
2. FBI 89-43-10553, p.2. An FBI report, dated October 1, 1980, concerning FBI interviews with Jim Bowles on August 20 and September 15, 1980.
3. TCI, March 1982, p.5
4. SS 324; Reproduced in TCI, March 1982, p.5
5. Ibid.
6. Paul Hoch correspondence with National Archives and Secret Service in the period November to December 1970.
7. Author's correspondence with National Archives and Secret Service in the period September to December 1982.
8. SS 168, referenced in 4 EOC 1, p.3
9. SS 168 transcript, p.47
10. 6 WH 325-7, Henslee's testimony of April 8, 1964
11. Sawyer Exhibit B, p.1, at 21 WH 398
12. SS 468, referenced in Whitewash II, by Harold Weisberg (Private publication; Hyattstown, Md; 1966), p.25
13. 21 WH 398-400
14. 2 HH 108, Paul McCaghren testimony; B/B, p.93; Dallas Morning News article "Discovery of file may break open JFK investigation", by Earl Golz, Saturday March 18, 1978.



References: ( Cont.)

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15. Rankin letter to Hoover dated April 7, 1964, in Warren Commission files at the National Archives.
16. TCI, March 1982, p.6
17. FBI 89-43-10553, p.3; TCI, March 1982, pp.6,7
18. TCI, March 1982, p.7
19. Ibid.; letter to the author from confidential source, October 25, 1982
20. TCI, March 1982, p.6
21. Letter to the author from confidential source, November 15, 1981
22. TCI, March 1982, p.6; letter to Professor Norman Ramsey from Gary Mack dated November 12, 1981, reproduced in TCI, November 1981, pp.4-6.
23. TCI, March 1982, p.7
24. TCI, September 1977, p.6; "National Archives - Security Classification Problems Involving Warren Commission Files and Other Records", Hearings before the House Subcommittee on Government Information, 1976, referenced in Coincidence or Conspiracy, by Bernard Fensterwald Jr and Michael Ewing (New York; Zebra Books, 1977), p.430
25. Whitewash, by Harold Weisberg (Private publication; Hyattstown, Md. 1965), p.98; Rankin letter to Hoover dated July 16, 1964, in Warren Commission files at National Archives.
26. WCE 705, at 17 WH 361-494
27. Rankin to Sorrels letter, May 28, 1964. Copy in author's files.
28. Author's correspondence - see Reference 7.
29. Rankin letter to Hoover dated July 16, 1964 in Warren Commission files at National Archives; Rankin letter to Texas Attorney General Carr of July 16, 1964, in Warren Commission files at National Archives.
30. 23 WH 832 ff.
31. 23 WH 832-3
32. 23 WH 838 ff; see also in TCI, March 1982, p.7
33. TCI, March 1982, p.7
34. 23 WH 832
35. Ibid.
36. Texas Attorney General's Report, Vol. 14, referenced in TCI, January 1977, pp.4-5
37. Hoover to Rankin letter dated August 21, 1964, in Warren Commission files at National Archives.
38. TCI, April 1981, p.2
39. Ibid.
40. 2 HH 17, Narration by Dr. Blakey.
41. 2 HH 110, McCaghren testimony; 2 HH 89, Dr. Barger's testimony; B/B, p.91.
42. 8 HH 62, Barger/BBN report; HR 67.
43. B/B, p.93
44. 2 HH 109, McCaghren testimony; B/B, p.93.
45. Ibid.
46. Id. at pp.109, 110; B/B, p.93.

References: (Cont.)

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47. B/B, p.91; GALLERY magazine, July 1979, p.65-9; letter to the author from confidential source, November 15, 1981.
48. Letter to the author from confidential source, November 15, 1981.
49. HR p.67; B/B, p.92.
50. 8 HH 62, BBN/Barger report.
51. Letter to the author from Dr. Barger, January 29, 1982; 8 HH 63, BBN/Barger report.
52. Letter to the author from Dr. Barger, January 29, 1982.
53. 2 HH 89, Barger testimony.
54. Ibid.; 8 HH 62, BBN/Barger report.
55. 8 HH 4-5, Weiss/Aschkenasy report; 5 HH 556, Weiss testimony.
56. Washington Post, May 26, 1981, p.A8; RR 67.
57. Evaluation of the documents made public by the NAS/Ramsey panel in their Public Access File suggests that the panel received access to the dictabelts around mid-November, 1981; RR 67; RR 81-2.

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February 28, 1983

### 3. Areas Of Doubt:

#### 3.1 The Dictabelts

We have already seen the conflicting evidence regarding both the number and duration of the original channel 1 dictabelts, and there is little in the documented chain of possession to instill confidence in the belief that the existing dictabelts are, in fact, the original belts which existed on November 22, 1963. The physical evidence of the belts themselves also raises serious questions about their authenticity.

Any recording device in the United States which is activated by the standard AC electrical current will have one unique characteristic: it will have a frequency of 60 cycles per second, or 60 Hz. This frequency signal is detectable in virtually every sound recording, and it can be used to replay a recording at exactly the same speed as the original sound. To do so requires that the recording be speeded up or slowed down so that the power hum is exactly 60 Hz, and the result must be accurate if the original recording is being used.

One of the noises detected by Dr. Barger and his associates at BBN in the midst of the radio static recorded by the open microphone was a sound which they believed was that of a carillon bell. This 'bell' sound, which will be examined in more detail later, was examined by BBN in an effort to determine its origin, using a technique known as spectrum analysis. This revealed a power hum of 57 Hz, indicating that the Dictaphone recorder was running about 5% too fast. However, BBN also conducted a completely separate study of the recording, this time for continuity. Either side of the nearly 5½ minute open microphone sequence, the channel 1 dispatcher can be heard to make regular time annotations, usually every minute. When these time annotations were checked using a stopwatch and plotted on a graph, the mathematical 'least square fit' formula showed that there was a fit of 95%, meaning that the recording was approximately 5% slower than normal. There was, therefore, a serious anomaly: the electronic data, the power hum, showed the recording to be 5% too fast, yet the spoken word indicated that the recording was 5% too slow. For some reason, this discrepancy was not detected during the life of the HSCA.

The discrepancy might possibly be explained by the fact that different recordings were used in the two BBN studies. However, in March 1982, two things occurred to refute this possibility.

In early March, Gary Mack learned from an unidentified source that the 57 Hz hum existed on the original dictabelt, and on March 22 Dr. Barger revealed that the anomaly existed on one single tape recording, and was therefore traceable back to the dictabelt. In a previously quoted letter to Jerome Elkind of the Ramsey panel, Dr. Barger wrote: "... one finds when playing back the tape recording of the dictabelt that the dictabelt recorder had been running about 5% too slowly when the voice was recorded. But when playing back the same tape recording of the dictabelt the hum frequency is only about 57 Hz. Therefore the recorder was running about 5% too fast when the hum was recorded. So the hum and the voice were not recorded simultaneously onto the dictabelt. Therefore the dictabelt itself is probably a dub..."

The Ramsey panel, or at least one of its members, was therefore aware of the probability that the so-called "original" dictabelt recording was a copy, as of March 22, 1982. This is not, however, reflected in the panel's report which was published less than two months later, and which goes to great lengths to convince its readers that the existing dictabelts are the original ones. The assurances of the Ramsey panel notwithstanding, there is therefore scientific evidence to support the belief that the existing belts were not the ones recorded at DPD headquarters on November 22, 1963.

There is other evidence to substantiate the scientific "proof". As noted in section 2.2 the Secret Service had access to the dictabelts on or

before November 29, 1963, and produced a transcript from them. According to SA Warner, the relevant recording begins at 12:27 on November 22. In other words, on the basis of Warner's comments at the start of the channel 1 transcript, the dictabelt covering the period of the assassination began at 12:27 pm. Confirmation of this start time was obtained from Sergeant Bowles in March 1982. Bowles told Gary Mack that his transcript, made by him from the copy of the dictabelts he made for his own use in March 1964, indicated a belt start time of "just after 12:25 pm", which is totally consistent with Warner's earlier finding.

In July 1964, the FBI were given a set of dictabelts by DPD Chief Curry, and as far as anyone knows, the FBI accepted these belts as the original ones and not as duplicates. There were ten belts in the series, and the start and end time of each belt was documented in the transcript made by the FBI (WCE 1974). The significant belt, according to that FBI transcript, was number 5 in the set, and it began at 11:51 and ended at 12:40.

When I asked Dr. Barger about the material he received from the HSCA, he told me - by letter of January 29, 1982 - that the crucial belt was "rather centered on 12:30", although he did not give a start or finish time. This reply is unfortunately rather unclear, but it would certainly seem to be more consistent with the belts reviewed by the FBI in July 1964 than with the ones accessed by the Secret Service and Bowles.

According to a handwritten notation on the crucial channel 1 dictabelt examined by the Ramsey panel, the belt covered the period 12:05 to 12:40, which is not too different from the FBI findings of 1964. Despite the fact that there is essentially a 15 minute difference (11:51 to 12:05) between the belt start times identified by the FBI in 1964 and the Ramsey panel in 1982, and despite the fact that such a 15 minute interval might just happen to coincide with the "normal" running speed and belt duration on the DPD Dictaphone machine, I am inclined to believe that these tapes are the same. It would therefore seem that the irregularity in timings came into being sometime between mid-March and July 21, 1964.

The only possible event of relevance in the chain of possession, as far as can be determined, between Karch and July 1964 was the Warren Commission's request to the Secret Service for a transcript on May 28. As previously noted, there is no evidence regarding whether or not this request was acted upon, and the National Archives can find "no reply to the letter of Mr. Rankin to Mr. Sorrels dated May 28, 1964, or the letter itself" in the files of the Secret Service.

It should be noted that, since publication of the Ramsey panel report, Bowles has recanted, and now claims that, in keeping with the Ramsey panel conclusion, his records show that the belt began at 12:05 rather than 12:25. However, in the light of what follows, I believe Bowles' original statement is the correct one.

A second factor to be taken into consideration when trying to establish if - or when - the original belts may have been copied is the physical state of the belts. Once again, Jim Bowles provides the earliest indication from which conclusions may be drawn. According to Bowles, the belts that he used in March 1964 were in very good condition at that time. However, by the time the FBI got what were supposedly the same belts some four months later, they were "badly worn from being played and, in many places, the dictabelt skips and some of the messages are garbled." This evaluation was repeated in August 1964, when J. Edgar Hoover commented to the Warren Commission on the "badly worn condition of the original tapes".

Of the belts he received from the HSCA, Dr. Barger testified that they "had the appearance of having been played a great deal and being quite old. The margins of the belt (sic) were cracked and it was necessary to tape

them together to prevent further deterioration". The Ramsey panel said of the belt covering the time of the shooting: "The Dictabelt was in poor condition... shrunken and stiffened." The panel did note, however, that the recording tracks on the belt in the region of the impulses said by the HSCA experts to denote shots were "remarkably clear and parallel and showed no indications of superposed recordings". While these "remarkably clear" tracks may in themselves be remarkable, it still seems likely that the FBI, Dr. Barger, and the Ramsey panel were all referring to the same belts. If so, the state of the belts seems to have changed in the same four month period between March and July 1964 as did the start times. Is this yet another coincidence, or is it a red herring invented by Jim Bowles? Or is it, in fact, clear evidence that the belts were copied between March and July 1964, evidence which would support the scientific indications of tape duplication?

The handwriting on the channel 1 dictabelts is also worthy of some attention. In testimony before the HSCA, Dr. Barger said the crucial belt was "a plastic continuous blue colored belt that was marked as 'Being recorded from Channel 1' in a white marking pencil". He made no reference to any other handwriting on the belt.

The Ramsey panel report notes "considerable writing with a china marking pencil on the surface of the Dictabelt. The markings give in one handwriting '11-22-63, PL2' and an encircled '10'. The times 12 5 and 12 40 in a different handwriting also appear as do the letters J and H. These markings were similar to those on the other Dictabelts made that day." No mention is made of the "Being recorded from Channel 1" notation observed by Dr Barger, nor did the panel explain the meaning of the observed handwriting. (The date 11-22-63 is self explanatory; PL2 indicates Platoon 2; the number 10 may indicate that there were a total of 10 belts; the times 12:05 and 12:40 represent the period of time encompassed by the dictabelt; and the letters J and H refer to the DPD Dispatchers Jackson and Hulse).

Two further observations about the handwriting may be in order here. The encircled number 10 may refer to the fact that there were ten belts. However, if the Dictaphone had been recording continuously from 10:00 am at the normal speed setting of 15 minutes per dictabelt, the two belts either side of 12:30 (assuming a change of belt at precisely 12:30) would have been numbered 10 and 11. Is this significant?

The second observation relates to the letters J and H on the belt. In addition to C.E. Hulse, there were two other dispatchers whose names began with "H" - Henslee and Huffstutler. Henslee was operating channel 2 at the time of the shooting, and Huffstutler was on channel 1 until (ironically) about 12:26.

The Ramsey panel reported that "a photograph of the Dictabelt has been submitted to Ms. Doris Schwartz, who serviced the recorder during the period in question and who now lives in Duncanville, Texas. Although Ms. Schwartz does not recognise the other handwriting, she does identify the "11-22-63, PL2, 10" as her own handwriting. She uses an unmistakable 2 and feels that the specimen is the original belt." The panel did not report that they sent the photograph of the handwriting to Ms. Schwartz via Jim Bowles, nor did they emphasise that the other handwriting was not hers. A partial identification, based on a photograph of some handwriting passed through a third party, is hardly a satisfactory basis on which to draw a significant conclusion regarding the authenticity of such vital evidence, yet it seems to have satisfied the Ramsey panel. Additionally, the panel's report does not indicate if Ms. Schwartz was asked when she wrote on the dictabelt; if it was not written when the belt was removed from the recorder on November 22, 1963, it further reduces the strength of her identification. And who else wrote on the dictabelt? And when?

The evidence discussed in this section, from the 57 Hz hum through

the differing start times of the belts, their condition, and the writing on them, strongly suggests that all is not as it at first appears to be with respect to the dictabelts. The evidence seems to point strongly to the fact that the existing dictabelts are not the originals, and that the copy operation took place between March and July 1964. In future sections of this paper, additional evidence will be offered to support the copying hypothesis, but for now it seems that there are sufficient questions which cannot be answered to call into question the authenticity of the channel 1 dictabelts which now exist.

### 3.2 Conflicting Transcripts

The weight of the evidence already reviewed clearly establishes the possibility that the existing channel 1 dictabelts are copies, and that such copies may have been made in the period between March and July 1964. The DPD certainly had the means and the opportunity for such a duplication exercise, and as far as a 'motive' is concerned, it could easily be claimed that the belts were copied in order to preserve them. There would be nothing wrong with such an act; as long as the original dictabelts were kept safely, under conditions which guaranteed their integrity, it would only be necessary to produce those belts now, and many of the serious questions and anomalies which surround the acoustics evidence could be resolved without difficulty. However, a suggestion from friend and fellow researcher Mike Kasterman last October sent me down an avenue of investigation which I had not previously explored. As a result, I now believe that the dictabelts were copied, not for posterity, but for the immoral if not indeed illegal act of deception.

It will be recalled that the official record indicates the existence of four separate transcripts of the DPD radio transmissions on November 22, 1963: The first was made on or about November 29, 1963 by the Secret Service, although it was never given to the Warren Commission; the second was made within a week by the DPD, and later became the Commission's Sawyer Exhibit A (channel 2) and Sawyer Exhibit B (channel 1); the third was also made by the DPD between March 6 and 23, 1964, and became WCE 705; and the fourth transcript was made by the FBI on July 21-24, 1964, and became WCE 1974. To these four should now be added a fifth, which hereafter will be referred to as the "1967 Transcript".

Beginning in June 1980, I made a partial transcript of channel 1 from my own rather poor quality tape copy, which originated from the one made in 1967 by Sergeant Hill. Into my transcript I incorporated the many other private transcripts which have been made by researchers from their own tape copies of differing quality, as well as the private transcript made by Jim Bowles from the tape copy of the dictabelts which he made in 1964, and which was partially published in the Ramsey panel report. Therefore, while the 1967 transcript is a composite, I believe it accurately reflects the contents of the tape copies of the dictabelts which are currently in the hands of researchers, and as such plays an important role in establishing a possible motive for the duplication of the original dictabelts.

Mike Kasterman suggested that an analysis of the discrepancies between the five transcripts would be an interesting exercise, but the sheer magnitude of such a detailed study persuaded me to concentrate on the more significant discrepancies, with startling results. In the discussion which follows, all transmissions are contained in the 1967 transcript, so only the differences and omissions in the four official transcripts will be noted in the text. It should also be noted that the Secret Service transcript does not begin until 12:27 and appears to be an edited transcript. Sawyer Exhibit B, while it begins at 10:54, is also an edited transcript, and is prefaced with the observation that "most routine transmissions were left out for reasons of brevity." While there may be questions about the completeness of WCE 705, made by Bowles, WCE 1974 was represented to the Warren Commission as a "verbatim" transcript, and as long as a month after it was prepared it was still being "checked for accuracy" by the FBI.

The first significant transmission is missing from all four official transcripts. It occurred at 12:17 on November 22, and involved DPD Officer J.D. Tippit, who would one hour later become Oswald's second alleged victim, shot to death beside his patrol car as the deranged presidential assassin made his getaway. According to the 1967 transcript, and therefore the tape recorded copy of the dictabelts currently available to researchers, the following exchange took place on channel 1:

<u>Caller</u>	<u>Conversation</u>
78 (Officer J.D. Tippit)	78
Dispatcher (Mc Daniel or Huffstutler)	78
78	Be out of the car a minute, 4100 block of, ah, Bonnieview. 12:17
Dispatcher	

Also missing from all transcripts is the fact that Tippit was out of his car for three minutes, as evidenced by the fact that he reported back to the Dispatcher at 12:20 -

78	78 clear
Dispatcher	78 clear, 12:20

While the significance of Tippit's absence is not readily apparent, it does seem rather strange that there is no known record of any official investigation into the matter. It is particularly odd that this episode is missing from the December 1963 Sawyer transcript, which was made to at least partially assist the internal DPD investigation into Tippit's murder.

Approximately 38 seconds after the impulse believed by the HSCA to represent the fourth shot in Dealey Plaza, a partial transmission from an unknown source can be identified, almost lost in the static generated by the open microphone. The transmission, or possibly two separate radio messages, contain the words "...on the phone... 87". No other words can be identified, but the phrase is significant because it refers to Officer R.C. Nelson, whose radio call number was 87. The message seems to suggest that Nelson was using, or was being told to use, a telephone. Nelson's use of the telephone in the period after the assassination will be discussed later, when these seemingly unrelated radio transmissions are put into what I believe is their true context.

Whatever the Nelson/telephone message involved, it occupied Nelson for approximately nine minutes, and once again the transcripts do not record the fact. The following untranscribed exchange occurred at 12:40 -

87	87 clear
Dispatcher	12:40

Three minutes after Nelson's return, the channel 1 dispatcher ordered all squads, which would have included both Tippit and Nelson, to the scene of the President's shooting. The order, issued at 12:43 and noted on all transcripts, was as follows:

Dispatcher	Attention all squads in the downtown area. Code 3 to Elm and Houston, with caution.
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For some as yet undetermined reason, however, it was then deemed necessary for two patrol cars to be ordered into the Oak Cliff area of the city. The two cars chosen for this assignment were those driven by Tippit and Nelson, as evidenced by the following exchange which took place at 12:45 -

Dispatcher	87, 78, move into central Oak Cliff area.
78	I'm at Keist and Bonnieview.
87	I'm going north of Karsalis on R.L. Thornton.

This exchange, which undoubtedly took place, was dealt with in a variety of ways in the official transcripts. Neither the Secret Service nor the Sawyer transcripts make any reference whatsoever to it; WCF 705, the DPD/Bowles transcript of March 1964 contains the dispatcher's order but not the replies from Tippit and Nelson; while WCF 1974, the July 1964



transcript prepared by the FBI, contains the exchange in its entirety. Is this anomaly accidental or deliberate?

Three minutes after receiving this order, Nelson was again in contact with the channel 1 dispatcher:

87	87
87	On south end of Houston Street Viaduct.
(unrelated text omitted)	
Dispatcher	87, call station 7.
87	10-4.

The transcripts again differ with respect to this exchange. It does not appear in either the Secret Service or Sawyer transcripts. WCE 705 and WCE 1974 both record that it was 101 (Officer B.L. Bass) who reported that he was on the south end of the Houston Street Viaduct, and it was an "unknown unit" who was told to call station 7, the civil section of the Dallas County Sheriff's Office. However, research by Dr. J.T. Jones of Texas confirms that Nelson, and not Bass, was the officer involved. Dr. Jones notes that Bass was ordered to report to Elm and Houston Streets at 12:21, that Bass acknowledged receipt of the order, and subsequently called the dispatcher to confirm his arrival at the scene of the shooting. Dr. Jones has also conducted a voice analysis of the transmissions in question, and has established not only that it was not Bass, but that it was Nelson who spoke to the dispatcher. Furthermore, Nelson called the dispatcher again at about 12:52 and reported that he was "out down here", presumably meaning Dealey Plaza. Nelson would therefore have had about three or four minutes in which to contact the Sheriff's Office.

The next significant radio transmission has long been a source of suspicion to many researchers, because of the unnatural formality of the exchange, which is completely out of character with all the other radio conversations on that day. This exchange took place at 12:54 and is as follows:

Dispatcher	78
78	78
Dispatcher	You are in the Oak Cliff area, are you not?
78	Lancaster and Eighth.
Dispatcher	You will be at large for any emergency that comes in.
78	10-4.

It is as much a mystery today as it was in 1963 what the "emergency" was, or why Officer Tippit was told to "be at large" for its possible occurrence. The official transcripts all record the exchange, but with one very notable difference: According to the Secret Service transcript of November 1963, the DPD in March 1964, and the FBI in July 1964, this conversation between Tippit and the dispatcher took place on channel 1. However, according to the DPD/Sawyer transcript of December 1963, this same exchange took place on channel 2, and was "the last radio transmission between Officer Tippit and the dispatcher". In other words, this exchange - contentious in its own right - was apparently on a channel 1 dictabelt in the week after the assassination, on a channel 2 disk in the first week of December 1963, and back on a channel 1 belt by March. With regard to the notation on the Sawyer transcript that this is the last exchange between Tippit and the dispatcher, it should be pointed out that this is also the only communication between Tippit and the dispatcher which appears on the channel 2 transcript.

Approximately six minutes after he was told to be "at large" for an unidentified "emergency", Tippit left his car to make a telephone call at

the "Top Ten Record Shop", located about half a mile from where he would be shot about fifteen minutes later. According to a recent article by Dallas reporter Earl Golz, Tippit entered the shop and had to ask customers to step aside in his haste to get to the phone. Tippit was recognized by the two men who worked in the shop, W.R. Stark and Louis Cortinas, who knew Tippit from previous visits he had made to the shop. Cortinas estimated that when Tippit dialed the number he was calling he let the phone ring "maybe seven or eight times", said nothing, hung up, and hurried from the shop. Cortinas said that about ten minutes later he heard that a policeman had been shot.

Cortinas' recollection puts Tippit's visit at about 13:05 and, despite the fact that Tippit did not advise the dispatcher that he was about to leave his patrol car, the channel 1 transcript does provide corroboration of sorts for Cortinas. At about 13:04 (or 1:04 pm, the notation which will be used hereafter), the channel 1 dispatcher called Tippit, asking for his current location, but received no reply. Why did Tippit fail to tell the dispatcher that he was leaving his car? And why did he use a private phone, and whom did he call? These questions have never been answered.

About four minutes after the dispatcher had tried and failed to contact him, Tippit tried unsuccessfully to contact the dispatcher. Like his reasons for not telling the dispatcher where he was going, and using a private telephone, Tippit's reasons for trying to contact the dispatcher shortly afterward remain a mystery. The 1967 transcript reveals that the following took place at 1:08, four minutes after the dispatcher tried in vain to get Tippit's location, and probably only a minute or so after Tippit returned to his car:

4	15/2 is on the air
78	78
15	15/2
Dispatcher	15/2
78	78
261	261

The Secret Service and Sawyer transcripts do not record this traffic on channel 1. WCE 705 transcribed it as it appears above, but when the FBI transcribed the dictabelts in July 1964 to create WCE 1974, the first "78" became "58", the second "78" became "488", and each was described as being "garbled". Once again, Texas researcher Dr. J.T. Jones has been able to resolve the issue. Preliminary harmonic analysis of the voice of "78" seems to confirm that it is, in fact, the voice of Officer Tippit. Furthermore, the FBI were unable to identify anyone using the call numbers 58 and 488, and there is nothing in the available evidence to indicate who might have used those numbers.

At about 1:16 the dispatcher called unit 69, Patrolman Brock, who shortly before had cleared at the DPD garage, and instructed him to "remain in the downtown area available for call". This order, the significance of which will shortly become evident, is missing from all the official transcripts.

Immediately after the dispatcher gave the time as 1:16 on channel 1, a citizen cut in on the police radio to report the shooting of a police officer. The 1967 transcript reads as follows:

Citizen	Hello, police operator.
Dispatcher	Go ahead. Go ahead, citizen using the police -
Citizen	We've had a shooting out here.
Dispatcher	Where's it at?
Dispatcher	The citizen using police radio -
Citizen	On Tenth Street.

Dispatcher	What location on Tenth Street?
Citizen	Between Marsalis and Beckley.
	It's a police officer. Somebody shot him. What's this? 404 Tenth Street.
Dispatcher	78
Citizen	You got that? It's in a police car number 10.
Dispatcher	78
Citizen	Hello, police operator, did you get that? A police officer - 510 East Jefferson.
Dispatcher	Signal 19 involving a police officer, 510 East Jefferson.
Citizen	Thank you.
35	35
Dispatcher	The citizen using the police radio remain off the air now.
Dispatcher	69
Dispatcher	69's going out there.
	10-4, 69, Code 3.

There are a number of inconsistencies in the official transcripts with regard to the reporting over channel 1 of Tippit's murder by a member of the public. The Secret Service transcript, although it purports to be a transcript of "calls during the assassination of the President and the murder of Officer Tippit", contains none of this text. The other transcripts reflect a series of major differences, which must be resolved.

The first difference concerns the initial reference to 78, Officer Tippit. WCE 705 alone shows that "Someone in the background said 78, squad car, number 10" immediately after the citizen identified the location of the shooting as 404 Tenth Street, and before the dispatcher called Tippit by his call number, 78. The other transcripts, and a careful review of the tape recording, show that the first mention of 78 was made by the channel 1 dispatcher.

The official transcripts also suggest that an "unknown voice" was also responsible for the first reference to 510 East Jefferson. However, both my own study and that of Dr. J.T. Jones strongly suggest that it was the dispatcher, and not someone at the scene of the shooting, who mentioned 510 East Jefferson. It is clearly apparent that the person speaking on the police radio was unaware of the exact location, and was correctly informed by someone else at the scene of the correct address, 404 Tenth Street. So where did the East Jefferson address come from?

The third aspect of the Tippit shooting which requires an explanation concerns Officer Brock, to whom the call number 69 had been assigned. It will be remembered that, only moments before the Tippit shooting was first reported, Brock had been ordered make himself "available for call" in the downtown area. Immediately after the shooting was reported, and without a word from the dispatcher, Brock called the dispatcher to inform him that he was going to the scene, and the dispatcher acknowledged his call. Was this the unforeseen "call" for which Brock had been told to make himself available?

Before trying to put these numerous differences in the official transcripts into some sort of perspective, one final radio transmission on that tragic afternoon should be noted. At about 12:52 Officer Nelson was apparently in the vicinity of Dealey Plaza, following his telephone call to the Sheriff's Office. He was not told to return to the Oak Cliff area to join Officer Tippit as originally instructed at 12:45, and he was next heard from at about 1:25 when he reported that he was in his car at Elm

Figure 2: Transcript Discrepancies

TIME	SECRET SERVICE	EVENTS	TRANSCRIBED	WCE 1974
12:17	Secret Service - SA Horner - November 1963	Sawyer - DPD/Hendee - December 1963	WCE 705 - DPD/Boiles - March 1964	WCE 1974 - FBI Agent - July 1964
12:17	Tippit left his car at the 4100 block of Bonnieview			
12:20	Tippit returned to his patrol car			
12:21	Nelson used, or was told to use, the phone			
12:40	Nelson reported that he was clear			
12:43	All squads in the downtown area told to go to Dealey Plaza	All squads in the downtown area told to go to Dealey Plaza	All squads in the downtown area told to go to Dealey Plaza	All squads in the downtown area told to go to Dealey Plaza
12:45	Tippit and Nelson told to go into Central Oak Cliff, and both responded			Tippit and Nelson told to go into Central Oak Cliff, and both responded
12:48	Nelson told to call Sheriff's Office			Unidentified officer told to call Sheriff's office
12:52	Nelson calls in from Dealey Plaza			
12:54	Tippit told to be at large for any emergency	Tippit told to be at large for any emergency - on channel 2	Tippit told to be at large for any emergency	Tippit told to be at large for any emergency
1:00	Dispatcher unable to contact Tippit, who was on phone in Top Ten Record Shop			Dispatcher unable to contact Tippit
1:08	Tippit unable to contact dispatcher			Units 58 and 488 unable to contact dispatcher
1:16	-Brock told to be available for call. -Tippit shot -Dispatcher first mentions Tippit and East Jefferson address -Brock volunteers to go to scene, without being told	-Tippit shot -Dispatcher first mentions Tippit and East Jefferson address -Brock volunteers to go to scene, without being told	-Tippit shot -Unknown voice first mentions Tippit and East Jefferson address -Brock volunteers to go to scene, without being told	-Tippit shot -Dispatcher first mentions Tippit; Citizen first mentions East Jefferson address -Brock volunteers to go to scene, without being told
1:25	Nelson still at Dealey Plaza			Nelson still in Dealey Plaza

and Houston Streets. He asked the dispatcher whether he should go to the scene of the Tippit shooting, and was told to go elsewhere instead. It should be noted here, also, that WCE 2645, a totally unrelated DPD report which was included in the records of the Warren Commission, states that Nelson was ordered to the vicinity of the Texas School Book Depository after the President's shooting, and remained on duty in front of the building for the remainder of the afternoon.

Figure 2 tabulates the discrepancies between the 1967 transcript and the four official ones. Even a cursory examination shows that most of the telephone-related transmissions are missing, even from the supposedly verbatim FBI transcript of July 1964. There are differences between the March transcript prepared by Bowles (WCE 705) and the one prepared in July by the FBI (WCE 1974). While these may be simple transcription errors and differences, evidence has already been offered in support of the theory that the dictabelts were copied between the creation dates of the two transcripts. Be that as it may, there is also evidence now which suggests that the channel 1 recording differed between December 1963 (Sawyer Exhibit) and March 1964, since the order to Tippit to be at large for any emergency in the Oak Cliff area was on channel 2 as of December 1963.

It is my strong but unproven belief that something, involving Officers Nelson and Tippit in a series of telephone calls which may have been totally unrelated to the assassination of President Kennedy and the murder of J.D. Tippit, was excised from the transcripts - if not the dictabelts themselves - by the Dallas police. In order to hide their embarrassment, I believe the DPD copied the dictabelts on one or more occasions before the FBI received them in July 1964. We have already seen the evidence to suggest that one such copy took place between Karch and July 1964; the presence of the Tippit message on channel 2 in December 1963 suggests another copy operation was carried out during or just prior to the production of the Sawyer Exhibits during the first week of December.

Unfortunately, without the ability to take sworn testimony from those who were involved and are still alive, it is not now possible to determine the subject matter of the phone calls and the mysterious activities of both R.C. Nelson and J.D. Tippit between 12:17 and 1:16 on November 22, 1963. It would be ironic if the phone calls were totally unrelated to the murder of the President, because they may well turn out to be the reason for that murder remaining unsolved.

### 3.3 The Sirens Problem

Ever since the HSCA's acoustic evidence came to public attention, it has been unanimously agreed that the elapsed time between the shooting in Dealey Plaza and the recording of the sound of sirens on channel 1 by the open microphone was an important factor in determining whether or not the police motorcycle with that open microphone was part of the motorcade itself. Critics of the acoustics evidence point to the fact that the sirens cannot be heard for a considerable time after the shots were fired. This, coupled with the fact that the vehicles with the sirens are clearly passing rather than accompanying the open microphone, has prompted the conclusion that the open microphone was stationary, and was probably located on the Stemmons Freeway somewhere near the Trade Mart. Former DPD Sergeant Jim Bowles has thus far refused to name the officer he believes had the open microphone, but has revealed that this officer was near the north parking lot of the Trade Mart, in the company of a number of other officers.

The Ramsey panel acknowledged that there are still a number of anomalies with respect to the recording of the sirens. However, the panel reported that Officer Leslie Beilharz, who was close to the Trade Mart when the motorcade passed by en route to Parkland Hospital, has said that there is a "good possibility" that his was the open microphone. The panel also pointed out that the distance from Dealey Plaza to the Trade Mart is 2.273 miles, and that the driver of the presidential limousine, Secret Service Agent William Greer, told the Warren Commission that he reached speeds of up to 50 miles per hour on the journey from the assassination scene to the hospital. Based on their conclusion, which will be discussed in more detail later, that approximately 187 seconds elapsed between the time of the shooting and the recording of the sirens, the implied but unacknowledged finding of the panel was that DPD motorcycle officer Beilharz' belated claim is consistent with the facts. But is it? An important factor in determining the location and identity of the officer with the open microphone is the true elapsed time between the shooting and the recording of the sound of the sirens.

The Ramsey panel reported that 123 seconds elapsed between Sheriff Decker's "Hold everything secure" order and the sound of the sirens on channel 1. The panel also reported 64 seconds of continuous radio traffic on channel 2 between Chief Curry's "Go to the hospital" order and Decker's message. Therefore, 187 seconds elapsed between Curry's order to go to Parkland Hospital and the sound of the sirens. However, the panel made no attempt to establish how much time elapsed between the shooting and Curry's command.

In the course of preparing a paper which he submitted to the HSCA, private investigator Anthony Pellicano spoke with Curry, who told Pellicano that "immediately after the shots were fired" he transmitted his "Go to the hospital" message on channel 2 of the DPD radio. However, this conflicts not only with Curry's testimony before the Warren Commission but also with comments he has made in the intervening time. Curry told the Warren Commission that he did not transmit on channel 2 until after he spoke to Officer Jim Chaney, who was riding a motorcycle to the right and rear of President Kennedy. In conversations since 1964, Curry has always maintained that he was unaware of the fact that anyone had been struck by a bullet until Chaney told him. Curry told Gary Mack that he slowed down in order to find out if anyone had been hurt, and to then tell Secret Service Agent Greer how to get to Parkland Hospital.

There is evidence to support this claim. Former DPD officer Earle V. Brown told Dallas newsman Earl Golz in March 1980 that he saw the presidential limousine and four other cars in the motorcade stop for at least 30 seconds just west of Dealey Plaza, on the Stemmons Freeway access ramp, under the northbound Stemmons lane in the Stemmons Freeway Underpass.

In his previously quoted conversation with Gary Mack, Chief Curry confirmed Brown's account. In October 1981, Mack interviewed Officer C.D. Jackson, who had been riding alongside Chaney at the right/rear of the limousine. Jackson said he and Chaney stopped on Elm Street after the shots were fired, "put their feet down", and looked around. They then sped off to catch Chief Curry, at which time Chaney spoke through the right front window of the police lead car to Curry. Jackson told Mack that it took them "30 seconds, maybe a little more or less" to catch up with the lead car and for Chaney to speak with Curry.

If one assumes that the 30 second delay reported by Earle Brown coincides exactly with the 30 seconds which Chaney and Jackson took to catch up with Curry (an assumption which, it must be stressed, had not been proven), then the 30 second period must be added to the Ramsey panel's 187 seconds elapsed time, giving a new total time of 217 seconds between the final shot and the recorded sound of the sirens.

Jack Daniels filmed the motorcade as it emerged from the Triple Underpass at the foot of Elm Street. Daniels was standing about 200 feet west of the Underpass, on the north side of the street. His film, which the HSCA saw for the first time on December 28, 1978 (the day before the committee's final session), shows Officer Chaney in a stationary position on Elm Street at least 15 seconds after the final shot, confirming what Officer Jackson told Gary Mack. The Daniels film means that yet another 15 seconds must be added to the 'shots-to-sirens' elapsed time, making the very minimum elapsed time 232 seconds, or 3 minutes and 52 seconds. This is summarised in Table A, as follows:

Table A: Elapsed time between shots and recorded sounds of sirens on DPD radio channel 1

<u>Time in seconds</u>	<u>Event</u>
000	- Final shot fired in Dealey Plaza.
015	- Daniels film shows Chaney stationary on Elm Street.
045	- Chaney and Jackson catch up with lead car. Chaney speaks through window to Curry. Curry transmits "Go to hospital" order on channel 2.
109	- Decker transmits "Hold everything secure" order on channel 2, which is also recorded on channel 1.
232	- Sound of sirens, lasting approximately 36 seconds, recorded on channel 1.

Sheriff Decker's report to the Warren Commission adds weight to the validity and accuracy of Table A. Decker, who was riding in the lead car with Chief Curry and Secret Service Agents Lawson and Sorrels, said that he did not transmit on channel 2 until they were on the Stemmons Freeway, 1½ to 2 minutes after the shooting. As shown in Table A, Decker's radio message was transmitted 109 seconds, or 1 minute 49 seconds, after the final shot was fired, a time lapse which is totally consistent with what Decker told the Warren Commission.

Is an elapsed time of almost 4 minutes between the final shot and the recording on the sound of sirens consistent with those siren sounds being picked up by an open microphone on a police motorcycle located at or near the Trade Mart, 2.273 miles away?

Jim Bowles, the former DPD radio supervisor who provided the Ramsey panel with vital evidence in respect of the acoustics data, has conducted his own research into the assassination. His intimate knowledge of Dallas and the functioning of its police department, together with discussions and interviews with fellow officers who were involved in and with the

motorcade, has given him an unequalled insight into the events in Dallas that day. In a reconstruction of the journey from Dealey Plaza to Parkland Hospital which allowed 15 to 20 seconds for the delays reported by Earle Brown and Jesse Curry, Bowles found that it took only 2 minutes to reach the point on Stemmons near the Trade Mart where the officer with the open microphone was said to be.

Bowles, the local expert, calculated an elapsed time of approximately 2 minutes; the Ramsey panel accepted 3 minutes and 7 seconds as being consistent with the testimony of the driver of the President's limousine; and the known facts suggest an elapsed 'shots-to-sirens' time of 3 minutes 52 seconds. Which estimate is correct?

Because the Ramsey panel did not evaluate the other available data, it used the timing of Curry's order to "Go to the hospital" as a basis for its timing of the final shot. This gave the panel a 187 second interval from the final shot to the start of the siren sounds. The panel then used the departure from the Plaza, and the delays and hesitations therein, to conclude that the average speed between Dealey Plaza and the Trade Mart of 43.8 mph was acceptable. The panel attempted further justification of this rather slow speed by noting that "there were turns, traffic, a heavy car, Mrs. Kennedy and a Secret Service Agent crawling over the back of the car, and a critically wounded passenger to slow the average speed."

The reality of the matter is that Curry gave the order to go to Parkland Hospital after the confusion in the Plaza had been sorted out, and after he spoke to Officer Chaney. From then until it reached the point on the Stemmons Freeway where the officer allegedly stood with his open microphone, the limousine only had to negotiate the short upward ramp onto the Freeway before it reached a multi-lane highway which was free of traffic - there were no turns and no traffic, Mrs. Kennedy was not crawling over the back of the car, and the car itself was a specially-equipped high-powered limousine.

Secret Service Agent Greer's testimony, which indicated speeds of up to 50 miles per hour at times, relates to the journey from Elm Street to Parkland Hospital as a whole. A more accurate reflection of the limousine's speed during the crucial period on the Stemmons Freeway is the testimony of Agents Clint Hill and Rufus Youngblood. Hill said that they travelled at between 60 and 65 miles per hour, and Youngblood said it was between 60 and 70 miles per hour. Both estimates are consistent with what might reasonably be expected of a top notch Secret Service driver on an open, dry road, en route to a hospital with the mortally wounded President in the back of the car. At these speeds, Bowles' estimate of two minutes would appear to be correct for the trip from the Stemmons ramp to the point on the Freeway at which the open microphone was allegedly located. Therefore, the fact - which the Ramsey panel established - that 187 seconds elapsed from the limousine's departure from the ramp until the sirens were first heard, strongly mitigates against the open microphone being anywhere near the Trade Mart, unless for some unknown and suspicious reason the limousine kept its speed down to under 44 mph while on the Freeway. As that is so highly unlikely, another explanation for the timing of the sound of the sirens, and another location for the open microphone, must be sought.



### 3.4 Motorcycle And Other Sounds

Figure 3 results from an analysis of the principal sounds transmitted over channel 1 of the DPD radio by the open microphone. The sounds are mainly those of the motorcycle engine, but other significant sounds were also recorded. The times shown on the left of Figure 3 are the elapsed times in relation to the final shot, using the timing calculated in section 3.3 and shown in Table A. The times on the right of Figure 3 are those calculated with reference to the final shot as specified by the HSCA.

The issue under review here is whether or not any useful intelligence can be derived from a study of the motorcycle engine noise as recorded on channel 1. If, as the evidence of section 3.3 indicates, the open microphone was not located anywhere near the Trade Mart, can the motorcycle engine noise give any indication as to the whereabouts of that microphone?

Essentially, Figure 3 indicates that the motorcycle was in motion at the time the shots were fired (unless otherwise stated, references to the time of the shooting relate to those on the left of Figure 3, as calculated in section 3.3). Over a period of slightly more than 1 $\frac{1}{2}$  minutes thereafter, the motorcycle apparently slowed down, before coming to a halt just prior to Sheriff Decker's channel 2 transmission which was picked up on channel 1. Eight seconds before that transmission, channel 1 recorded what is presumably a police officer saying "All right, Jackson". Since this message does not appear on channel 2, it must be assumed that the speaker was using or was at least close to a microphone switched to channel 1. There was an officer named Jackson in the motorcade (mentioned earlier in section 3.3), and apart from the dispatcher named Jackson, the police assignment logs for that day do not show anyone else of that name. The "All right, Jackson" message therefore suggests that, whether or not there was another open microphone elsewhere, there may well have been one in the motorcade.

Ten seconds after the Decker transmission, channel 1 recorded what the HSCA experts identified as the sound of a carillon bell. Despite extensive research both by the HSCA and later by private citizens, the origin of this bell sound cannot be identified. However, a number of observations not made by the HSCA's experts are in order with regard to this sound:

- Just prior to the bell sound are two 'bleeps' (H-tones) which indicate that another transmission on channel 1 was being attempted. This is confirmed by the fact that the bell sound is abrupt, suggesting that it was picked up by a different microphone;
- The pitch of the sound appears to go from high to low, which is not characteristic of church bell sounds, and the sound lacks the smoothness which one normally associates with such bells;
- Comparison of the channel 1 'bell sound' with a channel 2 recording of a partial siren sound suggests that the two are at least similar, if not identical, to the unaided ear;
- Police motorcycle patrol officers who have listened to the 'bell' say that it is identical to the sound generated by driving a motorcycle over a metal manhole cover.

Therefore, while there is no evidence indicating the existence of a church bell in the vicinity of the possible open microphone locations, two other options exist to suggest possible sources of the "bell sound". Either explanation may be correct, and both possibilities warrant investigation.

Immediately after the bell sound can be heard what appears to be the noise of two motorcycles passing the open microphone, followed by sounds which resemble a motorcycle kickstand being raised. Then, 27 seconds after it apparently stopped, the motorcycle with the open microphone seems to move off. An echo, suggesting the motorcycle was passing through a tunnel, can be heard 11 seconds later, and 7 seconds after this the motorcycle appears to stop again. The engine noise suggests that the motorcycle stopped

Figure 3: Analysis of Motorcycle and Other  
Sounds recorded on channel 1

<u>Elapsed Time in seconds</u>	<u>EVENT</u>	<u>Elapsed Time in seconds (see text)</u>
000	Final shot fired in Dealey Plaza	-111
006	Motorcycle changes gear	-105
071	Second gear change	-040
101	Voice - "All right, Jackson" (some believe this is "All right, Chaney")	-010
102	Engine slows, and possibly stops	-009
109	Decker message - "Hold everything secure"	-002
111	Final shot, as determined by the HSCA	000
119	Sound resembling a carillon bell	008
121	Sound of passing motorcycle	010
122	Second motorcycle passes open microphone	011
127	Noise resembling kickstand being raised	016
129	Motorcycle accelerates rapidly	018
140	Echo, as if passing through underpass	029
147	Engine slows, and then idles	036
161	Noise resembling kickstand being raised	050
162	Motorcycle begins to move off	051
163	Motorcycle accelerates	052
181	Motorcycle slows down considerably	070
186	Movement of, or near, open microphone	075
187	Motorcycle accelerates again	076
213	Someone whistling an unidentified tune	102
225	Echo, as if passing through an underpass	114
232	Sirens, lasting approximately 36 seconds	121
252	Motorcycle stops	141
284	Partial channel 2 transmission by Sergeant S.G. Bellah (call number 190)	173
297	Partial channel 2 transmission by Officer B.W. Hargis (call number 136)	186
421	Voices - possibly a woman saying "Oh, my God"	310
425	Partial channel 2 transmission by Sergeant J.V. Harkness (call number 260)	314
556	Engine idling	445
571	Sound resembling kickstand being raised	460
575	Motorcycle moves off slowly	464

for about 14 seconds, after which the kickstand was apparently raised and the motorcycle moved off again. Thereafter, the motorcycle apparently remained in motion for about 1 1/2 minutes. During this period, the sound of someone whistling an unidentifiable tune can be heard, the motorcycle apparently passed through a second tunnel or underpass, and then the previously discussed sound of sirens can be heard for approximately 36 seconds.

The channel 1 sounds suggest that, after the motorcycle stopped again just over 4 minutes after the shooting, it remained stationary for a period in excess of 5 minutes, before moving off again. During that 5 minute period, three channel 2 transmissions were partially recorded on channel 1, which tends to suggest that the open microphone was on a motorcycle which was parked near at least one other stationary microphone switched to channel 2.

The sequence of events described above are difficult to reconcile with the theory that they were recorded by an open microphone located on the Stemmons Freeway, in particular those sounds which suggest the motorcycle went through at least two tunnel-like areas. However, without detailed testimony from Officer Beilharz who, along with the Ramsey panel, appears to think that his was probably the motorcycle with the open microphone, his movements in the 9 minutes after the shots were fired cannot be compared with the movements implied by the sounds recorded over channel 1.

The only public record of Beilharz' activities in the period of time surrounding the assassination appeared in a story by Earl Golz in the Dallas Morning News on April 14, 1982. In that article, Beilharz claimed not to remember any radio transmissions at the time of the shooting because, he said, his radio was malfunctioning and simply did not pick them up. Beilharz added that he was unaware of the shooting while he was at his assigned location at the intersection of the Stemmons Freeway and Industrial Boulevard. Beilharz said he remained at the intersection for approximately 5 minutes after the motorcade passed by, before he decided to follow it to Parkland Hospital. It was only on arrival there, he said, that he heard about the shooting in Dealey Plaza from other officers. However, if Beilharz spoke to nobody until he arrived at the hospital, and his radio was failing to pick up transmissions, how did he know - especially as the motorcade had passed his location some five minutes earlier - where the motorcade had gone?

The channel 1 sounds discussed here, and listed in Figure 3, are very consistent with the known movements of another police officer, however. A study of all the relevant still photographs and motion picture films shows that the motorcycle noises recorded on channel 1 coincide with remarkable accuracy to the documented movements of Officer B.W. Hargis, who was riding his motorcycle in the motorcade to the left and rear of the President. It is particularly interesting to note the accuracy and consistency of the channel 1 sounds to Hargis' known movements when the HSCA's timing of the final shot is used, instead of the timing established earlier in section 3.3 and used in the foregoing discussion. This correlation is illustrated in Figure 4.

There is a question with regard to Hargis which deserves close scrutiny both by the Justice Department and the House Judiciary Committee, as well as by anyone who wishes to attempt further research and analysis. In his book "The Plot to Kill the President", HSCA Chief Counsel and Staff Director G. Robert Blakey said that the HSCA "did not contact Hargis, who was ill at the time of our investigation". However, a footnote in Volume XI of the HSCA's published evidence shows that a staff interview with Hargis took place on October 26, 1977. Furthermore, in a letter dated January 12, 1979, Dr. James Barger of EBN was advised of the close similarity between Hargis' known movements and those implicit in the sounds transmitted by the open microphone. It would appear that Dr. Barger, very properly I hasten to add,

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Figure 4: Correlation between recorded sounds  
and known and projected movements  
of DPD Officer B.W. Hargis

<u>Recorded Events</u>	<u>Interpretation</u>
- Motorcycle gear changes	- Consistent with Hargis changing gear on the turns into Houston and Elm Streets
- Engine slowing, then stopping	- Hargis slowed, and stopped after the final shot, according to the film taken by eyewitness Orville Nix
- Two passing motorcycles	- Officer Chaney passed Hargis' motorcycle just over 15 seconds after shots. The Bell film shows Officer H.B. McLain passing Hargis' motorcycle 18 seconds after shots
- Kickstand being raised, and motorcycle accelerating	- Hargis told Warren Commission that he left his motorcycle, ran across Elm to the wall atop the knoll, and then returned. Still photo by Bothun shows Hargis remounting, approx. 25 seconds after the final shot
- Echo, motorcycle slows/stops, then moves off again	- Hargis testified he rode under the Triple Underpass and looked around for anyone acting suspiciously before he moved off again
- Motorcycle accelerates, then slows, then accelerates again	- Hargis testified he rode under the northbound Stemmons Underpass, looked around looking for anything/anyone suspicious, then turned back
- Echo, sound of sirens, then motorcycle stops	- Hargis testified he returned to the Book Depository, thereby passing through at least 1 more underpass. The sirens may have been on police vehicles at rear of motorcade, going west towards Stemmons as Hargis rode east on Elm toward Book Depository, where he stopped for a considerable time
- Partial transmission by Hargis on channel 2, picked up on channel 1	- Hargis spoke to eyewitnesses near Book Depository, and may have used another radio, near his own, to transmit on channel 2 between 12:34 and 12:35

Note: Although included in the DPD transcript of December 1963, Hargis' channel 2 transmission between 12:34 and 12:35 which was picked up on channel 1 was omitted from the FBI transcript of July 1964

passed this information on to the HSCA, because five days later, January 17, a second HSCA staff interview with Hargis was conducted, according to the same Volume XI footnote. Release and review of the interview notes relating to Hargis for October 26, 1977 and January 17, 1979 would therefore seem most appropriate, and might shed some important light on the discrepancy between the published evidence of the HSCA and the statement in Professor Blakey's book.

There is one problem with this tentative identification of Hargis as the officer with the open microphone, and it is - for the moment, at least - a serious problem. By comparing the impulse patterns on the channel 1 recording with the patterns obtained during a test firing in Dealey Plaza on August 20, 1978, the HSCA acoustics experts were able to pin-point the location of the motorcycle with the open microphone at the time each of the four shots was fired. These locations differ significantly from the known location of Hargis at each point. However, the HSCA experts were allowed to fire test shots from only two locations - the alleged "sniper's nest" on the sixth floor of the Book Depository and a point behind the fence on the grassy knoll. It is therefore within the bounds of possibility that, if other firing points were used, the resulting impulse patterns might point to Hargis' known locations. Alternatively, it should still be possible to perform the experiment in reverse. By plotting the known location of Officer Hargis at the time of each shot, and using the impulse patterns on the DPD channel 1 recording, the point of origin of each shot could be calculated. If the points of origin thus identified were reasonable (ie not the middle of Elm Street or some other such unlikely place), the possibility that the open microphone was on Hargis' motorcycle could not be ruled out, and would be strengthened by the similarity between the engine noises subsequently identified in the recording and Hargis' known movements after the shooting. As the matter stands at the present time, the case for Hargis having the open microphone is at least as strong as that for Beilharz (or anyone else on Stemmons Freeway or at the Trade Mart), and certainly seems to justify further investigation.

The need to consider Hargis, or anyone else, as the officer with the open microphone comes about despite the study to identify the officer in question by the HSCA. The evidence presented by Barger, Weiss and Aschkenasy indicated that the jammed transmitter was on a motorcycle located about 140 feet behind and to the left of the limousine at the time of the shooting. Examination of the DPD assignment log for November 22, 1963 showed that two officers, B.W. Hargis and B.J. Martin, were required to ride in close proximity to the left side of the limousine. However, because the officer with the open microphone was apparently much further behind the limousine than either Hargis or Martin, they were ruled out by the HSCA. The assignment log showed that Officers H.B. McLain and J.W. Courson would have been the next pair of outriders on the left-hand side of the motorcade, and testimony from both officers indicated that McLain positioned himself between 2 and 7 car-lengths behind the presidential limousine, with Courson several car-lengths further behind. An 8-millimeter colour movie film, taken by eyewitness Robert Hughes from a point near the intersection of Main and Houston, was then reviewed by the HSCA. The final frames of the film show the President's limousine as it makes the turn into Elm Street from Houston Street, and they also show Officer McLain as he completes the turn from Main Street onto Houston Street. These frames, which depict the scene 4 or 5 seconds before the first shot was fired, show that McLain was then about 215 feet behind the limousine.

On December 29, 1978, McLain publicly testified at the Committee's request. He said that he recognised himself as the officer in the Hughes film, and acknowledged that his positioning in the cavalcade was confirmed by other films showing earlier stages of the drive through Dallas. McLain testified that he did not use his microphone at any time during the parade,

and said that it may have been switched - as it usually was - to channel 1. He also testified that the transmit button on his microphone was known to stick, and that it had done so on a number of previous occasions, but he did not know if it was stuck at any time that day. He recalled hearing only one shot, and he said he heard it when he was approximately halfway between Main and Elm Streets, on Houston Street. On the basis of the findings of the acoustics experts, the supporting photographic evidence, and the public testimony of McLain, the HSCA concluded that Officer H.B. McLain was most likely to have been the officer with the open microphone.

The questions about the identity and location of the officer with the open microphone were first raised by none other than McLain himself. On January 4, 1979, just two days after the HSCA's summary findings were made public, and exactly one week after his own testimony was taken, McLain told CBS television viewers that he was not the officer in question. McLain told interviewer Eric Enberg that immediately after the shots were fired he turned on his siren, and sped after the limousine towards Parkland Hospital. If this were true, McLain could not have recorded the assassination, since - as we have seen - no sirens can be heard on channel 1 until almost four minutes after the final shot was fired. McLain said he turned on his siren in response to Chief Curry's order to proceed to Parkland, transmitted on channel 2 about 45 seconds after the shooting. Therefore, in addition to the lack of siren sounds immediately after the Curry message, the fact that he responded to an order given over channel 2 meant that McLain's radio was not then tuned to channel 1.

The HSCA's response, presented in its final report published on July 29, 1979, simply dismissed McLain's statements. The Committee believed that McLain may have heard Curry's order over the radio of another motorcycle nearby (as McLain had testified was possible), and stated that McLain was simply mistaken on the point of his use of his siren. In rejecting McLain's claims, the HSCA was also rejecting the evidence of its own acoustics experts. Dr. Barger had told the Committee that approximately 5 seconds before the first shot was recorded, the noise level of the engine on which the jammed transmitter was mounted dropped appreciably. This fact alone is sufficient to preclude McLain as the officer with the open microphone. He simply could not have reached the point on Houston Street where the first shot was recorded, in the four or five seconds available to him from the time he is visible in the Hughes film, if he were decelerating during that period.

Unfortunately, the HSCA did not conduct a detailed study of the noise generated by the engine of the motorcycle with the open microphone. Such a study was, however, undertaken by Steve Barber, and it forms the basis for Figure 3. As noted earlier, the relevant photographic evidence links the movements of Officer Hargis to the recorded engine sounds much better than do the movements of McLain. Indeed, the photographic evidence shows McLain passing Hargis' stationary motorcycle about 10 seconds after the final shot, which is consistent with McLain's statements to CBS.

The testimony of Officer Hargis also highlights the consistency of his actions with the recorded sounds. Hargis, who was riding about 10 feet to the rear and immediately to the left of the presidential limousine, told the Warren Commission in 1964 that "... I stopped and got off my motorcycle and ran to the right-hand side of the street, behind the light pole... and I ran up to this kind of a little wall, brick wall up there to see if I could get a better look... Then I got back on my motorcycle, which was still running, and rode underneath the first overpass to look on the opposite side in order to see if I could see anyone running away from the scene, and since I didn't see anyone coming from that direction I rode under the second overpass, which is Stemmons Expressway and went up around to see if I could see anyone coming from across Stemmons and back that way, and I couldn't

see anything that was of a suspicious nature, so I came back to the Texas School Book Depository... I went to a gap that had not been filled, which was at the southwest corner."

The similarity between Hargis' known movements and the sounds on the channel 1 recording, correlated in Figure 4, are obviously open to other interpretations. It may be argued that Hargis, like McLain, does not "fit" the acoustical facts, since he was not in the locations where the sounds of the shots on channel 1 matched the sounds produced during the HSCA's 1978 reconstruction, either. This fact, in addition to the fact that Hargis transmitted on channel 2 between 12:34 and 12:35 (after he arrived at the Texas School Book Depository), cannot simply be dismissed. However, the weight of the evidence favouring Hargis rather than McLain, Beilharz, or any other officer, is such that without a viable alternative, Hargis must remain the 'best case'.

#### 4. A Working Hypothesis:

At approximately 12:31 pm on November 22, 1963, exactly 143.62 seconds after a police motorcycle radio became jammed in the 'transmit' mode, a series of impulses were recorded over channel 1 of the DPD radio. Following a series of exhaustive tests, these impulses were identified by the HSCA's acoustic scientists as the radio-transmitted "fingerprint" of a shot fired at President Kennedy's limousine from the Texas School Book Depository. A second series of impulses, caused by a second shot from the Book Depository, was detected on channel 1, 1.6 seconds later. A third shot, which this time originated from behind the fence at the top of the grassy knoll to the right/front of the limousine, was identified 6 seconds later. A fourth and final series of impulses, again consistent with the acoustic fingerprint of a gunshot from the Book Depository, was detected 0.7 seconds after the third shot, a total of 8.3 seconds after the first shot was fired. According to the results of their tests, the HSCA experts concluded that these four sets of impulses had been recorded over the open microphone, which they found was located somewhere in the region of 120 to 160 feet behind the limousine during the period of the shooting.

The 1982 report of the Ramsey panel cast serious doubt on the findings of the HSCA acoustics experts, however. The panel identified part of a channel 2 transmission by Sheriff Bill Decker in the midst of the static on channel 1, just 1.15 seconds prior to the third series of impulses said by the HSCA's experts to represent a shot. As discussed in section 3.3, Decker's order to "Hold everything secure" was in fact transmitted over channel 2 some 109 seconds after the final shot was fired. Therefore, since the Ramsey panel proved conclusively that the Decker message was recorded simultaneously on both channels, the two sets of scientific conclusions were mutually incompatible. Either the HSCA's experts were correct or the Ramsey panel's experts were correct; both could not be correct. This conflict, apparently irreconcilable, and physically impossible, is tabulated below in Table B:

Table B: HSCA and Ramsey Panel Findings

<u>Time in seconds</u>	<u>Event</u>
0.00	First shot, as detected by HSCA
1.60	Second shot, as detected by HSCA
6.45	Decker message, as detected by Ramsey
7.60	Third shot, as detected by HSCA
8.30	Fourth shot, as detected by HSCA

We have already seen that there are a number of questions regarding the authenticity of the currently existing channel 1 dictabelts. We have also seen that there is evidence to suggest that the dictabelts produced on November 22, 1963, were copied on one or more occasions in 1963/4. In section 3.2 we saw a possible reason for such copying - the removal of one or more embarrassing references to a telephone call or series of calls, involving DPD Officers R.C. Nelson and J.D. Tippit. The Ramsey panel considered, and rejected, the hypothesis that Decker's order was superimposed over the shot sound impulses on the channel 1 dictabelt. For some unknown reason, however, the panel did not look at the possibility that the shots were over-recorded onto the segment of the dictabelt which contained the Decker message.

Since publication of the Ramsey report, I have devoted a considerable deal of thought to possible methods of superimposing the shot sounds over the Decker message. However, since I have been unable to improve on it, the method proposed by Paul Hoch in a letter to Dr. Berger of BBN on February 27, 1982 remains the most like, and as such is presented here.

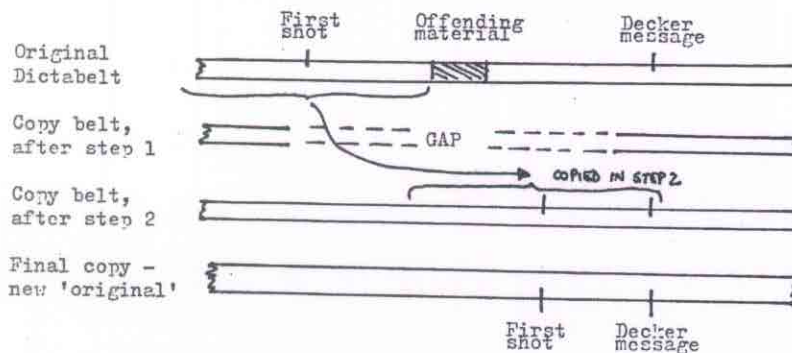


A prerequisite of the Hoch scenario is that, whatever it was that had to be deleted from the dictabelt, it occurred somewhere in the period between the first shot and the Decker transmission, an elapsed time of 117 seconds.

Two Dictaphone machines would be necessary: one for playback, and one for re-recording. The recording machine could not simply be made to pause while making the copy, since this would remove the offending material but also leave the resulting output belt too short. Therefore, a full output belt could be made by simply turning the playback volume down completely - or by removing the connecting cable - once it neared the offending part of the belt, and then turning it back up again, in time to pick up the Decker message. This would produce a full output dictabelt, but the belt would have an obvious gap where nothing was recorded. In doing this, it is quite possible that the shot sound impulses (recorded on the original belt but inaudible to the unaided ear) might not be on the duplicate dictabelt.

How should the gap in the output dictabelt be filled, to make it sound like the surrounding segment of the original belt? How better than to fill it with a copy of what was recorded just prior to the offending material - just radio static, to the casual listener?

The playback Dictaphone is positioned prior to the offending material, and the recording Dictaphone is positioned at the start of the gap on the copy belt. Then, the "static" is recorded until the receiving dictabelt has gone past the end of the gap. This in turn will mean that a portion of the output dictabelt has been recorded on twice, but since the intention is to create a "clean" output recording, such over-recording is of no consequence. If one assumes that the recording is allowed to continue to a later point during this copying step than occurred in the first step - in other words, this time it goes past the shot sounds - then quite by chance the shots have been deleted from their original position on the dictabelt, and have now been overlaid on the Decker message. All that remains, then, is to make a copy of the output dictabelt so that no physical trace of the overlay exists. The stages in this copy operation are diagrammed below:



As Paul Hoch pointed out, this particular hypothesis can be tested relatively easily. Some material prior to the time of the shots would appear twice on the new "original" dictabelt, but since this material probably consists of no more than the irregular 'bleeps' caused by other radios trying to occupy the channel, it would need very careful study in order to detect such duplication.

The Ramsey panel examined the "original" dictabelt which they obtained from the Justice Department, and confirmed that there were no physical signs of over-recording. However, with the hypothesis outlined above, there would be no such indications. Therefore, while the Ramsey panel did not rely

entirely on the absence of physical signs of over-recording to conclude that it did not take place, it was certainly a contributing factor in that conclusion.

There is confirmation of the viability of such a scenario from the Dictaphone Corporation itself. In October 1981, Paul Hoch and his fellow researcher Robert Ranftel visited with Bill McWilliams of the Customer Service department of the Oakland office of the Dictaphone Corporation. Mr. McWilliams told them that the original information can survive when a dictabelt is over-recorded, and the result typically sounds "mixed" - exactly what can be heard on the extant dictabelt. Indeed, the entire copy process described earlier, with its resulting mixture of shots and the Decker message, is totally consistent with the results predicted by Mr. McWilliams. Therefore, whether it happened or not, the foregoing scenario is technically possible, which is surely an essential requirement of its acceptance as a possibility.

Like Paul Hoch, I do not feel particularly comfortable with such speculative analysis and hypothesising. However, as in the case of Officer Hargis and the open microphone, in the absence of a better explanation the one offered here must suffice, at least for the present time.

### 5. Summary:

In the course of this paper, much of the non-scientific evidence regarding the DPD channel 1 dictabelts has been examined in some detail. As for the scientific evidence itself, I leave analyses of that to those more qualified than I, in the belief that such analyses will support my own findings. In particular, I believe that a review of the scientific evidence based on the assumption that Officer McLain was not the police motorcyclist with the open microphone would, even at this late stage, be most appropriate.

With reference to the evidence examined here, we have seen that there are queries regarding the basic facts of the recording process employed by the DPD on November 22, 1963 in respect of the channel 1 dictabelts. Were they of 15 or 30 minutes duration each? Was channel 1 recorded continuously or by voice activation? What is the significance of the disputed 51 second gap in the recording, allegedly found by Jerome Elkind of the Ramsey panel? These queries also have serious repercussions, in that the results of any study of the dictabelts could be significantly impacted by different answers to these questions.

These issues apart, the chain of possession of the dictabelts is less than satisfactory in terms of completeness. Quite simply, there are too many missing links in that chain for comfort. We know that the belts were out of the possession of the DPD within a few days of the assassination, and remained so for a number of days. The official copies of the dictabelts made by the Secret Service for their own use, and made by the DPD for the FBI, cannot now be found, although at least one of these four copies was deposited in the National Archives for safe keeping. Additionally, there is what I referred to as the "documented inaccuracy" of the chain of possession while the evidence was being obtained and subsequently used by the HSCA. In particular, there are a number of contradictory accounts of the date and content of the material obtained from Paul McCaghen and handed over to Dr. Barger. Questions can also be reasonably asked about the HSCA's inability or simple failure to document the complete chain of possession, and the committee's apparent satisfaction with the chain which they did document. Finally, there is the possibility that both the FBI (in early March) and the Secret Service in May or June, had further unconfirmed access to the dictabelts in 1964.

The physical evidence of the dictabelts themselves poses still further questions. First, there is the 57 versus 60 Hz hum problem, with the resultant discrepancy whereby the recording is simultaneously 5% too fast and 5% too slow, a discrepancy which in turn proves the dictabelts to be duplicates. Secondly, there are the differing start times for the crucial dictabelt, apparently arising in the period between March and July 1964. Thirdly, there are questions about the condition of the dictabelts, which again seem to have taken place in the same March/July period. Fourthly, a number of questions exist with respect to the handwriting on the belts. Ms. Schwartz wrote some of it, but someone else apparently wrote a considerable amount more. We still do not know exactly when Ms. Schwartz wrote on the belts, which in itself is very important, but perhaps even more significant is the fact that we do not know who else wrote on those belts, or when they did so.

The evidence summarised thus far points to the fact that the channel 1 dictabelts which currently exist are not the ones which were created on November 22, 1963. We cannot account for the whereabouts of the belts at all times since they were created, nor can we establish the date and circumstances surrounding each and every access to them. We cannot reconcile the apparent anomalies regarding the time at which the crucial belt began, and the duration of that belt, nor can we claim to find the sudden deterioration in the condition of the belts satisfactory. When these aspects are

considered in conjunction with the inconsistent power hum issue, they form a sound basis on which to conclude that the existing belts are not the original recordings.

In drawing such a significant conclusion, one must be aware of the need to provide a suitable alternative to the presently held beliefs. If, as the evidence so clearly suggests, the dictabelts are duplicates rather than the originals, answers to some other questions must be offered.

Why would anyone want to duplicate the channel 1 dictabelts? The most likely, and simple, explanation is that they were copied in order to save the originals from undue wear and tear, and to provide backups for use in the ongoing investigation. This explanation would appear reasonable, until one considers the very strange anomalies in the transcripts, particularly with reference to Officer J.D. Tippit, the second murder victim that day in Dallas.

There are serious implications arising from the fact that a radio call, ordering Tippit into the area in which he would later be shot, appears on a DPD produced channel 2 transcript, when that message was undoubtedly transmitted over channel 1. Even if one were to accept the unlikely theory that two DPD officers were preparing channel 1 and channel 2 transcripts in the same room at the same time, is it even remotely possible that they were both at the same point in their transcription at precisely the same time? The only other explanation that appears to make any sense is that copies of both channel's recordings were being made in the same room at the same time, and the channel 2 copy somehow managed to pick up that channel 1 order to Tippit. Even this explanation presents problems, however, in that it does not explain why that message to Tippit - and that message alone - was recorded onto the wrong channel. This in itself raises the possibility if not indeed the probability that the Tippit message anomaly is proof of a further copy of the dictabelts being made prior to March 1964, and probably in December 1963.

As discussed in detail in section 3.2, it is my belief that a series of radio transmissions, probably relating to one or more telephone calls involving Officers Tippit and Nelson, were edited out of the original DPD recordings, probably within a few weeks of the assassination. The facts that the channel 1 dispatcher referred to Tippit and an incorrect address for the scene of the crime before hearing the details from the citizen who first reported the shooting of Tippit, and the instruction to Officer Brock to be available "for call" immediately beforehand, coupled with Brock's almost instantaneous response to the shooting, are all indicative of some advance knowledge on the part of the dispatcher. Since that knowledge did not apparently reach him by means of the radio which he was manning, one must assume that either he left his post in the radio room or the transmissions containing the crucial information have been removed from the recording. The latter possibility would appear the most likely, and since it is quite possible that the relevant messages did not relate to the President's murder, their removal cannot be held to constitute willful tampering with material evidence, or its deliberate destruction.

The evidence reviewed in this paper also points to errors in the official evaluation of the extant data, particularly in respect of the HSCA and Ramsey panel's identifications of the officer with the open microphone. The siren and motorcycle engine noises identified in the recordings are not compatible with the known and projected movements of Officer McLain, Officer Beilharz, or anyone else located near the Trade Mart, just off the Stemmons Freeway. The siren sounds are also inconsistent with the reasonably assumed speed of the limousine on the frantic journey to the hospital, if they were recorded over the radios of McLain, Beilharz, or another officer at the Trade Mart. Furthermore, the photographic evidence raises questions over the HSCA's identification of McLain which cannot be satisfactorily answered.

Having dismissed McLain, Beilharz, and Bowles' unnamed "suspect" in the vicinity of the Trade Mart, it is almost imperative that a viable alternative be proposed. As reviewed in section 3.4 in some detail, the available evidence tends to indicate that there is at least a strong possibility that Officer Hargis was the motorcycle rider with the jammed radio microphone. The siren and detectable engine noises, along with the independent photographic evidence which was reviewed neither by the HSCA nor the Ramsey panel, points more clearly to Hargis than to any other police motorcyclist. Therefore, unless one wants to totally disregard the acoustic evidence which so clearly establishes that the microphone was in Dealey Plaza during the President's assassination, Hargis must remain the most likely candidate for the dubious distinction of being the officer in the DPD who ultimately led to the rejection of the Warren Commission's case.

There are questions about the Hargis issue which deserve further investigation, if not indeed official explanation. The Hargis transmission on channel 2 which was recorded in part on channel 1 was strangely missing from the 1964 FBI transcript. Most peculiar of all, however, must be the contradictory evidence regarding the two Hargis interviews with the HSCA. These facts must surely raise questions in any open mind about whether or not they are all purely coincidental. It is, of course, all possible - but is it likely?

Until a more plausible explanation is forthcoming, Paul Hoch's theory about the method used to duplicate the channel 1 dictabelts remains, like Hargis, the "best bet" currently available. It at least provides us with a hypothesis which is perfectly possible, but even more importantly, it makes sense of the apparently irreconcilable differences between the scientific findings of the HSCA and the Ramsey panel. With the Hoch scenario, there is a result which gives equal credibility to both sets of contradictory data, and allows both sets of findings to be correct.

The evidence discussed in this paper appears to provide grounds for the claim that the DPD channel 1 dictabelts for November 22, 1963 were copied. They were possibly copied twice at least; once in December 1963, and again sometime between March and July 1964. The belts were perhaps copied to protect them from undue use; there would appear to be evidence, however, which could be used to support the claim that the belts were copied in order to excise possibly embarrassing references to Officers Tippit, Nelson, and Brock. If so, the DPD must be the most likely culprits; if not, then both the Secret Service and the FBI had the means and the opportunity to copy the belts, although neither apparently had a motive.

As a result of these copies, it is most unlikely that the currently existing channel 1 dictabelts are the original belts produced on November 22, 1963. As a further result of these copies being made, there are two sets of conflicting scientific findings, one of which clearly indicates the existence of a conspiracy, the other which equally clearly disproves it.

Presented here is the evidence that such copies were made. However, also presented here is a copying hypothesis which apparently allows these contradictory findings to be reconciled, with the result that both could - in their own sphere - be correct. In so doing, we can retain the probability that the assassination resulted from a conspiracy, while at the same time allowing both sets of scientists to save face, at least. We have also seen that there is evidence of a substantial nature which points to Officer B.W. Hargis as the source of the open microphone transmissions, an identification which can be fully resolved and which warrants further investigation.

The question of conspiracy in the Kennedy assassination stands or falls on the authenticity of the acoustics evidence, in the eyes of the authorities at least. Many feel that other areas of research might be more fruitfully pursued, but it is my firm belief that, if the acoustics evidence can be

rejected, no further official interest will be taken in the truth about the assassination. It therefore seems imperative that the basis for any scientific analyses should be conclusively established. In view of the serious questions raised about the authenticity of the extant dictabelts in this paper, such a basis has not as yet been established. If these belts are not the original ones, as the evidence indicates, then it seems only reasonable that every possible effort should be made to locate the originals or to quantify the possible differences which have been carried forward to the current dictabelts. Such is beyond my own resources - the responsibility can, however, be laid squarely on the Justice Department, who are currently reviewing the evidence. Much of the data discussed in this paper has already been made available to the Justice Department; perhaps the best we can now do is to ensure that it is acted upon before any further decisions are taken.

...ooOoo...