Date: 08/22/93

Page:1

JFK ASSASSINATION SYSTEM

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EXECUTIVE SESSION BUSINESS MEETING

DATE : 08/03/78

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EVIDENCE; ACOUSTICAL ANALYSIS

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JFK ASSASSINATION SYSTEM

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EXECUTIVE SESSION

COMMITTER

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Dusiness Meeting

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THURSDAY, AUGUST 3, 1978

House of Representatives.

Select Committee on Assassinations,

Washington, D. C.

 \mathcal{H} The committee met, pursuant to call, at 9:45 a.m., in room H-140, the Capitol, the Hon. Louis Stokes (chairman of the committee) presiding.

Present: Representatives Stokes, Preyer, Fauntroy, Burke, Dodd, Fithian, Edgar, Devine, McKinney and Sawyer.

Staff Members Present: G. R. Blakey, E. Berning, L. W. Svendsen, P. Beeson, J. Wolf, B. Morrison, P. Miller, Ella P. Powers (Congressman Edgar) and Hank Spring (Congressman McKinney).

Mr. Preyer (presiding). The committee will come to order.

The matters under discussion today are to be matters that would be more properly discussed in a closed session, I understand.

Mr. Blakey. That is correct, Mr. Chairman.

Mr. Preyer. Do I hear a motion that this session be closed?

Mr. Dodd. I so move.

Mr. Preyer. Mr. Ratner wanted to take one picture before we went into closed session. Ask him if he would come in, in a great hurry.

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Mr. Edgar. Mr. Chairman, are we going to be permitted to have members of our staff in today's session for the issues that are not related to secret information?

Mr. Blakey. There is only one part of the subject matter, Mr. Chairman, that probably ought not to include members of the staff and that will probably be later this afternoon.

Mr. Preyer. All right.

Mr. Chairman, I move that the session be closed in accordance with our rules and the regulations of the House.

Chairman Stokes. The motion having been properly made that our committee go into executive session at this time, the clerk will call the roll.

Miss Berning. Mr. Stokes.

Chairman Stokes. Aye.

Miss Berning.

←Mr. Devine.

[No response]

Miss. Berning. Mr. Preyer.

Mr. Preyer. Aye.

Misse Berning. Mr. McKinney.

Mr. McKinney. Aye.

Miss Berning. Mr. Fauntroy.

[No response]

Mass, Berning. Mr. Thone.

No response

Ree, No. 116-10331

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Chairman Stokes. It has been properly moved that we accept the ticket policy set forth in the memorandum.

Any discussion?

All those in favor will say Aye; those opposed No.

The motion is carried. So ordered.

Mr. Blakey. Mr. Chairman, you also have before you a cover memorandum dated August 2 from me that has attached to it a draft No. 2 of a suggested public information policy. It is draft No. 2 because praft No. 1 was circulated among the press members or people on your staffs who have some dealing with the press and they had an opportunity to have some input to it.

There is one central point of information that I would draw your attention to in the memorandum. It assumes that as we go from a period of investigation into a period of public hearings that there ought to be some change in the committee's releasing its information and to do that there should be a dissemination desk within the committee offices that will act as a central repository of that information and we will make an effort to make available to your staffs all of the public information and serve really as a research library for your staffs having everything that is required.

Most of what would be possessed by the information desk would also be possessed by each member s office and the information desk function in part will be to keep up the information in your

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be brought to your attention is as follows. The committee up until now has followed a press policy of no comment on anything.

As we get into the public hearings it probably is not possible to maintain that policy across the board though candidly it would be my preference to see that policy adopted.

What this memorandum suggests is that the committee draw a distinction between issues of substance and issues of procedure and the committee members be authorized consistent with the policy of the committee itself to make any comment that they felt desirable about procedure and when hearings were scheduled, the number of witnesses we have heard, the kind of work we have done in the past from a statistical nature. Nevertheless the suggestion in the memorandum is that the committee members themselves refrain either on a background basis or a public basis from making any comment outside of the hearings themselves on what is going on in the hearings; that is, no comment on a witness is going to be called, no comment on the credibility of a witness, no comment on what you expect to prove or what you think you have proven.

I know that this suggested policy is different than what is traditionally followed in public hearings of a congressional character. My argument to you would be that what we would be doing in exploring Martin Luther King's death in the public hearings and exploring President Kennedy's death in the public hearings is something very different from what congressional hearings are traditionally all about and that you will be playing

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essentially the roles of judges and jurors in passing on the facts brought to you and because it is grossly improper for a judge or a jury to comment on evidence as it is being developed before them I would suggest to you that it may well be perceived as improper for the members of this committee to comment on the evidence as it is going along and being presented to you.

In addition, I would raise the following consideration which I think probably is the most significant. It is unfortunate that this committee has had in the past a bad press image. There was some thought in the early life of the committee that the chief counsel was making an effort to explore either or both of these deaths for personal gain and of a publicity character. I think that if the public perceives this committee as in any degree making use of either of these deaths for political or personal gain it will cast the whole committee in such disrepute and call into question all of your integrities that we ought to do everything possible to avoid even the charge of an effort to exploit either of these deaths.

Therefore, if each committee member refrains from any private comment and in addition when publicly asked a question simply responds that The evidence is being presented to me and I think it would be inappropriate or improper for me to comment on it until it is all presented and then what comments I will have on it I will share with the American people in December in a full, open and fair conversation in public where I will vote

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my convictions, I think the press would understand it and the general position of the committee would be one that would be eminently defensive.

Chairman Stokes. Any discussion on this point?
Mr. Edgar.

Mr. Edgar. Mr. Chairman, I have three points that I would like to make on the press policy. I think that in light of some of the things that Mr. Blakey has just said that there ought to be another subheading put in the press policy which implies that because of the negative press that the committee had in its opening months that we wish to suggest to the press that the policy in opening up our sessions now to the public and to the press is going to be much more open and friendly and that we in fact are beginning a process of working with the press and saying something to the press in our memorandum that we know the difficult job that the press has in covering an issue like this and that we want to be as open and as cooperative as we can.

I make my comment because I think the press can make or break the success of our committee and I think we ought to try to approach the hearings not with a chip on our shoulder that we are keeping information but to fully explain to the press what it is we would like to do and what our plans are and to try to work as harmoniously with the press without losing our integrity as is publicly possible. To that end I would suggest that the Thursday before the 14th that there be a press briefing, not for the purpose

LINE STREET of outlining to the press the specific witnesses that would appear, but that on the Thursday before the 14th the meeting and briefing with the press could set the stage for what we are about to do in opening public hearings and we could share the committee's press policy, we could explain it in a very detailed fashion and give some background information. I think that this kind of a setting is not really outlined in the second draft of the press policy but makes some sense to me, we here we go into the 14th with our public hearings we will have already let the press know in an open setting and in a friendly setting perhaps led by you, Mr. Chairman, how cooperative we want to be with the press. That is the first point that I would like to make.

Just two subsequent points. One is to raise the question of whether or not we have explored the possibility of having a closed circuit TV hookup for our hearings that would go to each member's office. This might help in our credibility before those members if they could turn the channel and find us. I don't know whether it is technically possible but I know that all the offices have TV coverage of the floor debate. I don't know whether we are hooked up to have closed circuit TV coverings of our hearings.

Mr. McKinney. We cannot get the House thing in the Cannon.

Mr. Sawyer. I get them in the Cannon.

Mr. Edgar. You have to make application for it.

Mr. McKinney. Ah, so.

Mr. Blakey. I am sure Miss. Berning can check on that.

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Mr. Edgar. Just one point of emphasis. I think on page 2 where it says, "The committee should avoid giving out the names of witnesses before they appear," I think that should be underscored and be an absolute policy because if some of the members give out the names and others don't $\frac{1}{2}$ I would really think that that has to be an absolute kind of thing. I guess my only major point is the suggestion that we hold prior to the 14th a major press briefing.

Mrs. Burke. Would this be to discuss the witnesses or what would the press briefing cover?

Mr. Edgar. I think the press briefing would be to say we are beginning on the 14th our public sessions. We plan to have public hearings and then go into the September and October time I think we could share with them kind of an overall theme of what we are about without giving specifics. I think we could go through the third draft of this memorandum point by point so that the press fully understands and we can have some dialogue back and forth with them. Fourth, it would be to try to get them feeling that we want to harmoniously work with them. We might be able to announce at that time, the first week of activities, what we see as a step by step because it does not seem to me that our first week is that secretive in terms of Z

Mrs. Burke. Has it been announced to the press?

Mr. Blakey. The themes were mentioned in remarks by the chairman on the floor when the dates were announced.

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Mr. Edgar. I think that serves as a kind of opening statement to the press.

I guess I just want to see us in a setting with the press where we are smiling and where we can talk about the kind of work that we have done and the reasons why we have had to be in executive session and the reasons why we are now going to open session and the reasons now why we are going to not be able to comment on the substance of the investigation because we are still receiving input but that we will be able to comment on structure and we do now have a press policy that would give them information in enough advance time for them to be prepared to cover our hearings and we urge them because of the interest of the American people to cover our hearings.

Mr. McKinney. If the gentleman will yield, I would like to emphasize that. It seems to me even though this would not be the policy for later on that since the first week I think one is in prison and the others we know they are the kind that we would set a better mood if we did announce on Thursday exactly what the schedule was going to be.

Mr. Blakey. Except for the witness James Earl Ray. For example, you know exactly what would happen if we announce the witnesses in advance.

Mr. McKinney. There is nothing confidential.

Mr. Blakey. They will go to them and interview them in advance and then the focus of attention will be what they said

۲. ۲. 300 1111 SIRBEL, S.W., REPORTERS BUILDING, WASHINGTON, before they came and what they said after they left rather than what they said before the committee.

// Mr. Edgar. The only witness that they could interview would be Dr. Abernathy.

Mr. Blakey. They could interview Dr. Baden, they could not interview James Earl Ray.

Mr. Sawyer. I think it is very important, though, what Bob said, that we make it clear to them that we are not going to comment on the thing as it is developing because your local press is going to take umbrage at this if that is not explained in advance, and the reasons for it.

Mr. Blakey. That is an excellent suggestion.

Mr. Edgar. The other problem I have is that the press can go and interview Dr. Abernathy already.

Mr. Blakey. But they don't know he is coming here and therefore they have not gone to him and asked him questions about what we have talked about with him or what he may testify about up here. If they go to him, I am sure he will talk to them.

Mr. Edgar. Well, I can understand that not naming names other than James Earl Ray the first week and that Monday and Tuesday will be setting a stage for James Earl Ray's visit, and I can understand that but I guess my feeling is that the press briefing that we would have would be not just to get the TV cameras focusing on the chairman but also to educate the press as to the style and the way we are going to operate with the

WASHING IN 300 / 12 GINELL, G.N., RELORITHO BUILDING, intention of trying to help them understand we want to work with them, because I think in the past they have had the feeling that we have tried to manipulate them or we have tried to put them in a box, and I think our new policy is we are going to now try to work with them in a harmonious way so we get the facts as I previously described to the American public as well as possible.

excellent one. Just to comment on one phase of it, it does seem to me that the press could probably accept some standardized policy with reference to not releasing the names of witnesses. I think if we explained it in that context, well, we cannot tell the about witnesses when about them them some, and not tell you about others without it being too onerous, that they probably can accept that would think. I think your suggestion is excellent.

Mr. Fithian. Mr. Chairman.

Chairman Stokes. Mr. Fithian.

Mr. Fithian. We are working on it, I hope, within the perimeters of reality and that is that any witness that Mark Lane is bringing before this committee, or a number of other witnesses, will indeed make it known to the press that they are coming, so I hope we are not assuming that we will be able to walk a well known American into our hearings without the press already knowing it.

Mr. Blakey. I think that is true. For example, somebody like Governor Connelly if he comes on the Kennedy side, I am sure he will tell the world he is coming first and there is nothing we

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can do about that anyway but there is very little that he could say to the press that he has not already said anyway. If I said anything about Governor Connelly's appearance it would be questions we ask him in the context of the evidence to be shown when he appears and that is something that it is unlikely that he would be able to comment on until he gets here although there will be a pre-appearance interview with the Governor.

/ Mr. Edgar. When will be the first time the press will know the name of the witness?

Mr. Blakey. That morning when they receive the background booklet which will contain the narration, the name and address of the witness and the exhibits of that day.

Mrs. Burke. When will we receive that material, the day before?

Mr. Blakey. The committee will get it as soon as we know.

The actual booklet will be prepared and given to your staff the day before. Indeed the whole staff should know just as soon as it is finalized as to which witnesses are appearing on which days but that actual booklet will be given to the staffs the day before.

Mr. Sawyer. Are you making any differentiation between the press and the electronic media? You know, the press have deadlines and they don't like to publish something kind of a day after everybody has seen it on TV. They like to kind of come out with their evening paper with the same thing.

Mr. Blakey. They will get it at eight in the morning with an

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embargo as of the time the witness appears and that they tell us is adequate to get it in the evening papers.

Mr. Edgar. Let me ask you equal the whether the electronic media will have sufficient time to receive it and identify that this is an important witness that they should cover, and be there. Is that sufficient time.

Mr. Blakey. The situation with the electronic people is as follows, meaning by electronic ABC, NBC and CBS. Their management people have had contact with me and I have had contact with them in a general sort of way. The way in which this is normally handled is there would be a very private conversation with them probably on Sunday evening, just the three management people, in which they would expect us to honestly tell them what was going to happen that week. They think that if three management people know it only that they would then make management decisions about what to cover; that if we expanded that group beyond three it would be like issuing it to the world. Yes; those people have to make a greater commitment of equipment than simply to send some person and it may be possible to work out an arrangement with them where they get the information sufficiently in advance that they can make an intelligent decision about what to cover and when.

Mr. Fithian. Mr. Chairman.

Mr. Blakey. Excuse me. That is not something we can put on this piece of paper because The New York Times and the Post go out of their minds if the electronic media even on a management

level will get some advance notice. In fact, this is what is done regularly by the White House now and has been done by some other congressional committees.

Mr. McKinney. Let's not prey too heavily on the White House. Press problems are legion.

Mr. Blakey. Perhaps I should say it has been traditionally done by White Houses, including this one.

Chairman Stokes. Mr. Fithian.

Mr. Fithian. Mr. Chairman, I support the direction we are going and I think we had such briefing as Congressman Edgar suggests and that the real underlying theme that you have mentioned is one which I think is absolutely crucial to establish our credibility and our reason for not saying, you know, "I am making a comment" or "He was telling a lie today" is that judge-juror role and how improper it would be for we sitting in that capacity to make any comments on the evidence until it is all in and then we sift it and so on. A lot of future cross examination should be determined whether or not I accept or reject what some witness said two weeks earlier.

The second question I have has been answered, I guess. At one time I thought that you had said that we are going to prepare kind of a narrative of the information, the kinds of questions going to be asked and so on. Now is that what you visualize or is that not visualized in the eight o'clock packet?

Mr. Blakey. The eight o'clock packet is what we know is

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going to happen. For example, we know that the narration will be given to set the stage for that day's hearing. We know what the witness's name and background will be and we know what exhibits we intend to introduce. That would be given to the media immediately. I think we have to prepare approximately 150 copies of that each morning. Since we don't know what the witness is going to say until he takes the stand, we cannot tell them beforehand anything about that but that they will get at eight o'clock that morning.

#This will permit them to understand that day's hearings by having an opportunity to get an advanced reading of the narration. They can begin filing their stories on that or at least start writing them. They will have a prehearing look at our exhibits. It should be a very intelligible proceeding, far different from what is typical of a congressional hearing and is less structured.

Mr. Fithian. The next point I wanted to make is I think we should consider, Mr. Chairman, that at the close of each day's hearings you know and I know what will happen. We are going to bring down the gavel and we will start walking out and every good reporter is going to try to corner Mrs. Burke for a comment or somebody else for a comment or whatever. I think that is absolutely inevitable, any way that we pique the interest of the press. I am wondering in light of that inevitability if the Chair or/and the person who is working on the cross examination especially for that day ought not to make a few minutes available

to the press not to interpret the evidence, etc. $\frac{2}{77}$

Mr. Blakey. But what will you say, Mr. Fithian? That is precisely what you really should not do. A judge does not go out in the hall and make himself available for what happened that day, the jury doesn't. If you do, what you will guarantee is what you say in the hall and not what has been carefully worked out in the hearings will be reported in the press.

Mr. Edgar. They are waiting I think in the hall to find out whether Ray is coming. Isn't that what they are set up for out here now?

Mr. Blakey. It could be. Let me say that presents another very interesting problem. Should Ray learn from the committee directly? Should Mark Lane learn from Jim Wolf, our legal counsel, or should they learn from the media who is coming? If they learn from the media that we are going to invite him, that will be one of the issues Mark Lane will raise, our exploitation of the media, and for that very reason. Mark Lane is not reachable until sometime this afternoon.

The committee really ought not comment on whether Ray is coming or not until Ray and his lawyer know. Really, Mr. Fithian, if we cannot concentrate everything on the hearings in which we have an opportunity to think about it beforehand and structure it out, then the hearings will speak for themselves. If the committee members find out outside of the hearings what will happen will be what spontaneously occurred in the hall and you will not be able

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to say each day, "Well, I can't comment on whether I believe him,
I can't comment on the direction of the testimony, I can't comment
on who else we may call," what would you then say to him? Try to
summarize in two minutes what occurred in three hours?

Mr. Fithian. No. I think you could stay with the no comment on the testimony, the substance, but a good reporter is apt to want to know from Lou whether or not the committee has looked at what he considers a crucial document before.

Mr. Blakey. How can you say that? I mean if you are given the document that perhaps you have not seen before, honestly the staff has seen before, it was not included in the materials that were available to you for good and sufficient reasons and some reporter asks you about it and you say, well, I am not aware of that document, then that is what goes in the public domain and not the thousand researchers who know about it.

One of the things that happened to the Warren Commission that we are living with now on the autopsy is that the autopsy surgeons walked out and talked to the press. The press found out what happened at the various places and all the statements were then made in the press, none of which was accurate. The autopsy surgeons said, "We saw a bullet hole coming out in the front," and that is where the whole theory of the grassy knoll comes in. The real doctors, the forsenic pathologist, there is no hole in the front and the photographs clearly show no hole in the front so the myth of the bullet hole in the front was created by the people talking

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to the press.

// We should learn from that. What we say as a committee should be said as a committee in the whole and not outside. We will be perceived as exploiting the press. Somebody will say something that isn't accurate and then we will create one more piece of myth that if that myth had not been created the committee would not have been created.

Mrs. Burke. Mr. Chairman.

Chairman Stokes. Mrs. Burke.

Mrs. Burke. Mr. Chairman, maybe what we could have as a policy is that one person talk to the press, the Chairman, and in that event at least you have one person that you can control. no one else gives comments and we agree we will give no comments, we won't be faced with this kind of thing if someone makes an offhand comment to the press and it is blown out of proportion. comments that would be made in terms of future plans or the direction of the committee would be made by the Chairman. I think in that way you can control.

I have a question. What press corps will cover the hearings? Will each newspaper cover the hearings? How are we determining? Will it be the Capital press corps? Will it be a matter that we will select particular newspapers? How will we determine what press will be included in these tickets?

Mr. Blakey. The tickets will be assigned to the accredited press here.

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The Capital? Mrs. Burke.

The ones accredited to the House press corps. Mr. Blakey. Then whoever wants to will come and they will get enough tickets roughly for everybody to come but it is up to them to come or not.

Mrs. Burke. How many seats is that?

The press people are not included in these Miss. Berning. These tickets are reserved seats.

Mrs. Burke. How many press seats?

That is for the Miss. Berning. Approximately writing press of the writing press and the periodical press. All press people have to be approved by the House gallery, that is in the House rules. They either carry a press card, because all of the major newspapers have made application to and gotten approval for that, or they apply on a one: time basis and get a temporary card. We expect a lot of that for this particular hearing.

One determination that has to be made, they expect to give out as many passes as can possibly fit into the room this block of 100 seats or 80 seats, I forget how many there are. ninety seats. Anyone who is accredited has a right to come and it is only space that would keep them out. The people who are not accredited but that may be a problem are the minority owned weekly newspapers, and that is something that has to be determined because if they are not accredited, if there is no room for them and they cannot be accommodated because a major newspaper or any of the others that are accredited are there first, they come back to any

of you and we need determination what you are going to do. Will you back up the House press gallery?

Mrs. Burke. Well, of course we go through this all the time.

Can't we in arriving at this / for instance, do we have a list

that we send out the press releases and the announcements, the

dates and all of those things, to a particular press list?

Miss Berning. The wire services.

Mrs. Burke. The wire services.

Mr. Blakey. There is a book that you can enter an entry or a log saying we have things available and then anybody can come. For example, Tass, the Soviet news agency, came to see what our photographic releases were in the Kennedy case.

Mrs. Burke. I am certain we are going to have a lot of foreign press applying for Capital press passes. Of course the minority press will be interested in the King case. I do hope that we work out some kind of a policy. Maybe the policy would be those obvious press people should be advised that they need a gapital clearance. I think that is the way it has worked out, for instance, in inaugural events. They don't use the traditional press corps for this.

the United States. When we refer to the House press gallery it is just not people assigned to Capitol Hill. They put out that there is an event going on and anyone that is interested from all over the Nation, all over the world actually, can apply to them.

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// Mr. McKinney. Have those gone out yet?

I don't know. I know it has been discussed. Mass. Berning.

Mr. Blakey. I am sorry, Congressman.

Mr. McKinney. For instance, I have a feature writer who is an assassination buff for the Bridgeport Post and it was my intention to have him here as a guest, just to let him sit in one day so he would have been there. If he comes as a guest, he does not need any kind of press clearance, does he?

No; but if he comes as a guest he cannot take Miss, Berning. pictures or carry a device with him. All you need do is have him contact the press calling.

Mr. Devine. Have you considered a pool arrangement? A pool of TV cameramen for all three networks and the wire services?

Mr. Blakey. From what we understand it is not likely that ABC, NBC will carry the first two days live. It is likely that CBS will have somebody there every day although probably not live. I think the decision has not yet been made as to whether to cover If one or more of the networks decide to cover Ray live, Ray live. that could be done by a pool arrangement but that is something that The PBS carries it live. My understanding is that CBS or NBC will also have a camera there since they don't consider PBS kosher.

If there are members of the committee that wish Mrs. Burke. to have a filming of a part of the proceedings, we do have a private company that we can work out a filming arrangement with?

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and for the form of I guess it would have to be cleared through the press gallery, but there is a private company that would do it, for it is not that expensive, if some members of the committee wanted filming.

// Mr. Fithian. Mr. Chairman.

Chairman Stokes. Mr. Fithian.

Mr. Fithian. I don't know how readily available clearance is up there. That is the kind of point of information, I will just take Mrs. Burke's case, if the San Francisco Examiner decided just for the heck of it they would like to cover they are not going to cover the whole thing but they are going to contract somebody to go over and cover two days of the hearings and then they are going to talk about not only the hearings but Mrs. Burke's role in it, would they pretty automatically get a press pass from the gallery up there?

Miss Berning. There would not be a problem with that particularly if it is concerning one of the members.

Mr. Fithian. Then if they didn't get in because the press seats were taken, is our policy that she could or could not admit them on one of her tickets?

Mr. Blakey. She could admit them on one of her tickets. The San Francisco Examiner would have no problem getting in. If Ray is here for three days, I suspect that the tickets are probably adequate. It is clear that in the Kennedy hearings in November when the Caucus Room will be used there will be no trouble getting

the press in.

miss Berning. The number of seats we have set aside for the press came from discussions that we have had from the three superintendents of the press gallery and it is their experience they can normally expect "X" number of people who want to come in so there has been discussion with them.

Mr. Fithian. That number includes a lot more than the Washington press corps in the first place.

Miss Berning. Yes. The Washington press corps is such a very small part of that.

Mr. Blakey. I might add that Elizabeth has spent a great deal of time in the last weeks, month or so, talking with the people on the other committees learning their experience, sitting with various members of the House press gallery and trying to figure out how people have done it in the past and what the experience has been. Remarkably, there is a real body of information about how to do this. Elizabeth has been more absorbed in this. If we have specific questions and we want all these details, there is a good library on it and she understands it very well.

newspapers or papers you are interested in, it might be good to let me know and I will pass it on and let the press gallery know so they can feed it into their system. The more information we have beforehand, the better it is.

Chairman Stokes. There is one question in terms of the

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minority newspapers. What is the procedure for them to be able to get whatever accreditation is necessary?

"Mèss. Berning. Any minority daily, there is no problem. concern I was asked to pass on to you is for the very, very small weekly newspapers. The problem with letting them in is, number one, they would probably come at the last minute rather than letting anyone know ahead of time because they would not be wired into the major, and they would, have to bump someone who would be on There imail weeklies a daily. They could get this information from the wire services and they could pick up their stories through other sources rather than being at the hearing live, in person.

If your determination is that you want these small weeklies that would have a very limited circulation to be there, the press gallery will try to work it out but it will pose a major problem Their policy would be to turn them down unless you tell for them. them otherwise but they don't want them to be turned down and then have them come back to you with the complaint.

Chairman Stokes. Maybe we had better arrange to have a meeting with them on this point because in the King matter, particularly, we know that there is going to be a great deal of interest and it will create a real problem if we don't have some kind of accommodation for them.

Mr. McKinney. Will the Chairman yield?

Chairman Stokes. I yield.

Mr. McKinney. Is there a list of minority weeklies?

 $/\!\!/$ Chairman Stokes. There probably is, yes.

Mr. McKinney. It seems to me a letter could be sent out to them.

Miss. Berning. To what effect?

Mr. McKinney. Telling them the dates, the problems.

Chairman Stokes. Through the NNPA, the National Negro
Publishing Association We probably can communicate with all of

Mr. Blakey. I will see that that is done, Mr. Chairman. We will get to them and tell them what they have to do. That is no problem.

Mr. Edgar. You might want to explore the possibility of closed circuit TVo and then there is plenty of room.

Chairman Stokes. We are pretty much agreed in terms of the dialogue and discussion we have had regarding the policy. We are pretty much agreed then that we develop a policy where there would be a no comment type of situation.

Mr. Blakey. Mr. Chairman, there is one aspect of it that is now unclear. Mrs. Burke has suggested that the comment on procedur be limited to you. The memorandum indicated the comment on procedure be by anyone. I don't know what the status of that difference is. I take it on everything else there is agreement.

Mr. Devine. It puts a pretty heavy burden on the chairman if he has to say, no comment.

Mr. Edgar. Mr. Chairman, I would go with what is in the

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memorandum. I think the chairman will get the most questions and each of us will get questions. I think we are old enough now after a year and a half of infancy to be able to respond to non-substantive questions and procedure that are in the public arena particularly in light of your comments in the Congressional Record and others about where we are going from here. A lot of that stuff is public, then on substantive questions in the hearings we just say no comment. I think that is spelled out.

Mr. Fithian. Or we could say, "The Chairman speaks for the committee and go talk with him."

Chairman Stokes. I think the recommendation is that members be permitted to make comments regarding procedure.

Mr. Blakey. I will rework this memo.

Mr. Edgar. Is there agreement on Thursday or so of a press briefing in light of what I had suggested?

Chairman Stokes. I think that that was by pert of unanimous consent.

Mr. Edgar. That might be a good day to practice at least partially partially together a packet for distribution at that time make and making sure that our staffs get copies of it for distribution to our press.

Mr. Blakey. There is no problem setting up a frank and clear background briefing for them of what is going to happen live.

Again I would suggest that that briefing might be on the record.

I mean no cameras coming in and kind of announcing what we are

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going to do next week but just talk to them and let them know.

If we want to begin creating a good working relationship with
them, we can do that on a background basis where they can talk to
us and we can talk about it without having to expect to see the
comments appearing in The Washington Post the next morning. It
might be a very useful thing.

Mr. Edgar. I guess I misunderstood that. I must have been on the telephone when you said that. I saw it as background information but not something that would be confined so that they could not write a story about it.

Mr. Blakey. They could write it but not for distribution. I don't think it would be appropriate, for example, for me to come out and see my name in the press saying what is going to happen this week. If the whole thing goes all the way through and my name never appears in the press, that is the way it ought to be.

Mr. Edgar. I envision, and I may be mistaken, the present of the press cameras wanted to come in, the press cameras wanted to come in, the press policy, and for Lou to have an agenda and to go down specifically through the policy and then say, "Do you have any questions?" and not say to the press, "We don't want you to use any of this in a particular way." I think what we need to say to the press is that our policy is now moving to a way of cooperation and working with year over

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this information. I would hate for us to get into a bind of having them say, "Well, at our first opportunity for discussion after a year long absence from discussion you somehow tried to censor."

Mr. Blakey. Mr. Edgar, let me suggest something to you. If the Chairman and Mr. Devine or even one or two others of you were to walk into a room now and begin having a conversation with the press, you would get only substantive questions and if you did not respond to them immediately you would have the very hostility which you are concerned about. My suggestion to you

I can respectfully Mr. Edgar. I think that, we announce that we are having a press briefing on the following issues and we list out those issues very carefully and say to them that we are now moving to open hearings and the chairman change makes it clear in the beginning there will be no substantive discussion, we are talking about moving from an executive session to an open dialogue with you. I don't think you will get the angry comments. I think you will get the angry comments if we try to say to them, "Here is a press briefing but you can't really report on it." I think what we will get on Friday of next week is a headline in the newspaper: Assassination Committee Set to Have Public Hearings. At a press briefing yesterday led by Lou Stokes they laid the ground rules for press policy and they talked about the procedure which they are planning to operate under in the upcoming hearings.

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Mr. Blakey. I think that is precisely what you don't want to do. What you want is to share with them what your reasoning is and you don't expect to see that in the newspapers. The hearings really ought to speak for themselves. They will read that as an effort to manipulate them, Mr. Edgar.

Chairman Stokes. It appears, Bob, you are not objecting to a briefing session; in substance, you are objecting to the type of briefing session that Mr. Edgar suggests, right?

Mr. Blakey. Maybe I can't say that I have a great deal of experience compared to the Chairman or Mr. Devine or what have you but I really live around this very press pool that is covering us for the better part of almost twenty years and I have done it in the context of the criminal justice type issue, I have done it in the committee hearings in the Senate, I have done it in the context of the judicial committee hearings in the Senate, I have done it in the context of the Watergate hearings in the Senate and I really know $\frac{1}{M}$ at least I think I do $\frac{1}{M}$ the kind of trouble this committee is in on its press policy and the real danger we have of blowing it. Maybe I am being unduly rigid or concerned about it but I really think that everything we do other than what is directly in the hearings, having the hearings speak for themselves, any publicity we create outside of that, unless it can be immediately tied to an investigative purpose or a public explanation purpose of what is in the hearings pushes us into a category that makes us like other congressional hearings and if we do that

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I really believe we are lost, Mr. Edgar.

Except that you have now given us permission to have public comment on the process and style of the committee as opposed to the substance of the committee and we have already put in the Congressional Record a whole series of things which in your memo indicate we now can go with the press release indicating how I think the press would see it as a many hours we work, responsible thing to do at the beginning of substantive hearings.

Mr. Blakey. As a practical matter those kinds of press releases I have suggested would be covered in your home districts, they would not be covered nationally.

If I could respectfully interrupt again, the Mr. Edgar. point that I am making is that the Chairman at the launching of two months and one week of open public hearings could logically come before the press corps and say, you know are going to have a difficult task promote over the next two months and one week and we would like to sit down with an agenda here today and explain to you what our press policy will be.

Mr. Blakey. Why not do that off the record then. The people you want to explain it to are the press people and not the general If you explain it off the record, the likelihood is that you will get communication with them. If you go on the record $\frac{2}{\pi}$

Mr. Edgar. But I think the public does not know that we are going to start on the 14th of the month with hearings and I think the public may be interested in the comment of the chairman

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some of them, have said to me, "Well, when do you start your dog and pony show?" "How many correspondents have you hired and where is the stage?" "When does your re-election television broadcast start?" Subtle, nasty, on our side. And on Sam, I think.

// Mr. Devine. Yes.

Mr. McKinney. I would like to walk into the hearing room the first day with my dark shades on and proceed.

Chairman Stokes. We may have permission under the five - minute rule to sit.

Mr. McKinney. We don't have to.

Chairman Stokes. As a full committee we do. In fact, we should have had it this morning in order to be sitting now.

Mr. Devine. Let me make a point of order.

Of course, I think maybe we are borrowing trouble. I may underestimate it, but I don't think we are going to have the media beating down the doors to get in to witness this great hearing other than the Ray end of it. I think otherwise they will lose interest. If we have more than a handful of reporters, I will be surprised.

Mr. McKinney. I don't think they will be dropping in for Abernathy and the others.

Mr. Blakey. If they don't and we have a press conference in effect about what we are going to do the following week, it will appear in effect to stimulate interest in the first part of the hearings. I really believe the inherent value of what we are

doing is so intense that if we do it well, what we do will be covered and that we ought not to have any media event outside of that.

chairman Stokes. Bob, if I understood your point this morning, the purpose of it was that the press, who had been kept away from us and who have left us alone as a result of it, would now fully and completely understand what we are trying to do and how we are going to try to present it, and so forth, and it would seem to me that the purpose which you have in mind is not really inconsistent with the way 2

Mr. Edgar. That is true. Mr. Chairman, I am willing to withdraw my concern about having it open. I would caution us though in shaping it so that we don't give the press the impression that we are trying to censor them.

Chairman Stokes. Right. I think that can be done that way.

Mr. Blakey. Mr. Chairman, that concludes the two issues that require some sort of decision from the committee.

I would propose now that we make available the Marshals to answer any questions that you might have and when the Marshals are finished to make Dr. Barger available to you to talk about the acoustical matter.

Chairman Stokes. One other question. We never did dispose of the exception taken by Mr. Edgar with reference to the scheduling of Ray. How do you propose that we resolve that issue?

Mr. Blakey. Let me suggest this to you. Why don't we get a

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working committee of those people involved in the cross=examination together, let them go over the cross=examination and then come back to the full committee with the suggestion at some time before Mr. Ray appears. Our schedule is really flexible and it is not necessary to make the decision now either way. It does not commit us finally and we decide to change on Wednesday. We can announce at any time how late to have the hearings. In fact, we can decide on Wednesday as it is going that this is not the time to cut it off, it is to continue on, and that if we keep curselves flexible we can but once the kind of executive committee is doing the crossexamination we will get together, thrash it all out and put in all the considerations. Then we can bring back to the full committee the thoughts. I would note in that connection that you are on that committee.

I just didn't want the working committee to make Mr. Edgar. I think it should be a decision of our commita final decision. tee.

Then it will come back to the full commit-Chairman Stokes. tee.

Proceed, then, with the Marshals.

Mr. Blakey . Mr. Chairman, could I present to you Marshal J. Jerome Bullock from the District of Columbia.

Would you introduce the two people with you.

Marshal Bullock. This is Inspector Robert Reid who is a security coordinator for the District of Columbia Marshal's Office

This is Lex Lancaster who is the Southeast Regional Commander of our Special Operational Group.

//Chairman Stokes. Thank you very much.

These are the members of the committee. This is Mr. Edgar of Pennsylvania, Mr. Fithian of Indiana, Mr. Devine of Ohio, Mr. McKinney of Connecticut, Mr. Sawyer of Michigan, and I am Chairman Stokes.

Mr. Blakey, how did you want to proceed?

Mr. Blakey. Mr. Chairman, I understood that members of the committee had some concerns in mind about the security. I asked Marshal Bullock if he would come to the committee this morning and indicate a general outline to the committee of their past experience in moving prisoners of this kind and open themselves to such questions as the committee might have. I suspect and I would suggest to you that it might be just as fluid for Marshal Bullock to proceed how ever he wants to in sharing that information with you.

Chairman Stokes. Marshal Bullock, we would be pleased to have you proceed in whatever way you like.

Marshal Bullock. Thank you, Mr. Chairman.

The United States Marshal Service handles approximately 60,000 prisoners annually; that is, we move that many prisoners annually. Annually we handle approximately 75 prisoners that we consider as being very sensitive either from the standpoint of them requiring some special security arrangement or from the

and were involved in the tape for Judge Sirica, the famous 18 minutes. He was also involved in the analysis of sound recordings at Kent State for the Department of Justice and he has headed up the group of scientists that have been working for the subcommittee and for the committee in analyzing the Dictarbelt tape that we found that covers the period of time that the Kennedy assassination occurred.

I thought it might be useful for all of you to hear from him this morning won really what he has done, the status of his work and what he thinks we have to do before final conclusions can be reached. He would be more than glad to answer any questions that any of you have as he goes along.

Jim.

Mr. Barger. Thank you, Bob.

I will try to give you a brief overview before lunch and you can think about questions perhaps during lunch.

We have analyzed two magnetic tape recordings that were supplied to us by Mr. Blakey and these were magnetic tape recordings made of the Dictarbelt of the Dallas Police Department dispatchers, channels 1 and 2. Now on channel 2 we find an annotation that the presidential motorcade reaches the triple underpass at twelve thirty and also that channel 1 has a motorcycle radio that is stuck in the transmit mode. On channel 1 we do find for five minutes starting at 12:20 that the $\frac{2}{17}$

Chairman Stokes. That is an indication that a vote has just

started on the House floor which means we have fifteen minutes to go to the floor and vote. We are very close to the floor so we can take another five, six, seven minutes before we have to go.

Mr. Barger. All right.

For about five minutes starting at 12:28 according to the time annotated by the dispatcher on channel 1, one hears the sound of a motorcycle principally. At about 12:31, however, that motorcycle seems to slow down and the noise level diminishes.

Now we have played these magnetic tape recordings through two filers. Each of these filters is realized on a computer. The first filter filters out everything but the high frequency components of the sound on the tape. The second filter is called an adaptive filter and it filters out noise that is somewhat repetitive and it does not disturb impulsive sounds. In other words, it learns ahead of time what the noise is like and subtracts that out. If an impulse comes along, it does not subtract that out.

Mr. McKinney. So in other words it would take out the motorcycle which is a constant.

Mr. Barger. It diminishes the sound of the motorcycle, it does not remove it completely.

Now I have graphical amplitude recordings of the output of those two filters with me. It might be best for us to examine them after the vote and let me just give a complete summary beforehand. Each of these graphical amplitude recordings that represent the output of these two filters show what I characterize

as four groups of sound impulses.

Mow these groups of impulses, just to summarize, begin at 12:31 Channel 1 time. We have established that the dispatchers do not annotate their tapes with greater accuracy than about one minute so the initial group or pattern of sound impulses occurs at 12:31 plus or minus a minute.

The second group of impulses begins two and one-tenth of a seconds later. The third group of impulses begins at 7.17 seconds after the first and the fourth group begins at 8.47 seconds after the first. When initially analyzing these filter outputs with a less powerful filter than the ones that I will show you the outputs of today, I had characterized these four groups as being three with one of them excessively long in duration. In the outputs of these two filters that we will discuss today it appears more like four as I just said.

Now the question is whether these groups of impulses are caused by gunfire in Dealy Plaza. We have already subjected these impulses to several analytical tests. First, we have taken the acoustical waveform generated by an Ml rifle and we have mathematically computed the output of the type of radio that was used when excited by that impulse. The Ml waveform is an approximation to the waveform of any other rifle and the characterization of the radio that was used in our radio was an approximation that is applicable to the general class of radios that were being used by the Dallas Police Department at that time.

// The calculation shows that the shape of the sound impulses that come out of our filters from the tape recording are similar to what one would expect from the waveform of a rifle impulse transmitted through the radio. We have located a similar radio in use on the motorcycles of the Massachusetts District Commission Police. We have obtained sound recordings of rifle impulses fired by a Mannlicher Carcano and we will introduce those sound impulses through the radio and measure the shape of the impulse at the output and see if in fact it continues to resemble the ones that we have in the analysis of the Dallas Police Department tape.

The second and most powerful test to determine whether these groups or patterns of impulses might have been caused by rifle fire is to show that their relative occurrence and that their relative phases can be replicated in Dealy Plaza whether the pointed part of the waveform points upward or downward on the graphic amplitude recording. We have done an analytical calculation of what the groups of impulses or echos would look like if a rifle was fired from the Texas schoolbook depository building in Dealy Plaza and we found that qualitatively these echos should persist for about one second and there should be about a dozen impulses visible at a microphone on Houston or Elm Streets.

The groups of impulses we find on the Dallas Police Department tape do persist for about a second and there are about a dozen of them which is proof. They do have phase reversals occasionally proof some point up, some point down. The phenomenon of defraction of

sound by a wedge, the corner of a building in this case, does in fact allow for that phenomenon to occur depending upon the relative position of the building to the gunfire. So we find that the qualitative nature of the groups or patterns of spikes are not consistent with what might be generated by a rifle fired in Dealy Plaza.

This analytical calculation is greatly complicated by the shockwaves radiated by the bullet. We are dealing with a supersonic bullet that radiates a shockwave just as a supersonic aircraft does. Calculating the defracted and reflected and scattered sound of a shockwave is an extremely difficult process and we can't replicate the physical process analytically with any degree of certainty. In fact, rifle fire is used to simulate aircraft shockwaves which are called sonic booms when people try to determine the reflection and defraction and scattering of sonic booms.

Due to the analytical intractability of the mathematical calculation of what the echo patterns would look like of a rifle fired in Dealy Plaza, we recommend to the committee an acoustical reconstruction of it in order to simulate the shockwave and its reflections, defractions and scattering. We need to use live ammunition having the same Mach number as that of a Mannlicher Carcano, meaning the same speed.

Chairman Stokes. Doctor, I wonder if we might just interrupt you at that point. 300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554 2315

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// Mr. Barger. I have one more sentence.

Chairman Stokes. All right.

Mr. Barger. The groups of impulses that I describe are not inconsistent with rifle fire but I don't feel we can state that they are until we can see that pattern of echos that is in fact generated by the environment of Dealy Plaza.

That is all.

Chairman Stokes. We will go up and vote and we will come right back.

Mr. Barger. I will be here.

Whereupon, at 12:04 p.m. the committee recessed until 12:17 p.m.

Chairman Stokes. At this time we will resume the committee hearing.

Doctor, if you would like to pick up again on your last sentence.

Mr. Barger. Well, I had intended that to be a summary and I think perhaps the next thing that we might do is look at the outputs of these filters, these amplitude records. I will show you the four patterns or groups of impulses and you can talk about them.

Chairman Stokes. All right.

Mr. Barger. Now these records are rather long. We are looking at the output of the computer in this case to the adapted filter which I said is the one that tries to remove continuous

Now this point represents zero time on the record and as I said that occurs at the instant that the announcer on Channel 1 says 12:28. We see this characteristic pattern that looks rather like grass and that is the visual appearance of this motorcycle noise. We see here about four seconds after the record begins the amplitude of the noise // namely, the length of the grass // reduces and by about five seconds which is right here. It has reduced a great deal and now we see only low level noise. This continues on until 7.33ths of a second after the origin of this record. We see that little spike which has that characteristic shape of a sharp point followed by a lower frequency ringing.

Mr. McKinney. Excuse me. What is that other wiggle back there?

Mr. Barger. This wiggle is probably the impulse introduced by another radio pushing down its push button or talk button. We find those scattered throughout the record and those are audible to the ear and can be identified as such.

After this initial spake at 7.33ths of a second we see severa: other replications of the same shape. Here is one and it is pointing downward, not upward as that one does. This one is

pointing upward as that one does. This is a small one pointing upward, another small one.

This is the area of the first group of spikes. After this time we see a departure from this transient which is the keying by another radio. We see that little shape occurs again starting at about 9.36ths of a second and it is followed by a replication of itself at several other times usually pointing upwards but eccasionally pointing down ards and this group of spikes ends at this time. There aren't any others after that and the total length of that group is .10ths of a second or in other words one second.

Then there is a period where that shape of spike does not recur until at this time which is 14.69ths of a second and we see that same shape appear again and it is followed over the next second by replications of itself, most of them pointing upward but some of them such as that one pointing downward. Then there is a short period where there are no more of those spikes and another one occurs at 16.06ths of a second and that shape again is repeated from time to time until I would say that was the last one at about 16.85ths of a second.

Now after this time one can continue to scan the record and one sees various different kinds of impulsive sounds but none of them have that same characteristic shape as was seen in the groups except in a few cases that one, for example, rather closely resembles the shape of the impulses but it is not occurring in a

group and we come down here to the end of this record at 23.80ths of a second. All of these transients again that occur have different shapes than those not in the group had and in fact are much longer in time duration than those short impulses that occurred in the groups.

Mow one thing that is important to the interpretation of this record I believe is that at 21.65ths of a second, which is here, if one listens very carefully to this record one hears a bell toll and that bell sounds for .35ths of a second. It sounds from this point to this point. It is so weak that you cannot see it in this kind of a presentation. However, a bell is composed of several musical tones and those tones can be made more easily visible by a different type of analysis called spectral analysis. What I am going to show you here is a spectral analysis of that bell. The computer gave its opinion of what that was which this is a spectral analysis of the output of the filter that occurs at 21.65ths of a second and lasts for .35ths of a second.

Now a spectral analysis takes the signal and calculates the strength of all of the tones that comprise the signal. The frequency of those tones is plotted along the abscissa and the strength of those tones is plotted on the ordinary. This frequency is 200 hertz. For your own reference, A below middle C is 440 hertz.

Now this particular spectral analysis shows a spike right there which is at 220 hertz. It shows a spike right there which

is at 440 hertz. It also shows this important spike which is at 430 hertz. It shows this spike at about 850 hertz, this spike at about 1,050 hertz and this spike at about 1,500 hertz. These last two are extremely prominent as you can see.

Now carillon bells or bell tower bells are designed to have a fundamental frequency which is called a hum note and this spike at 220 hertz would be called the hum note. It is demonstrable in this analysis but it would be hard to hear. The ear does not hear very well at 220 hertz. This spike here represents the fundamental tone of the bell as 440 hertz and that is called the strike tone of the bell. This strike occurs at a minor third above the strike tone and the presence of that spike is characteristic of power bells.

These frequencies correspond to the higher overtones of the hum note and are characteristically loud. This spectrum appears to be the spectrum of a rather large bell tuned to a C or below middle C. This bell is heard to peel, as I said, at 21.65ths of a second on this record which is right there.

Mr. Blakey. What does that bell let you do?

Mr. Barger. Wherever the microphone was that was transmitting the sound that was on the record, it was within earshot of that bell. So we are going to try also to find a bell like that in Dallas.

Mr. Blakey. And then you can tell where the bell was?
Mr. Barger. Yes. Ring it.

// Mr. Blakey. That will tell you where the microphone was?
Mr. Barger. Yes.

Now there is the fact of FM radios that I would like to discuss with you briefly. These radios that the Dallas Police Department were using on their motorcycles were FM radios. If two or more transmitters are transmitting at the same time and one of those is louder than all of the others by an amount called the capture ratio, then the receiver hears only the loudest. If there are several radios transmitting at one time and they have about equal loudness, then the receiver will hear both at once.

It is possible that the sounds that are recorded over the Dallas receiver were coming from more than one microphone at once so it is possible that this bell is located some distance from Dealy Plaza and was being picked up by a different microphone. By the same token, it is possible that during this period of the impulses that another microphone had captured the receiver besides the one in Dealy Plaza and that possibility is the strongest reason that I offer for reconstructing the event to find out exactly what the shape of echo patterns is in Dealy Plaza because in that way we can say whether those patterns of spokes do in fact correspond to the echo pattern in Dealy Plaza.

Mr. McKinney. We will return.

Chairman Stokes. We will go vote.

Mr. Blakey. Why not recess for lunch?

Chairman Stokes. We will come back at eac thirtys Whereupon, at 12:38 p.m., the committee recessed, to reconvene at 1:30 p.m.

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(The committee reconvened at 1:57 p.m., the Hon. Louis Stokes, Chairman, presiding.)

Chairman Stokes. We will resume.

Mr. Blakey. Go ahead, Chief.

When I left off we were discussing the Mr. Barger. graphical output of the adapter filter and I have now laid out next to it the graphical output of the band pass filter which is the filter that I mentioned before. It tends to emphasize the high frequency sound. Motorcycles are more of a low frequency noise maker and so it does a pretty good job of illustrating where the spikes are perhaps even better than the adapter filter. However, the adapter filter allows one to look at the shape of the spike pretty much as it is whereas the high pass filter makes it look like a short ring so as you look at this putout of the bypass filter you see that there is a burst of signal at each place where there is a spike. fact, it is almost easlier to see on the output filter but one cannot really see that distinctive shape that the waveform has.

Now peaking from this output of the band pass filter one sees almost clearly then in any other filter the group of spikes that begins at about 7.33 seconds into the record and lasts for about a second and the other group that begins at about 9.36 seconds and lasts for about a second and then finally

the next group that begins at about 14.69 seconds and lasts for about a second and then another group that begins at about 16.06 and lasts for about a second.

// Mr. Edgar. That last grouping that you mentioned, those
are entirely contiquous?

Mr. Barger. There is a period of only two-tenths of a second between those two in which there are no spikes and when I first looked at this last group I regarded it to be a single group for a total of three. However, it persisted for about three seconds whereas the others only persisted for about one second each, and this is one of the reasons that I feel it is necessary to recreate the gunfire. I don't believe that one can get such a long echo pattern as this, the third group, if it is regarded as a single group, but the only way to be able to tell for sure is to try it.

Mr. Edgar. Would you have to fire live ammunition given this movement and retraction?

Mr. Barger. I am afraid so. The actual sound pressure level of the shockwave is a little larger than that of the muzzle blast so some of these spikes are almost certain caused by the shockwave of the bullet. As I mentioned before lunch, it is an extremely intractable problem to try to calculate the refracted sound of a shockwave and so I just don't know how to approach that calculation analytically. The only way to find out how those shockwaves are refracting

around the corners of the buildings to hit the corner of the buildings with a shockwave, and that means a bullet.

// Chairman Stokes. Would the fact that there is a new building somewhere in the area, now, affect that type of situation?

Mr. Barger. Only in a very marginal way. Here is a sketch of the Dealy Plaza. Really all I have drawn in are the principal buildings. This is the schoolbook depository here, the building right across the corner, this is the new courthouse I believe it is called and the old one has some sort of terrets on the side.

This large building across the Plaza. This building I believe is new. There is one there but it is different than the original one.

Now I have sketched on this graph the sound path of acoustic rays from the northwest corner of the schoolbook depository to the various corners that would contribute significant echos that would be measured at a point on Elm Street where the microphone might well have been on the motorcycle and there are about a dozen of these, only one of which is from this building which I believe has been replaced. That is in fact the weakest of all of them being the farthest away and striking that corner with the sharpest angle so the one change in the local building arrangement is of virtually no significance.

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Chairman Stokes. What about the type of a scene that would have to set up in terms of shooting? You would also have to have a shot from the grassy knoll, would you not? Mr. Barger. Yes.

Chairman Stokes. Which would not be a rifle shot.

Mr. Barger. Well, I don't know.

Mr. Blakey. That is one of the problems, Mr. Chairman.

Mr. Barger. Was that a question?

Chairman Stokes. I think it was a question.

Mr. Blakey. We have debated that. The question is should it be a rifle shot and, if so, what caliber and should you put a silencer on it or should you not.

Chairman Stokes. And if it is a pistol, what size pistol and so forth, right?

Mr. Blakey. Right. I don't think we have an answer to that. Probably the easiest thing to do is simply to go over and use a Mannlicher Carcano and see what it looks like.

Mr. Sawyer. The fact that the last shot the gun would have been aimed almost at the underpass, which is a depressed underpass, almost tunnel-like would that affect the length of echo or sound that is shown there?

It would if the bullet was supersonic. Mr. Barger. bullets from rifles and the Mannlicher Carcano in particular are supersonic, the bullet from a pistol is not. If the last shot $\frac{1}{7}$ let me put it this way. If the second part of this last

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large group were the echo from a pistol shot, if that were the case, there would be an absence of shockwave and, therefore, there would be fewer total spikes in the last group and there are fewer.

H Now there also might be fewer for the reason that you gave, if it was fired more at the $\frac{2}{4}$

Mr. Sawyer. It was very much more . The first shots would have been more or less parallel to the depressed underpass or overpass whereas the car had moved quite a bit and, therefore, the angle shifted much more toward that underpass on the last shot and might have had some echoing effect. I don't know, I just ask the question.

Mr. Barger. The answeris yes because if a rifle were fired from about here (indicating) which is where the knoll is more parallel to these building facades, and if it were a rifle so that there was a shockwave, that shockwave would never even hit these buildings as it would if the rifle had been fired this way.

Mr. Sawyer. I was talking about the rifle being fired out of the sixth story. See, the angle changed from the first to the last shot which was much more aimed down at the underpass.

Mr. Barger. Yes. As the rifle becomes aimed more to the $\frac{1}{H}$ what direction is that?

> Mr. Sawyer. It would be west, wouldn't it? Chairman Stokes. Yes.

Mr. Barger. There will be fewer echos from the shockwave because the buildings behind won't be involved any more because the shockwave does not go behind the rifle.

Mr. Sawyer. What I was wondering is if that could contribute to the three second as opposed to the one second grouping of these waves.

Mr. Barger. The firing more toward the underpass would tend to diminish the number of echos from shockwaves thereby shortening the total length of impulses, I think, rather than lengthening them.

Mr. Sawyer. Can you tell from those series of spikes?

Can you read what kind of a sound it is, or duplicate a sound from those things?

Mr. Barger. That is very hard to do for a reason that I have not yet mentioned. The radio has a limiter in it that is designed so that if you begin to shout at the microphone the radio still functions. In other words, it takes that extra loud sound and reduces it down to an acceptable level for transmission through the radio.

So all sounds that are louder than some threshold of loudness will appear to have the same loudness. You see all these spikes have approximately the same loudness. This indicates that all of them are louder than that threshold for compression in the radio. Therefore, to the ear at the time they would have been very loud relative to the motorcycle

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but as heard through the radio they have been reduced in level so as to go through the radio and since the motorcycle was already about as loud as the radio could pass, these spikes relative to the motorcycle noise have about the same loudness through the radio whereas an observer would have heard them above the motorcycle.

So recreation working backwards from these to what was heard is virtually impossible because of that distortion in the radio by the limiter.

I am glad you asked that question because I have to explain why all of the spikes have about the same amplitude. Now I have analytically calculated the peak sound pressure levels that I would estimate at a microphone on Elm Street due to the shooting and due to the defracted sounds from the buildings of the shooting and at least ten or twelve of these impulses I estimate to have a sound pressure level in excess of 110 decibels. The maximum sound pressure level that the microphone and radio combination will pass is about 95 to 100 decibels so all of those sounds would be limited down to that maximum level and they would come out looking the same whereas a person in the Plaza would hear only a few of them because they would be so much louder than the others because his ear does not limit sounds, he would only hear the very loud ones and the echos that came in one second later would be disregarded by the ear because they were so low relative to the loud ones.

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The radio does not disregard them, it gives them as much wait as the loud ones.

// Mr. Sawyer. Doesn't the average pistol projectal travel faster than 1100 feet per second?

Mr. Barger. There are supersonic $\frac{2}{7}$

I know the 357 and the 44 Mag but doesn't Mr. Sawyer. a regular .38 travel faster?

Mr. Barger. I am not certain. I am fairly certain a .45 caliber is subsonic. I don't know about a .38.

Mr. Sawyer. I would be surprised if they were under 1100 feet per second, myself, but I don't know the answer.

Mr. Barger. I can't really answer that question right I'll look it up.

Chairman Stokes. In the final analysis in order for you to say with some degree of assurance what this really does represent insofar as 3 or 4 shots, what would be required? What do you feel would be necessary?

Mr. Barger. In addition to the analysis that I have done, I feel I need two things. The first is to play or transmit the sounds of the rifle through the radio that we have obtained which is similar to the radio that transmitted these data to see if these shapes are in fact the shapes that that radio distorts the sounds into. I suspect that they are from analytical calculations that I have made but I feel I would have to see it with the real radio, principally because the

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limiting process I was describing is difficult to determine mathematically.

We expect to do that test early next week.

The second thing I feel that is necessary as a test of the hypothesis that these groups of spikes are gunfire echos is a recreation with firing from the depository window, sixth floor, to the places where the car was at the times that these spikes occur on the assumption that the last one was the head shot. I think for completeness it would also be prudent to test fire from the knoll to those same targets and I would record through a microphone - well, through many microphones at about every 20 foot intervals up Elm and down Houston. I think it is necessary to show that these patterns of impulses with the face reversals included were in fact caused in Dealy Plaza by rifle fire directed in those directions. I believe such a test will indicate whether these patterns are rifle fire or are static. Those two things I believe are necessary to state whether these patterns of spikes are rifle fire and, if so, how many shots are here.

Chairman Stokes. I have one further question and then, Floyd, I will yield to you.

Are there other persons in the field who have your stature, or close to your stature, that can in some way corroborate your finding?

Mr. Barger. Yes, there are. Let me just qualify this

by saying that if you mean in the field of forensic acoustics I will say there is no such field. I am a scientist that works at a research laboratory that has specialized in the study of acoustical phenomenon and there are other such laboratories. I think the best one is Bell Telephone Laboratory in Murrayville, Now Joseph There are certain staff members there at that laboratory that I feel are eminently qualified to understand the acoustical phenomenon that we are dealing with and also the communications problems we are dealing with. A lot of this difficulty is caused by the radio and that is partly why I mentioned Bell Telephone Lab because they deal in acoustics and communication.

I have mentioned to Professor Blakey that I feel that Dr. James Flanagan at BTL, Bell Telephone Lab, is a very qualified, knowledgeable scientist and I could name others if requested.

Chairman Stokes. You have answered.

Mr. Barger. Mr. Chairman, it might be appropriate for the record to note that I have talked to Mr. James Flanagan who, incidentally, is the President of the Acoustical Society of America. I happen to be an Executive Counselor at the Acoustical Society so he outranks me.

Mr. Blakey. And he has agreed to talk to us on Monday and will give us a preliminary judgment as to whether he and one or two other people like him in addition to him or in lieu.

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of him would come in and take a look at this material and decide whether we have enough to know whether to go to Dallas or whether additional tests ought to be run before we go to We ought to have that.

// Mr. Sawyer. Doctor, if you perform the tests in Dallas that you have related, would you expect then to be able to say with a reasonable degree of certainty that it is or it is not, or it is three or it is four?

Yes. I would expect to be able to say Mr. Barger. with a good deal of certainty that it was or was not shots and that these patterns were or were not caused by gunfire, and likewise, whether this last extended pattern could possibly have been caused by only one or was in fact two shotson

Chairman Stokes. Mr. Fithian.

Mr. Fithian. Doctor, in reading your Kent State report you were able by reconstructing the scene to have the placement of the van to the dormitory and so on to pin down the source of the gunfire to within, as I recall, just a very few feet.

Mr. Barger. Five.

Mr. Fithian. I told somebody today six.

Mr. Barger. I remember it as five, it may be six.

Mr. Fithian. My question is then whether or not the other end of this equation will be equally precise; that is, will you be able to place the motorcycle within ten feet?

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// Mr. Barger. No; I don't believe so. I think it would require a good portion of a block to do that.

In the Kent State work we had photographs that showed where each rifleman was standing and I also knew exactly It was on a windowsill in a where the microphone was. certain dormitory room and so I fired test shots from each of the places where riflemen were standing and recorded them at exactly where the microphone was and this enabled me to determine which rifleman fired which shot with great precision. don't have that kind of pictorial evidence here about where the microphone was and I am going to seek its location by placing microphones about every 20 feet.

Mr. Fithian. So you would hope with good luck to locate the motorcycle within 20 feet?

Mr. Barger. With luck I would get one of those microphones right on the spot.

Mr. Fithian. Or in any event within 20 feet?

Mr. Barger. Yes.

Mr. Fithian. Now in the event $\frac{1}{H}$ well, we can have all kinds of hypothesis about firing from the grassy knoll but in that case we have neither the origin of the blast nor the location of the microphone. How many ambiguities get created by that?

Mr. Barger. The lack of knowledge of the source is as detrimental as the lack of knowledge of the receiver, if not

worse. The patterns that we will obtain in the recreation will not be identical to these unless we have both the source and the receiver in the same place. You will notice that the average distance between these impulses is about a tenth of a second. There are about the impulses in a second. The distance traveled by sound in a tenth of a second is 110 feet. Since many of these paths are out to a building and back, that means an error in the distance to that building of half that or 55 feet. I think we can tolerate, therefore, errors in 55 feet.

// Mr. Fithian. One last question. The flattening of the spikes, or the shortening of the spikes to be more accurate, resulted in a radial limited. Will this when combined with the uncertainty of the direction of any bullets fired from the grassy knoll make that data very sketchy?

Let me just give you one background sentence. I presume that you would correlate the firing, at least point the rifle toward where the Kennedy car which is in a somewhat generalized direction.

Mr. Barger. Yes.

Mr. Fithian. The angle would vary depending where the shot was coming from.

Mr. Barger. That is right.

Mr. Fithian. I was not sure in your technical explanation from Congressman Sawyer's question about the possibility of that getting confused with an echo back from the structure of

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the overpass. Will there be distinctive characteristics, discernable characteristics between a shot fired from the observatory sixth floor angle even though that is at its flatest point and the kind of impulses you would get from something being fired from almost directly in the opposite direction?

Mr. Barger. Yes. The pattern of echos of the shockwave will differ markedly for bullets fired in those two different directions. As I said, I believe I can tolerate an error of about 55 feet in the location of where the bullet lands or where it was fired from. I won't be able to get an exact match if I have an error as much as 55 feet but I will get one to one correspondence of spikes. They won't occur at exactly the same place but there will be the same number of them and the pluses and the minuses will be in the same order and that is what I seek.

Now I think in the case of the shots from the depository we will get better correspondence if these shots are the echo of gunfire because we know almost exactly where the rifle is fired at to where it was fired. I can't expect such good correspondence from anywhere else, if indeed anywhere else shows any kind of correspondence at all.

Mr. Fithian. My last question, in your diagrams showing the splitting of the sound, is it only the corner of the building that counts?

Mr. Barger. No. That is a good question. The loudest

sound will be the direct sound, it traveled from the muzzle to the microphone. All other things being equal, the next loudest sound would be a reflection. However, the position of that building facade is such that a reflection would not hit that microphone. The only building that would give you a reflection is this one over here for this location for the microphone. The next loudest echos are corner defractions and I have drawn the cornered defractions here.

Weaker still are the surface scanners. This building has a rough face, it has windows with windowsills and the like so that the sound that is incident upon that surface not only is reflected at the angle of incidence but very weakly scattered in all directions. Those weakly scattered signals are not going to be heard, they will be at least 20 decibels weaker.

Mr. Fithian. Now in the event that you are picking up weaker defractions, at what point, if at all, does the impact become low enough that they would not be limited by the receiver?

Mr. Barger. My estimate is that sound traveling over the past that I have sketched here will all have a level at the microphone that is equal to or greater than the level at which the microphone begins to limit. The motorcycle noise, the other noise in the microphone is about the decibels below that. The sound level or the level of sound scattered from the faces of these buildings would be at least 30 decibels lower than the

corner defractions and, therefore, it would not be heard.

Mr. Fithian. Now all of your assumptions thus far have been that the motorcycle was somewhere roughly where you have it placed. Is there any other hypothesis that could be sketched out here since at least one motorcycle went off on the wrong street and one could be somewhere six blocks away or three blocks away?

Mr. Barger. Yes.

Mr. Fithian. I am getting down to the same question if you were down there would the sounds and the impact and the echo still exceed the limit drawn here?

Mr. Barger. Yes. There is a range distance from this point that includes the entire area up these streets half a block where some of the sounds would be that loud. The pattern of the echos of course would be grossly different but in order to do this properly we have to probe all of those places.

so what we plan to do is each time we fire to have 12 microphones operating at once simultaneously. The first time we fire those 12 microphones will be located one on either side of the street every 20 feet of Elm Street here because this is where we feel the motorcycle is most likely to have been and I am going to be analyzing these data as they appear.

In other words, I will look at these patterns within the minutes of the shots on an oscilloscope and I am going to make overlays of these patterns to the same scale as the

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oscilloscope; that is, hold them up one off the other.

// Mr. Fithian. Do you still have your computer there that you run this thing on?

Mr. Barger. Unfortunately, the computer that did this is in a room this size. I will just be doing a squiggle analysis. If none of the patterns that we get on any of those 12 microphones are similar to any of these patterns that we have here, we will then pick the 12 microphones up and set them along here. If none of the patterns that we get in the 12 microphones along this street match any of the patterns that we have in the filtered tape analysis, we will set them along here. If none match, then we will start putting them in more remote locations.

If we are lucky, we will get it the first time. If we don't get it within any radius of this area where we exceed the limit, I will conclude that these patterns are not gunfire or at least not gunfire in Dealy Plaza.

I have suggested to Professor Blakey that we will be able to cover the places where motorcycles were known to be; in other words, along the route and up this street with four placements of the microphone arrays and so we would repeat the gunshots four times at most, the pattern of gunshots.

I indicated we would want to fire at four targets from here. Basically they correspond to where the car was at about 1:58 $\frac{1}{n}$ 97, 313 and this curve over here on the south side of

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That was apparently struck and so we would fire from this location at each of those four targets with the microphone array in its fire position and then from ehre each of those and then if we get no matches move the location and get the matches.

Now if we could recover the known locations of motorcycles with such maximum of 4, repeat.

Mr. Preyer. Could I ask one question?

Chairman Stokes. Go ahead, Mr. Preyer. Sure

Mr. Preyer. I understood you to say something about the pattern of pistol shots a little earlier to the effect that they had a shorter pattern or fewer squiggles than a rifle shot.

I was hypothesizing when I said that Mr. Barger. Yes. the pistol in question has a subsonic buttle in which case all of the impulses caused by the shockwaves would be absent. Now you pointed out that many pistols have supersonic bullets, and in that case my argument would not apply.

Mr. Preyer. Did I understand you to also say that in the second part of the long three second pattern that some of the indications there were different from the first part of the patterns that were three seconds, that some had a shorter pattern?

There are fewer impulses in the Yes. Mr. Barger. second pattern of this last long group than there are in the first pattern or in the pattern that is the second pattern

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than in the first. The second half of the large third pattern which may be a pattern which itself has the fewest number of impulses.

 $/\!/$ Mr. Preyer. And that is the only one, in all of the patterns, that is a unique pattern in that respect?

Mr. Barger. Yes. Let me refresh my memory.

Mr. McKinney. If you would yield a minute 🛁

Mr. Barger. I count to impulses in this fourth pattern. I count 16 impulses in the third, 16 in the second and 13 in the first. So there are the fewest in the last but not greatly so.

Mr. Preyer. That is not a remarkable difference necessarily, in your art?

Mr. Barger. That idfference I regard as plausible given the amount of motion of the microphone that I would expect between the shots, that is right.

Mr. McKinney. Just on that I didn't know if they were repeatedly changed and Mr. Barger expanded on it.

Mr. Barger. I don't know the answer to that question. I suspect that since these sounds that are loud enough to be seen are severely limited by the radio transmitter anyway that even if that is true they would come out looking about the same.

Mr. McKinney. I see.

Chairman Stokes. How long deet the last pattern,

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last in terms of time?

// Mr. Barger. Let me tell you how long all four patterns last also, if I may.

Chairman Stokes. I was going to ask that question also.

Mr. Barger. The first pattern appears to be 82 hundredths of a second. The duration of the second appears to be one and one hundredths of a second. The third one appears to be 96 hundredths of a second and the fourth one 85 hundredths of a second.

Mr. Sawyer. I thought you said the last one, the fourth, was three seconds.

Mr. Barger. Well, if one considers the last two to be a single pattern, it lasts three seconds. It looks to me like it is more like two and I have been describing it as two.

Mr. Fithian. With the second roughly.

Mr. Barger. Yes.

You will observe from the numbers that I have read that the first and the last are more like each other and the second and third are more like themselves in terms of impulses in the duration. I don't apply much significance to this kind of detail in these patterns without an opportunity to verify these patterns.

Chairman Stokes. Mrs. Burke.

Mrs. Burke. I don't have any questions. I am sorry I came in in the middle of this.

Mr. Barger. You may be behind the middle.

Mr. McKinney. Actually I have to say I have never felt more ignorant in my entire life. I never understood sound transmission to start with.

Chairman Stokes. Anything further, Hal? Mr. Sawyer. No.

Chairman Stokes. Anyone have any further questions? Well, if there is nothing further, we certainly $\frac{2}{F}$ Mr. Fithian. I guess I do have one question.

Chairman Stokes. Mr. Fithian.

Mr. Fithian. In your total perspective of looking at the data, did you ever think that there were more than four? Have you ever had any reason to?

Mr. Barger. Well, if it is useful for me to tell you the genesis of what I say, I will. The first time that I realized there were groups of impulses on this tape at this general time $\frac{I}{H}$ in other words at about 12:31 $\frac{I}{H}$ was when I had analyzed the tape through a rather primitive band pass filter and looked at the output not in this computer format but on an ultraviolet recording format which is nowhere as good as this. At that time I had the impression that there were three groups of spikes and that the second group and the third together might each have been doubles.

Mr. Fithian. I see.

Mr. Barger. After having filtered the tapes through these two filters and obtained these two recordings of the output of the filters, I don't have that impression any more.

Mr. Fithian. Have you done all of the enhancement techniques that there are extant in your science?

Mr. Barger. Well, the answer to that has to be no.

The graduate schools of America turn out Ph.D. theses on

new ways of filtering noise every day. I have employed the

two most powerful methods of filtering that I know of that

apply to the filtering of transients out in favor of continuing

performance and the most powerful is this adapted filter, it

is a Withrow leased mean square adapted digital filter.

Withrow is a professor at one of the California universities

who is perhaps the leading scientist in adaptive filtering

and basically knows your filters that go out and find out

what noise is and strike it out.

The other filter, the band pass filter, is the most appropriate band pass filter of all other band pass filters that I can think of based on the known frequency spectrum of motorcycle noise and the known frequency spectrum of gunfire shockwaves. I selected that and not the motorcycle.

So I used the most powerful adaptive filter that I know and the most powerful band pass filter that I know.

There are several other classes of filters that are known for

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filtering out impulsive noise. These are used in speech analysis and we will probably use one to try to hear the speech more clearly than we hear later on in this record in an attempt to get a correspondence between radio Channels 1 and 2. That type of filter is not appropriate really for us to maintain an impulse. The reason for that is speech is impulsive so if you use a filter that retains speech you are retaining impulses and so all of the impulse noise in here is unaffected by that.

Mr. Fithian. I hate to prolong this.

Chairman Stokes. Take your time, Mr. Fithian.

Mr. Fithian. What is the historical chronology of developments in your field? Behind that question is what might have been available at the time of the Warren Commission or what is now being used that was not even dreamed of at the Warren Commission date?

Mr. Barger. The bypass filter that I used was available then.

Mr. Fithian. It was available then?

I don't believe Withrow had Yes. Barger. developed this filter at that time.

Mr. Fithian. This sort of thing that you are doing, has that been done before 20 years ago, 15 years ago? Did they do this at all?

Mr. Barger. To my knowledge I am the only person that

has used echo pattern analysis to identify the location of or the existence of gunfire. I have never read of anyone else doing it but then no one has read of me doing it either because I didn't publish those results.

In other words, that report you read was initially submitted to a grand jury and only became available when that proceeding was terminated.

Mr. Fithian. All right.

Chairman Stokes. Where did you get your training in this field? Can you tell us something about your educational background?

Mr. Barger. Well, I have a Bachelor's degree in mechanical engineering at the University of Michigan, a Master's degree in mechanical engineering from the University of Connecticut, a Master of Arts in applied physics from Harvard and Ph.D. in applied physics from Harvard and I specialized in acoustics at Harvard.

The use of acoustics for forensic purposes, forensic acoustics, is not anything that is taught anywhere that I know of. These techniques that I am applying to this reconstruction and that I applied at Kent State were simply applications of acoustical and engineering principles that I learned over time. My professional background is one of acoustical research in underwater acoustics, medical ultrasonics. In the former case I looked at submarines and

in the latter case I am looking for cancer. Also a good deal of research in the propagation of sound in the environment $\frac{1}{r'}$ the abatement of noise from trains, trucks, airplanes, buses and also the design of concert halls. I do research in how to make a concert hall sound more like a concert hall.

So this particular analysis that Professor Blakey has asked me to do I regard as a research project in acoustics that involves the same principles that all those other projects that I described to you involve day by day but I don't believe that forensic acoustics or applying acoustics in this way is a field. It certainly is not taught explicitly.

Mr. Blakey. And one would hope that we never have another occasion to which it might be.

Chairman Stokes. Right. It is extraordinarily interesting data, though.

Mr. McKinney. It is too bad we don't have a recording of the shooting of Dr. King; it would solve a lot of the questions one sometimes asked us whether it was the second floor window or a grassy knoll here.

Mr. Barger. Since my scientific research does not include forensic acoustics unless somebody knocks on my door, I had long thought that if a tape recording existed of Kennedy's assassination that it would be extremely simple to find out where the shots were fired from and how many there were, etc. At least I thought this since I did the Kent State

) (1) 300 711: STREET, S.W., REPORTERS BUILDING, WASHINGTON, one. So when our Mr. Sullivan told me that you had called I thought there must be such a recording; you know, this will be duck soup. When Mr. Hornbeck of the staff brought the tape and I listened to it and realized how much noise there was on it, I realized it was not going to be simple and it is not really simple. We have had to filter the tapes rather carefully and eliminate as much noise as possible.

Chairman Stokes. It has been very educational for me and I am sure all of us this afternoon.

Mrs. Burke.

Mrs. Burke. I just wondered in an area of 7 particularly they use it in aircraft in determining directions. Is that the only place **suppose** that we have had that? Was that state of the art used at any time when you were in a conflict?

Mr. Barger. Yes. The Army did a study of the sound of rifle fire at helicopters from forests in order to help the people in the helicopter determine where the rifle fire was coming from. As a matter of fact, my company did some of the research to develop the instrument that would do that. That was a very simple problem compared to this one because there were no buildings around, it was just a nice acoustically soft forest with a bullet coming up out of it so one had only to listen to the shockwave, one shockwave, and the muzzle blast, one muzzle blast, and by the timing, telling the time between the two, he could tell where the gun

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was. In that case the bullet was presumed to have been fired at the helicopter so it was very loud and there was not much of a noise problem but to answer your question, yes, they have gone that far.

Mrs. Burke. I am sorry I came at the end. Is there a place on here that designates impact or what is analyzed as impact?

Mr. Barger. The sound of impact?

Mrs. Burke. Yes.

Mr. Barger. No. I have no good knowledge of the sound of impact. I am quite certain that it is much lower than the shockwave and the muzzle blast that we have been talking about but I don't know how much more. It is conceivable that one of these impulses is an impact but only bearly conceivable because the impact on a soft object $\frac{1}{H}$ in other words, not the curve $\frac{1}{H}$ would be described as a thud and heard as a thud and the sounds we are talking about would be heard as a crack and a bang. In other words, it is conceivable that some of these very drawn out low frequency signals are sounds of impact but I am certainly not considering them in my analysis.

Mrs. Burke. Just one other thing. At any place on here with the amount of noise that was one that recording, do you measure at a decibel level below what human hearing would record?

// Mr. Barger. No. To the contrary, everything that
we can identify through this radio would have been extremely
audible to the ear.

Mrs. Burke. I see.

Mr. McKinney. Radios are more sensitive than the ear.

Mr. Barger. Much.

Mr. McKinney. The only time this gets simple is when you give a description.

Mr. Sawyer. Is it possible, just listening with your ear to this recording, that you can detect a shot sound at all?

Mr. Barger. No. One does not have that sensation. Since the limiter has taken the loud report and brought it down to just a bearly audible level and the weak echos are left at that level, it sounds sort of like dit dit dit dit dit dit dit. The reason it sounds so inaudible is these impulses only last two or three miliseconds and the human ear can bearly hear anything that lasts two or three miliseconds unless it is as loud as a gunshot but the limiter has made these quiet so it is so distorted that you don't have the impression of hearing gunshot. Just to listen to this filtered tape you hear this tch-tch-tch and it does not sound like gunfire. The bell on the other hand which is not limited by the microphone because it is bearly audible, it sounds like a bell.

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// Mr. Fithian. Are those the only two identifiable sounds that you pick up from that thing except the motorcycle running?

Mr. Barger. A lot of these large squiggles which occur occasionally in the outputs of both fielders are identifiably caused by the depressing of a button on somebody else's transmitter. They go tic-tic like this to try to get the attention of the dispatcher. You can see those, they are different than the impulses we are talking about and you can audibly detect those as being button clicks.

You can also hear very faintly, as I said, the sound of speech near the end of this five minute period when the button was down and we think that that may have been from another police radio. Also further down the record about a minute after these patterns you hear audibly a great number of sirens in the background $\frac{1}{M}$ weakly but you hear them.

Mr. Fithian. But all other sounds $\frac{l}{M}$ the sound of the crowd, the sound of the cars that might be near the motorcycle are overpowered.

Mr. Barger. That is correct. When the motorcycle changes speed, you can hear that. In other words, you hear a urr-urr-urr-urr-urr-urr, this hammering sound, and then as the noise diminishes as I said it did there you hear pulp-pulp-pulp and if you measure the time between those pulps, which sounded to the ear very much like a motorcycle throttling

down, you can show that the firing rate of the motorcycle is going down to 150 milisecons which is the standard item.

Mr. Fithian. Do you have any sensation that the motor-cycle was always on the move from the beginning to the end of the tape?

Mr. Barger. The speed of the motorcycle engine changes from time to time. There is no way that I can tell whether it was in gear or what gear it was in so I cannot really say anything about the actual speed over the ground unless and until we find matches of these patterns with successively displaced patterns in the recreation, but from the sound of the tape you can't.

You don't get the impression of motion with at least the exception of the sirens, they seem to be going past the motorcycle or the motorcycle is going past them, and it is probably that they are going past the motorcycle because somebody would not be sitting there with a siren.

Chairman Stokes. Doctor, a twofold question. Does the age of the tape have anything to do with the manner in which you are now able to analyze it? I guess analyze is not the proper word.

The other is, can you tell whether or not anyone has ever attempted to do anything with the tape to filter it or anything?

Mr. Barger. We have the Dictabelt which is the recording

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medium of the police dispatch radio and we are actually analyzing a tape recording made from that Dictabelt some time ago. The reason we are doing that is that the Dictabelt has been blamed many times since this original tape recording was made and in the process it has become very scratchy, very noisy, and in fact the needle skips when you play it now but the magnetic tape recording that we have which was made of that Dictabelt a long time ago was done before the Dictabelt was severely distorted and there are no needle jumps or anything on it. It is quite a good recording. We have the capability of listening to the Dictabelt and the tape to see if they correspond one to the other. We have not done We can, in other words, verify that the original recorded medium, the Dictabelt, is faithfully and non-tampered with, recorded, but we have not done it.

Mr. Fithian. Recorded at proper speeds?

Mr. Barger. The speeds are quite wrong. The time delays that I gave you are not those that you get by listening to the tape but have been corrected for the incorrect speed. We determined the correct speed in two ways. The first way we did a frequency spectrum analysis like the bell. In fact the bell is a reasonable illustration of it. This large spike is caused by a 60 cycle hum introduced in the Dictabelt recorder and this spike is supposed to be twice that or 120 cycles. Those are the powerline frequencies

and are very accurate in any city because people run their electric clocks by them. When we analyze these tapes, I have analyzed the frequency of this 60 cycle hum at every contiguous one second interval throughout this period and I have found that 60 cycles comes out as 57 in every case which means that the Dictabelt tape recording process is running 5 percent slow because that 57 should be 60.

the entire tape, two hours of it, with a stopwatch and every time the dispatcher gave the annotated time of day we would note the elapsed time, true elapsed time. So then we get a graph on the abscissa, the time that the dispatcher claims it is on the ordinant, the time our stopwatch says it really is since the time the tape began. If the tape is running at the right speed, those times will go along the 45 degree line. It turns out that the tape is not running at the right speed so the dispatcher is getting more and more out of sync.

We also calculated the average error that the dispatcher makes each time he annotates the time because he only gives whole minutes and he does not give the whole minute exactly when the second hand is at the top, he gives it whenever he feels like it. We have been able to show that the standard error of the dispatcher's annotations is 30 seconds. In other words, he is as likely to be 30 seconds off as not as is to be expected if somebody is looking at the minute hand and

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not at the second hand. So by those two methods, tracking his annotations and by calculating, analyzing the frequency of the powerline, we have determined and corrected for the incorrect tape. That is not a very difficult problem. It was a long way to answer it.

Mrs. Burke. What was the occasion of the magnetic tape being made from the Dictabelt?

Mr. Barger. I don't know. It was a fortunate one.

Mrs. Burke. Was it the Warren Commission?

Mr. Barger. I don't know because Dictabelts don't like to be played very often or they become distorted so whoever took the precaution of the Dictabelt early on was doing us a great favor. If we had had to do this from the Dictabelt we never would have found anything, I am quite certain. I mean as it now exists. It has been played too often.

Mr. Blakey. What I am giving you is my impression and don't rely on it as precise. This material was in the possession of the Dallas Police Department. There was a special unit down there established to investigate the Kennedy homicide and it became the repository of all the evidence and all of the records of the Police Department obtained in connection with the Kennedy assassination. It has been and was largely ignored by everyone. The FBI and the Archives, it was only after we had developed the easy relationship with

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the Dallas Police Department that we were made aware of it and indeed of the records. Those records were obtained, the Dictabelt. It was rather late in our investigation that we found it. I would rather have had this three or four months ago. He said he could not find a tape for the longest time.

// Mrs. Burke. When do you do the experiment?

Mr. Blakey. We hope to do it at the end of this month. There are other things before final decisions can be made.

Chairman Stokes. There is another test the doctor has indicated they are running the first part of next week.

If there is nothing further, Dr. Barger, we certainly appreciate your having appeared here today. This has been a very interesting, fascinating experience for us to listen to you, and you have our appreciation for your appearance.

Mr. Barger. Well, thank you very much. I appreciate being here on the project, it seems like quite a sensible one.

Mr. Devine. And kind of fascinating from your standpoint, too, wasn't it?

Needless to say, it is not the sort of Mr. Barger. thing that one can publish, and scientists like to do that, but nevertheless it is very unusual.

Chairman Stokes. Nothing further?

Mr. Blakey. Nothing further.

Chairman Stokes. There being no further business to come before the committee, the meeting is adjourned subject to

the call of the Chair.

Whereupon, at 3:15 p.m., the committee adjourned, subject to the call of the Chair.

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