

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

FRIENDS FOR ALL CHILDREN, INC.,  
as legal guardian and next friend of  
the named 150 infant individuals, et al

Plaintiff

-against-

Civil Action No.  
76-0544

LOCKHEED AIRCRAFT CORPORATION,

Defendant and  
Third-Party Plaintiff

-against-

THE UNITED STATES OF AMERICA,

Third-Party Defendant

Deposition of:

**JOHN JOSEPH CARROLL**

Wednesday, October 28, 1981

Washington, D. C.

**GASDOR REPORTING COMPANY**  
General Stenotype Reporting  
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(202) 484-0016

Deposition of JOHN JOSEPH CARROLL was taken, pursuant to notice, before Albert J. Gasdor, a Notary Public in and for the District of Columbia, commencing at 11:10 o'clock, a.m., in the law offices of Haight, Gardner, Poor & Havens, Suite 1000, 1819 H Street, N. W., Washington, D. C.

**APPEARANCES:**

On behalf of the Plaintiff:

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On behalf of Defendant Lockheed:

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# I N D E X

Wednesday, October 28, 1981  
Washington, D. C.

## DEPONENT:

JOHN JOSEPH CARROLL

## DIRECT EXAMINATION

5

## E X H I B I T S

<u>NUMBER</u>		<u>FOR ID.</u>	<u>TRANSCRIPT REFERENCE</u>
DD-1542	Biographical Data, John J. Carroll	5	5
D-9	Wreckage Diagram		59, 60, 66, 67, 70, 72, 73, 75, 78, 79, 85, 93, 94, 95, 96, 107, 111, 112, 113, 114, 115
D-4	Diagram		62, 71, 75, 82, 83, 117
3F (T4R)	Photograph		69, 70, 113
(Tarbell) T4A thru T4ii	Photographs		97, 98, 106
3A, 3B, 3C, 3D, 3G, 3H 3M	Photographs		97, 98, 99, 113  107
Walker 3-193 3-194	Photographs		100
DD-2542-1	Diagram of C5A	108	108, 111
DD-2542-2	Diagram of C5A	108	117

1 Whereupon,

2 JOHN JOSEPH CARROLL

3 was called as a witness and, having been duly sworn by the  
4 Notary Public, was examined and testified as follows:

5 DIRECT EXAMINATION

6 BY MR. CONNORS:

7 Q Would you state your full name, please.

8 A John Joseph Carroll.

9 Q What is your home address, please.

10 A [REDACTED] Mt. Jackson, Virginia.

11 Q Do you have an office address?

12 A That is the same address.

13 Q Mr. Carroll, you produced this morning a copy of  
14 a document entitled "Biographical Data, John J. Carroll."

15 We have now marked that for identification as Defend-  
16 ant's Exhibit DD-2542.

17 (Said document marked Exhibit

18 DD-2542 for identification.)

19 BY MR. CONNORS:

20 Q Would you look at that and see if that is a complete  
21 copy of your current resume?

22 A The first page is. The additional three pages have

1 not been updated since about 1967.

2 Q They are the list of the publications; is that  
3 correct?

4 A That is correct.

5 MR. FRICKER: Let the record reflect that the follow-  
6 ing three pages numbered 11, 12, and 13 include a list of  
7 publications, a list of honors, organizations and speaking.  
8 It is not just publications.

9 MR. CONNORS: Mr. Fricker brings up a good point.

10 What happened to pages 2 through 10?

11 THE DEPONENT: These were from some other application  
12 form.

13 BY MR. CONNORS:

14 Q What was on pages 2 through 10?

15 A I don't know.

16 Q What additional items would be needed to update this  
17 to current date?

18 A I would have to review my various positions and  
19 products since 1967 and list those.

20 Q Have you made publications since 1967?

21 A I believe I have. I can't remember any particular  
22 one, offhand.

1 MR. CONNORS: I will call for the production of a  
2 current curriculum vitae and list of publications for Mr.  
3 Carroll.

4 MR. FRICKER: If there is such a thing in existence,  
5 we will try to produce it in consultation with Mr. Carroll.  
6 I don't think we are under any obligation to prepare such a  
7 list.

8 BY MR. CONNORS:

9 Q Would you give me a list of all publications that  
10 you have made that are not listed on this document?

11 A I could not do this without referring to boxes  
12 and boxes of materials.

13 Q There are publications that have not been listed?

14 A Possibly. I have testified before Congress and  
15 there would be things like that to update the curriculum  
16 vitae. I have just not attempted to put them together since  
17 1967.

18 Q When did you testify before Congress?

19 A Several times between 1970 and 1975.

20 Q What were the subject matters of the testimony?

21 A Aeronautical research and development, crash safety,  
22 accident prevention before both House and Senate Committees.

1 Q Do you have copies of your testimony?

2 A Some.

3 MR. CONNORS: We will call for the production of any  
4 of the transcripts which you have in your possession of the  
5 testimony you have given to Congress.

6 MR. FRICKER: For the record, Mr. Carroll, so you  
7 won't misunderstand, periodically Mr. Connors will ask for  
8 production of various things. Those requests are appropriate  
9 for us to consider in consultation with you, and you need  
10 not respond to those statements, if you will.

11 BY MR. CONNORS:

12 Q Mr. Carroll, when were you first contacted about  
13 this case?

14 MR. FRICKER: I object to the form. Do you mean  
15 contacted by a representative for the plaintiffs or the  
16 guardian ad litem?

17 MR. CONNORS: Yes.

18 THE DEPONENT: It was within the last three or four  
19 weeks.

20 BY MR. CONNORS:

21 Q Who contacted you?

22 A Richard Jones.

1 Q Besides Mr. Jones, have you spoken with any other  
2 attorneys at the Lewis firm?

3 MR. FRICKER: You may answer that yes or no.

4 THE DEPONENT: Yes.

5 BY MR. CONNORS:

6 Q Would you answer that.

7 MR. FRICKER: I would advise you it is none of your  
8 business who he spoke with at the firm.

9 BY MR. CONNORS:

10 Q Have you spoken with a Doctor Cohen?

11 A Yes.

12 Q When was that?

13 A One day last week.

14 Q Have you spoken with a Doctor Abramson?

15 A I don't recognize the name.

16 Q Have you spoken with the guardian ad litem, Charles  
17 Work?

18 A No, not that I know of.

19 Q Have you been told what your role is in terms of the  
20 testimony you are expected to give?

21 MR. FRICKER: I object to the form of the question.  
22 I am not sure it is very clear as to what you mean his role



1 is.

2 BY MR. CONNORS:

3 Q Has anyone described to you what they want you to do  
4 in terms of the subjects to be addressed in this litigation?

5 A Just to review available data and to offer my opin-  
6 ions and judgments as to what I see.

7 Q On what subjects are you to express opinions?

8 A The crash of the C5A near Saigon about six years  
9 ago.

10 Q What specific aspects of the crash?

11 A The impact severity and the surviveability in rela-  
12 tionship to crash injury analysis.

13 Q Anything else?

14 MR. FRICKER: With regard to the C5A?

15 MR. CONNORS: Yes, with regard to the C5A accident.

16 THE DEPONENT: No.

17 BY MR. CONNORS:

18 Q Have you reviewed materials in connection with the  
19 C5A accident?

20 A Yes.

21 Q Have you formed opinions at the present time on the  
22 subjects that you just listed?

1 A Tentatively, yes.

2 Q Have you ever testified before in a sworn deposition  
3 or in a court?

4 A Yes.

5 Q Do you understand the phrase, "reasonable scientific  
6 certainty or probability"?

7 A Yes.

8 Q Do any of the opinions which you have regarding the  
9 C5A accident rise to the level of reasonable scientific  
10 certainty or probability?

11 A I believe so.

12 Q Are you prepared to discuss those opinions and the  
13 basis for them to a reasonable scientific certainty?

14 A Yes.

15 Q Mr. Carroll, have you been in the military?

16 A Yes.

17 Q What were the dates and what service?

18 A United States Naval Aviation 1943 through 1946.

19 Q Did you go into government service following your  
20 discharge from the Navy?

21 A No.

22 Q What did you do from 1946 until you joined the

1 government?

2 A I was in the phototechnical retail and wholesale  
3 business. Eastman Kodak Company was one of my employers.

4 I flew commercially. In about 1957 I went with Aviation  
5 Injury Crash Research at Cornell University in the field of  
6 accident and injury investigation, prevention and analysis.

7 Q Who did you fly with commercially?

8 A Small companies.

9 Q Are any of them still in business?

10 A I don't believe so.

11 Q When did you first go with the United States Govern-  
12 ment as a full-time employee?

13 A I went to the Civil Aeronautics Board in 1961 as an  
14 Air Safety Investigator.

15 Q How long were you there?

16 A Until about 1966 at which time I went to the Office  
17 of Supersonic Transport Development with FAA.

18 Q How long were you there?

19 A I believe that was about two or three years. Then  
20 I went back to accident investigation but by this time the  
21 CAB had turned that function over to a new agency, the  
22 National Transportation Safety Board.

1 Q Starting approximately 1968 or 1969, you were em-  
2 ployed at the NTSB?

3 A Yes.

4 Q Until when?

5 A Until I retired from the government in 1978, I  
6 believe it was. In between I had been loaned out to the  
7 government from the Flight Safety Foundation as executive  
8 vice president and managing director. After that tour with  
9 Flight Safety Foundation, I went back to the Board for two  
10 years, and then retired.

11 Q Did you attend college, sir?

12 A Drew University.

13 Q Approximate dates?

14 A 1943, I believe.

15 Q Was that just prior to going into the service?

16 A Yes. That was undergraduate, about two semesters.

17 Q Do you have any degrees at college level?

18 A No.

19 Q Have you attended any courses at the college level  
20 other than those two semesters at Drew?

21 A I performed as associate at Cornell and University  
22 of Southern California and as a faculty adviser at the

1 University of North Carolina, Raleigh.

2 Q On what subjects?

3 A Aircraft accident investigation, aircraft safety  
4 in general, crash injuries.

5 Q At all three institutions?

6 A Yes, sir.

7 Q You mentioned a job with Kodak in the retail and  
8 wholesale side of business. Do you have any experience as  
9 a photo interpreter?

10 A No.

11 Q Do you have any training in that area?

12 A Only as it applies to aircraft accident investiga-  
13 tion for some 23 years. It is an essential tool in aircraft  
14 accident investigation.

15 Q Of what does your experience consist in the area of  
16 photo interpretation?

17 A Twenty-three years of making the photographs neces-  
18 sary for a complete investigation report, aerial photographs,  
19 photographs of the wreckage, post mortem photographs of the  
20 fatalities and survival injuries of the passengers and crew  
21 members.

22 Q Have you ever taken any calculations from photographs?

1 A Yes.

2 Q Measurements of distances or areas?

3 A That wasn't generally necessary because those  
4 measurements and distances were documented at the time the  
5 photographs were taken, so it was not really necessary in  
6 any case I can remember to have to interpret those from  
7 photographs.

8 Q What type of calculations did you take from photo-  
9 graphs?

10 Perhaps I misunderstood. I asked if you took calcula-  
11 tions from photographs. I thought you said you had.

12 A No.

13 Q Have you ever used photographic evidence in an  
14 attempt to reconstruct conditions or circumstances of acci-  
15 dents?

16 A Frequently, hundreds of cases.

17 Q How is that done?

18 MR. FRICKER: I object. It is overly broad.

19 BY MR. CONNORS:

20 Q What method is used in the reconstruction of  
21 accidents from photographs?

22 A Documentation.

1 Q Can you explain a little more than that, other than  
2 showing a picture of the accident scene, what are you able to  
3 determine?

4 A You can clarify written reports from photographic  
5 evidence.

6 Q Have you ever been involved in an investigation  
7 giving an opinion in which the only evidence you were working  
8 from was photographic evidence?

9 A Not that I can recall.

10 Q Have you ever been involved in an investigation in  
11 which you were personally on the scene of the accident?

12 MR. FRICKER: Did you say not personally?

13 BY MR. CONNORS:

14 Q Have you ever been involved in the investigation  
15 of an aircraft accident where you have not personally been  
16 able to see or visit the accident scene?

17 A Many times.

18 Q In those situations, on what information do you  
19 rely in terms of conducting the investigation or attempting  
20 to reconstruct the accident?

21 A Reports and photographs.

22 Q The reports would be written by whom?

1 MR. CONNORS: That is right.

2 THE DEPONENT: Two.

3 BY MR. CONNORS:

4 Q What were they?

5 A In Air Wisconsin-Metro Swearingen accident at Omaha,  
6 Nebraska.

7 Q The approximate date?

8 A June of 1980, I believe it was.

9 Q What type of aircraft did that involve?

10 A Metro Swearingen.

11 Q Swearingen?

12 A S-w-e-a-r-i-n-g-e-n.

13 Q What was the other lawsuit?

14 A It wasn't technically an aircraft accident. It was  
15 an injury that was sustained in Portugal.

16 Q Can you explain the type of injury you are talking  
17 about?

18 A It was not an aircraft accident. It was a woman  
19 who was disembarking from a 747 and stepped out of the  
20 aircraft and fell 27 feet to the cockpit ramp.

21 Q These are the only two court cases you have been  
22 involved in in the last five years?



1 A Either investigator in charge or the group chairman  
2 on the larger accident investigations.

3 Q Would they have been individuals or include individ-  
4 uals who have actually visited an accident scene?

5 A Usually.

6 Q You stated that you had previously given testimony  
7 in your deposition or court; is that correct?

8 A Yes.

9 Q What other lawsuits have you been involved in as a  
10 consulting expert?

11 A There was one light plane accident case that I  
12 investigated prior to my employment by the United States  
13 Government in which I was called to testify.

14 Q Approximately when was that?

15 A That would have been before 1961 -- probably the  
16 late 1950's.

17 Q Let's start this in reverse order, then.

18 Within the last five years, approximately how many air-  
19 craft accidents have you been involved in as a consulting  
20 expert?

21 MR. FRICKER: This is not irrespective of whether  
22 he gave testimony in the context of such occasion?

1 A I don't know that you could characterize either one  
2 as a court case.

3 In my consulting capacity with Air Wisconsin I was to  
4 provide technical advice and act as coordinator for public  
5 hearings. It was not a court hearing.

6 Q Let me back up a little.

7 Have you ever been involved as a consultant or given  
8 testimony in litigation outside your role as a government  
9 employee, other than the one in 1961 and the two you have  
10 just named?

11 A No.

12 Q So, all of your testimony other than these three  
13 instances has been in connection with your job as a govern-  
14 ment employee?

15 A Yes. I have testified as an investigator.

16 Q If I use the phrase, "large-body aircraft," do you  
17 understand what I am talking about?

18 A Yes.

19 Q What is the most recent accident involving a large-  
20 body aircraft in which you have been involved either as an  
21 investigator or as a consultant?

22 A That is a very difficult question because of my

1 involvement. I have been involved in many, many wide-body  
2 aircraft but not necessarily as the investigator in charge  
3 or having even been at the scene of the accident, but working  
4 back in Washington and working with the airline companies  
5 that were involved in the accidents while I was with the  
6 Flight Safety Foundation there were many wide-bodied  
7 accidents.

8 In my capacity with the Flight Safety Foundation, I  
9 offered my assistance. So it is a very difficult question.  
10 There are so many different degrees of involvement.

11 Q If I were to limit the question to aircraft cases,  
12 would that enable you to cut down the number?

13 A I would still have a degree of involvement. It is  
14 pretty difficult to say. In some cases I was just consulted  
15 by the companies and discussed the overall aspects of the  
16 case and in other cases I have been deeply involved in the  
17 details of the accident.

18 Q What is involved in an accident investigation --  
19 I am speaking now of methodology -- in determining the  
20 severity of impact?

21 A It is a multidisciplinary effort on the part of  
22 structures personnel, human factors personnel, aeromedical

1 personnel, including the pathologists, and engineering person-  
2 nel familiar with the structures of the aircraft and pos-  
3 sibly personnel who would be familiar with the terrain or  
4 structures that have been struck.

5 Q You would need a fairly large body of expertise to  
6 deal with this sort of analysis?

7 MR. FRICKER: I object to the form.

8 BY MR. CONNORS:

9 Q Would you need an expert in more than one area?

10 A Cases vary so much, that is not really possible to  
11 answer either.

12 Q Do you have expertise in all the areas you just  
13 mentioned?

14 A I am not a pathologist.

15 Q Are you an expert on terrain?

16 A Not especially, no. I have been exposed to every  
17 sort of terrain and I have had the experience of working  
18 with accidents and every possible terrain.

19 Q Are you an expert on aircraft structures?

20 A To a degree. I have never been in the manufactur-  
21 ing end.

22 Q What methodology is involved in the determination of

1 the survivability of an accident?

2 A The accepted definitional criteria would be scien-  
3 tifically accepted throughout the free world.

4 Q What is it?

5 A The definition of a survivable accident?

6 Q No, what methodology is employed in the analysis  
7 of the survivability of an accident?

8 A Basically, it is to relate the aircraft accident  
9 data to the definitions of survivable and non-survivable  
10 accidents.

1 Q How do you define a survivable accident?

2 A A survivable accident is one in which the inhabitable  
3 structure remains essentially intact, does not disintegrate  
4 or impinge on vital areas of the occupants and in which the  
5 forces sustained by the occupants do not exceed accepted  
6 limits of human tolerance to force in terms of magnitude,  
7 direction, rate of onset.

8 Q What methodology would be employed in an analysis  
9 of the relationship of crash and injury?

10 A Would you repeat that?

11 Q I am trying to use your phraseology. When I asked  
12 what areas you were addressing you said the relationship of  
13 crash injury analysis. I am trying to find out first off  
14 what is crash injury analysis. Maybe that is the best place  
15 to start.

16 Q Crash injury analysis is essentially the science  
17 of relating injuries sustained to their causative elements,  
18 primarily in an effort to improve engineering design and  
19 protection.

20 Q What method is employed in trying to establish that  
21 relationship?

22 A Essentially it is to relate the nature and type and

1 degree of injury to the structural or post-crash factors that  
2 were related to those injuries.

3 Q I understand, but how do you go about making the  
4 relationship?

5 A Ideally, you would want to know where the injured  
6 persons were in the aircraft, what the injuries were and then  
7 attempt to attach a structural or design or post-crash cause  
8 for each of those injuries.

9 Q How do you go about assigning the cause of the  
10 injury?

11 A Again, that is a multidisciplinary effort to relate  
12 the pathological findings or the medical examiner's findings  
13 to the particular trauma.

14 Q Have you ever attempted to establish such crash  
15 injury relationship in an aircraft accident involving  
16 survivors?

17 A Yes.

18 Q Have you ever attempted to do a crash injury  
19 analysis with regard to surviving infants?

20 A Yes.

21 Q What case was that?

22 A There have been many over the years. One I can

1 recall offhand is a Northwest DC7C ditched in Alaska at Sitka.

2 Q Approximately when was that?

3 A That would have been around 1965, possibly earlier.

4 Q Do you recall the injury that was involved in that  
5 case, the injury to the infant?

6 A In that case, the investigation involved post-crash  
7 survival and escapement into life rafts. The reason we  
8 investigated that particular infant was to find out why the  
9 infant survived rather than any injuries he sustained. It  
10 was thrown out into the water. The infant was only two or  
11 three weeks old and swam to the surface and recovered. We  
12 couldn't understand why until after we investigated the  
13 survival aspects.

14 Q Was that one or more infants?

15 A One infant.

16 Q Was that infant injured in any way?

17 A Only exposure to cold water.

18 Q Do you understand that the claims in the lawsuit  
19 we are presently dealing with, that is the C5A, involve claims  
20 of neurological damage?

21 A I have not studied that aspect.

22 Q Do you understand what I mean by neurological damage?



1 A Yes.

2 Q Have you ever investigated an accident in which  
3 a survivor was alleged to have suffered neurological injury?

4 A Yes.

5 Q What was that?

6 A There were several of them. One was an FAA  
7 Constellation at Canton Island in the South Pacific where  
8 the only survivor, a medical doctor, suffered traumatic  
9 neurological damage and could not recall any of the events of  
10 the accident until he volunteered to be subjected to narco  
11 interrogation after which he was able to have full, total  
12 recall of the events which we then applied to determine the  
13 cause of the accident.

14 Q Had that person suffered any physical trauma?

15 A Yes.

16 Q What kind?

17 A As I recall, he had unspecified brain injury and  
18 neurological damage to his right arm, partial loss of hand  
19 and finger control.

20 Q Did he have a visible injury to the exterior of his  
21 skull?

22 A As far as I recall, yes.

1 Q In that accident, did you attempt to determine the  
2 crash injury relationship?

3 A Yes, it was a nonsurvivable accident. There was  
4 no reason why he should have survived because there was total  
5 disintegration of the aircraft.

6 Q Perhaps I am misunderstanding. I thought you said  
7 the crase injury relationship was attempting to determine  
8 the injury which caused a particular injury, the cause of a  
9 particular injury.

10 MR. FRICKER: I object to the form.

11 BY MR. CONNORS:

12 Q Were you able to establish what caused the injury  
13 to that particular man's head?

14 A Only in broad terms because the aircraft disintegrated  
15 around him and he was struck by the various components.

16 Q What other accidents have you investigated involving  
17 neurological damage where a claim was made for a neurological  
18 injury?

19 A I don't understand. Which claim was made?

20 Q I asked you just previously if you had ever  
21 investigated any accidents involving neurological injury and  
22 you mentioned the FAA investigation of the Constellation at

1 Canton Island in the South Pacific, but I believe you said  
2 there were more than just one. What other ones would fall  
3 into that category?

4 A There was a Beech Muskateer accident.

5 Q Do you recall where that was?

6 A I believe it was near Reno, Nevada.

7 Q Do you recall approximately when?

8 A That would have been around 1964.

9 Q What was the nature of that particular neurological  
10 injury?

11 A As best I recall it, it was a crash impact and head  
12 injury and extensive body trauma and, again, one in which a  
13 form of amnesia caused the survivor not to recall being in the  
14 accident.

15 Q Was there visible injury to the survivor's head?

16 A Yes.

17 Q Have you investigated any other accidents which  
18 involved neurological injury of a survivor?

19 A Probably dozens.

20 Q Have you ever investigated an accident involving  
21 neurological injury where there was no visible injury to the  
22 head of the survivor?

1           A     Yes, there was a Canadian Pacific Britannia  
2 accident at Hickam Air Base in Honolulu about 1963 or 1964.  
3 That was a survivable accident. The stewardess in the aft  
4 passenger compartment was attempting to open the emergency  
5 exit door, but that portion of the aircraft had rolled 90  
6 degrees on its side, which put one exit down on the ground,  
7 which obviously was unusable and the other side exit straight  
8 up above the stewardess. When she rotated the handle to open  
9 this heavy door, the full weight of the door came down and  
10 gave her a depressed skull fracture. It was not seen until  
11 she had been in the hospital for three days. When we were  
12 interviewing her, we asked her how she felt, she said her  
13 head hurts. And the flight surgeon, who I had as part of my  
14 human factors investigation team, felt the top of her head  
15 and for the first time it was noted days after the accident  
16 she had a compressed skull fracture.

17           Q     Any others?

18           A     Again in which?

19           Q     No visible head injury.

20           A     I am sure there were others but I can't think of  
21 any others at the moment.

22           Q     The example you just cited in which you said there

1 was no visible head injury in fact involved a skull fracture;  
2 is that correct?

3 A There was a localized depression in the skull which  
4 hospital X-rays had not found.

5 Q Have you ever investigated any accident in which  
6 the survivor was alleged to have a neurological injury in which  
7 there was no visible head injury and no subsequent injury  
8 determined to have existed with regard to the skull itself?

9 Let me explain this.

10 MR. FRICKER: Start again. I object to the form  
11 of the question.

12 BY MR. CONNORS:

13 Q In this accident, there are no overtly, if any,  
14 evidence of any exterior signs of brain injuries, no bruises  
15 on the head?

16 A In which accident?

17 Q The accident we are talking about, the C5A. This  
18 may be in dispute by the parties but we are talking about a  
19 cut, a bruise, a fracture to the skull. There is simply no  
20 body of evidence in this regard. Mr. Fricker may dispute  
21 this in terms of head injury to the children, but that is  
22 what I am trying to find -- accidents which you have investigated

1 or been involved in the investigation where there was a claim  
2 or a suspect, whatever, of neurological injury where there  
3 was no visible or documentable head or skull injury.

4 MR. FRICKER: Just a second, Mr. Carroll.

5 Mr. Connors, I object to the form of that last  
6 question/statement/explanation/representation as you  
7 anticipated, I am sure, I would. I don't think it is fair  
8 to this witness or helps clarify this record to suggest that  
9 there was in the C5A incident no bruises, contusions, cuts,  
10 scrapes, burns to any of the children, if that is what you  
11 mean to be implying, or to seem to suggest that there were  
12 no broken bones discovered after the crash. I think you are  
13 quite capable of articulating a more precise question with that  
14 rather than rambling explanation but perhaps you should  
15 rephrase it.

16 MR. CONNORS: Can you give me a proffer as to what  
17 this witness' testimony is going to be?

18 MR. FRICKER: I think the witness has done a very  
19 fine job in responding to you in terms of the areas in which  
20 he is prepared to express an opinion with reasonable scientific  
21 certainty as it relates to the crash. There is the additional  
22 element as we are already aware of his involvement in and

1 the knowledge of the Everglades L-10 crash.

2 MR. CONNORS: Which the Judge is precluding.

3 MR. FRICKER: I am not commenting on that but I am  
4 saying there is that additional element and you are permitted  
5 as far as we are concerned to inquire into that area as well.  
6 Maybe the simply way of addressing it would be to ask him  
7 what his opinions are and what he bases them on. That is  
8 why we are having this deposition.

9 MR. CONNORS: Which would be proceeding much more  
10 expeditiously if we had received a proffer about his testi-  
11 mony so that we know what you, plaintiff's counsel, would be  
12 instead of his understanding which may be changed as to some  
13 of these witnesses.

14 MR. FRICKER: That is why we have this plan here.  
15 You can certainly ask him what opinions have you formed with  
16 respect to this accident.

17 BY MR. CONNORS:

18 Q Mr. Carroll, have you ever investigated an accident  
19 in which there was a survivor who was alleged to have had a  
20 neurological injury in which there was not a visible or  
21 documentable injury to the head or skull of the survivor?

22 A In all my years in accident investigations, it has

1 MR. FRICKER: I object to the form of the question.

2 THE DEPONENT: In analyses of investigations where  
3 I don't participate on the scene, there are thousands of  
4 those. The only thing I can go on is what the report provides  
5 as to the nature of the injury. I don't know if those initial  
6 reports are exact, complete. I can only go by what has been  
7 shown initially to be the injury.

8 BY MR. CONNORS:

9 Q Mr. Carroll, approximately how many cases or air-  
10 craft accidents have you given sworn testimony in, just a  
11 rough number?

12 MR. FRICKER: I object to the form.

13 Which is it? Aircraft accidents and sworn testimony  
14 to include the possibility of testimony before a board or  
15 hearing and not limited to a court trial?

16 MR. CONNORS: Any sworn testimony.

17 THE DEPONENT: I have probably been deposed in two  
18 or three CAB accident investigations and perhaps one or two  
19 times while at the NTSB. I can't recall when they were.

20 Q Do you recall what they were -- in other words,  
21 what type of aircraft accident?

22 A One was the Pacific Airlines F-27 at San Ramon,



1 never been my position to follow up on injuries after the  
2 investigation of the accident, so I really wouldn't know  
3 whether those cases existed or did not exist. I have been  
4 exposed to several where it was obvious at the time of the  
5 investigation, so I can't really answer that.

6 Q Have all of the accident investigations in which  
7 you have been involved and which involved a survivor who was  
8 alleged to have neurological injuries where you were aware  
9 had documented injury to the head or skull?

10 MR. FRICKER: I object to the form. I believe by  
11 his prior answer he indicated that is an impossible question  
12 to answer because he did not follow them up afterwards. You  
13 say all in which such and such occurred.

14 You may answer the question, sir, if you understand  
15 it.

16 THE DEPONENT: I can't answer that question.

17 BY MR. CONNORS:

18 Q I am drawing the distinction between the case where  
19 you did not follow up the case of a person who walked away  
20 from an accident to learn if they subsequently had a neuro-  
21 logical injury to those cases where there was neurological  
22 injury. Are you able to distinguish in those investigations?

1 California in which a madman shot the pilot and the plane  
2 crashed and everybody was lost. There were no survivors.

3 Q Approximately when was the accident?

4 A 1965.

5 Q That would have been while you were with the CAB?

6 A Yes.

7 Q Do you recall any others while you were at the CAB?

8 A The testimony may have been after I left the CAB.

9 Q You said two or three accident investigations.

10 A I just can't recall them.

11 Q How about the one or two for the NTSB? Do you recall  
12 what they were?

13 A I have investigated hundreds of accidents and they  
14 all begin to run together as to which may have had a deposition.  
15 I can't recall.

16 Q Did you give any testimony with regard to the L-10  
17 11 crash in the Everglades?

18 A No.

19 MR. CONNORS. Why don't we take a break now for an  
20 hour.

21 [Whereupon, the deposition recessed at 12:20 to  
22 reconvene at 1:15 of the same day.]

1 BY MR. CONNORS:

2 Q Mr. Carroll, you mentioned various investigations  
3 and we discussed several of them.

4 Has it been your job to be in charge of these  
5 investigations or what role have you played in the various  
6 investigations and in what capacities have you served?

7 MR. FRICKER: I object. It is overly broad.

8 BY MR. CONNORS:

9 Q You referred to several investigations and you made  
10 the comment you had served in many different capacities, some-  
11 times deeply involved and other times less so. Have you  
12 ever been in the role of the person in charge of the investi-  
13 gation?

14 A Yes, sir.

15 Q Which agency?

16 A CAB and Aviation Injury Crash Research and my role  
17 generally was as chairman of one of the groups investigating  
18 an accident and most often the human factors group. You  
19 give an investigator a charge and you have witnesses for  
20 power plants, structures, night data, weather, operations,  
21 recorder, and so forth. Most of my investigations were as  
22 chairman of the human factors group.

Q What was the name of the organization you worked

1 at Cornell?

2 A Aviation Crash Injury Research.

3 Q Why would Cornell be conducting investigations?

4 A Under contract we investigated Army and civil  
5 accidents under contract.

6 Q Just to close any loops that we may have here, did  
7 you give any sworn testimony in connection with any of those  
8 investigations?

9 MR. FRICKER: Any of those conducted under the  
10 auspices of the Cornell group?

11 MR. CONNORS: Yes.

12 THE DEPONENT: I don't recall any.

13 BY MR. CONNORS:

14 Q You stated that your first involvement in the C5A  
15 litigation was approximately three or four weeks ago?

16 A Yes.

17 Q Are you able to pin down the date?

18 A I could refer to my diary and tell you.

19 Q If you have it, I would appreciate it.

20 A October 20th.

21 Q That is when you received the call from Mr. Jones?

22 A Right.

1 Q Since that time, have you, other than the notations  
2 you just referred to, prepared any notes, calculations,  
3 materials of any sort with regard to this litigation?

4 A No.

5 Q Have you attended any conferences regarding this  
6 litigation or meetings of any sort regarding this litigation  
7 other than for instance the deposition we are having right  
8 now?

9 A Yes.

10 Q When were they?

11 A That was this morning and yesterday and one other  
12 time, I think. October 21st.

13 Q Who was present at the meeting on October 21st?

14 A Briefly, Dick Jones and Doctor Cohen.

15 Q Anyone else?

16 A I think Oren Lewis was in and out, not necessarily  
17 a part of our conference.

18 Q Going back to your telephone conversation of October  
19 20th, were you provided during that conversation with any  
20 facts relating to the accident on April 4, 1975?

21 A Only the facts of the approximate time and the air-  
22 craft involved.

1 Q At the meeting on October 21st, were you provided  
2 with any facts regarding the accident?

3 A Yes.

4 Q What were you told at that time? What facts were  
5 you told at that time regarding the accident?

6 MR. FRICKER: Mr. Carroll, I want you to limit  
7 your answer to disclose facts of a factual briefing to the  
8 extent any was given and make sure you make no comment with  
9 respect to any conclusions, strategy or anything else that  
10 may have been discussed between and among you indicated were  
11 present at that conference and the same would hold for subse-  
12 quent questions.

13 THE DEPONENT: I was given written reports of the  
14 accident investigation and viewed several hundred photographs  
15 and was told there was a motion picture that I would see but  
16 it was out for reproduction. I didn't get to see that until  
17 later.

18 BY MR. CONNORS:

19 Q Did anyone provide you with any oral descriptions  
20 of what occurred on April 4, 1975?

21 A I think it was Doctor Cohen who explained to me what  
22 the documents were and asked that I review them.

1 Q What documents did he describe to you?

2 A There was an Air Force collateral summary report,  
3 and he gave me a copy of the MTSB report on the L-1011  
4 accident.

5 Q Anything else?

6 A I think that is all it was.

7 Q You mentioned a collateral report summary; is that  
8 correct?

9 A It was evidently the cover report but at that time  
10 I did not have all of the volumes 1, 2 and 3 of the attach-  
11 ments. Since then, I have seen those.

12 Q Was that summary prepared by --

13 A The Air Force.

14 Q Thank you.

15 Other than what you have already described, were you  
16 given any other facts in either written or oral form regarding  
17 the accident on April 4, 1975 at the meeting on October 21,  
18 1981?

19 A No.

20 Q Between October 21, 1981 and the second conference  
21 you referred to on October 27, 1981, did you have any conver-  
22 sations with anyone regarding this accident?

1 A No one else.

2 Q During that period, did you review any of the  
3 materials that had been furnished to you?

4 A Yes.

5 Q What did you review?

6 A The documents that I mentioned.

7 Q Were you actually given copies of the photographs  
8 to review?

9 A Yes.

10 Q And you had those in your possession?

11 A Yes.

12 Q Approximately how many photographs did you have in  
13 your possession?

14 A Several hundred.

15 Q Were they identified in any way by number or  
16 designation?

17 A They may have been. I didn't look for that.

18 Q Did you mark any of those for further reference?

19 A No.

20 Q At the meeting on October 27, 1981, who was present  
21 to the best of your recollection?

22 A That was only Doctor Cohen.



1 Q At that time, were you provided with any additional  
2 written materials?

3 A Yes.

4 Q What were you provided with?

5 A The Air Force report attachments, volumes 1 and 3.

6 Q Were you ever shown a volume 2 to that report?

7 A I didn't see that.

8 Q Were you provided with any other written materials?

9 A There was one other written one. I can't recall  
10 the name of the author but I think it was written by someone  
11 from Lockheed -- a summary analysis of the C5A accident.

12 Q Do you know if there is any designation or title  
13 or any other identifying mark on that?

14 A I don't recall that.

15 Q Do you know who was the person authoring that summary?

16 A If you mentioned the name, I might recall but off-  
17 hand I don't recall.

18 Q Was it John Edwards?

19 A I believe it was John Edwards.

20 Q Were you shown any additional photographs at that  
21 time?

22 A No, but the motion picture was back then and I viewed

1 that.

2 Q How many motion pictures were you shown?

3 A There was one large reel and one small reel that  
4 I believe were excerpts from the large reel.

5 Q Were you provided any facts regarding the accident  
6 orally by Doctor Cohen?

7 A No more than were available in the movies and  
8 photographs and reports.

9 Q The meeting you had this morning was October 28th.  
10 Who was present at that meeting?

11 A Doctor Cohen.

12 Q Anybody else?

13 A No.

14 Q Were you given any additional written materials at  
15 that time?

16 A No.

17 Q Were you shown any additional photographs or films?

18 A I reviewed the motion picture films, yes.

19 Q Were you given any additional facts verbally by  
20 Doctor Cohen?

21 A No.

22 Q Do the documents that you refer to comprise the

1 entire summary of materials you have reviewed regarding this  
2 accident?

3 A I can't think of any others.

4 Q You were not sent any other documents?

5 A No.

6 MR. FRICKER: Off the record.

7 [Off-the-record discussion.]

8 BY MR. CONNORS?

9 Q During an off-the-record discussion, there appears  
10 there may be an ambiguity.

11 Regarding the photographs you were shown on October  
12 21, 1981, where did you conduct your review of those photo-  
13 graphs?

14 A In a conference office at the law offices of Dick  
15 Jones.

16 Q Did you retain any of those photographs for further  
17 study?

18 A No.

19 Q Did you have any of those in your possession outside  
20 the law offices?

21 A No.

22 Q Did you retain any of the written materials?

1 A Yes.

2 Q What did you retain?

3 A The NTSB report of the L-1011 accident and the Air  
4 Force collateral report, which was only the top portion, and  
5 none of the attachments.

6 MR. FRICKER: I appreciate your asking those questions  
7 for clarification. I was confident that what the witness  
8 just indicated was the fact because, indeed, throughout this  
9 period we have, indeed, had a single copy of the photographs.  
10 I would have been personally distressed if anyone permitted  
11 any one of our experts to remove them from our office.

12 BY MR. CONNORS:

13 Q Mr. Carroll, in terms of the type of analyses  
14 which you do and with regard to any opinion which you expect  
15 to render in this case, can you identify for me the particular  
16 facts which you would regard as significant to that analysis  
17 or opinion?

18 MR. FRICKER: I object to the form. It seems to  
19 be asking for a general methodology, albeit, the specific  
20 reference to this case -- which is it, or are you asking,  
21 indeed, for both?

22 MR. CONNORS: I am asking in regard to this specific

1 Q In terms of reaching conclusions about the  
2 survivability, are you able to segment an accident into, in  
3 this case, different portions of the aircraft to determine  
4 if it was survivable for people in one location and not for  
5 people in another?

6 MR. FIRCKER: I will object to the form.

7 When you say, "Are you able to," are you  
8 asking him if it can be done irrespective of whether it is  
9 good methodology or are you asking if it is good methodology?

10 BY MR. CONNORS:

11 Q Let's start with, can it be done?

12 A Again, it would go to the accepted definition of  
13 survivable and nonsurvivable accidents, yes, it can be done.

14 Q Do you regard the C5A accident as a whole a non-  
15 survivable accident?

16 A As a whole, it is a nonsurvivable accident.

17 Q Why do you say that?

18 A Primarily because the aircraft disintegrated on  
19 impact and left very little in the way of an occupiable  
20 envelope for survival, plus the range of impact forces that  
21 would have had to have been sustained by the occupants in  
22 general, having been of sufficient magnitude to disintegrate

1 case.

2 THE DEPONENT: The question is what facts?

3 BY MR. CONNORS:

4 Q What facts have been furnished or obtained in your  
5 review of the materials, examination of the photos and motion  
6 picture film do you regard as relevant to your analysis which  
7 you conducted about this accident and any opinion you may  
8 give with regard to it?

9 A I would have to say all of the facts from the reports,  
10 films and photographs I mentioned I considered relevant  
11 even including the facts in those reports that pertain to  
12 the early loading of the aircraft as well as those that are  
13 associated with the events that followed in flight and the  
14 crash impact. As far as I am concerned, they would all  
15 have a bearing on my conclusions.

16 Q Have you asked for any of the photographs or scenes  
17 from the film to be reproduced for you to study?

18 A No.

19 Q In conducting an investigation of an accident with  
20 regard to investigations you referred to, you have used the  
21 term "survivable" and "nonsurvivable"; is that correct?

22 A That is correct.

1 the aircraft, therefore, very likely to have exceeded the  
2 known limits of human tolerance.

3 The actual injuries that were sustained are not  
4 part of the criteria for determining whether the accident  
5 was survivable or nonsurvivable.

6 Q Would you describe for me your understanding of the  
7 accident sequence from the time of the decompression at  
8 23,424 feet to the time that the various parts of the air-  
9 craft came to rest?

10 A It is my understanding that the aircraft was  
11 rendered essentially uncontrollable except for the experimental  
12 techniques on the part of the pilot in finding through the  
13 use of throttle application and power application and some  
14 aileron control, some slight control over the ascent was  
15 possible at times. The aircraft descended for an intended  
16 landing at Tan Son Nhut and control was further unmanageable  
17 and that the pilots selected to land straight ahead to what  
18 appeared to them to be a fairly open area; and that the air-  
19 craft touched down several times on one side of the Saigon  
20 River, shedding some parts at various impacts, later to cross  
21 the river striking a dike and proceeding there to have one or  
22 two more principal impacts which caused the aircraft to

1 disintegrate.

2 Q Is that your answer?

3 A Yes.

4 Q Just to clarify something, is it your understanding  
5 that you will address in any way injuries to passengers due  
6 to decompression or hypoxia?

7 A It is not specifically my impression although I  
8 have some background experience in hypoxia and toxic hypoxia  
9 related to both the exposure to low atmospheric pressure and  
10 in the case of toxic hypoxia inhalation of the smoke. This  
11 would be in relation to possible other accidents that I have  
12 investigated.

13 Q What is your understanding of the rate of descent  
14 of the aircraft at the time it first touched down while  
15 attempting to return to Tan Son Nhut?

16 A I am still in the process of gathering from the  
17 documents some numbers in that area, but I only have a broad,  
18 general impression at this point. I would have to study that  
19 further.

20 Q You stated that it was your understanding that the  
21 aircraft touched down several times on the first side of  
22 the river; is that correct?



1 A Yes.

2 Q On what do you base that statement?

3 A Gouge marks, tree slashes and aircraft parts left  
4 on that side of the river.

5 Q How many impacts did the aircraft make on that  
6 side of the river?

7 A I don't know.

8 Q Do you rely on any photographic evidence for the  
9 statement that the aircraft made more than one impact on the  
10 first side of the river?

11 A That is primarily where the indications come from.

12 Q Are you able to explain your opinion in this regard  
13 without having photographs in front of you or would it be  
14 helpful to have the photographs?

15 MR. FRICKER: I object to the form.

16 Are you asking him if he is able to?

17 MR. CONNORS: If he is able to describe the reasons  
18 in detail, I will go ahead. If not, I will go and get the  
19 ones we have.

20 THE DEPONENT: No, I don't think I will need the  
21 photographs.

1 BY MR. CONNORS:

2 Q You mentioned it was your opinion the airplane touched  
3 down on the first side of the river was based on gouge marks,  
4 tree slashes and parts?

5 A Yes.

6 Q Can you describe what process or methodology you  
7 used to reach this conclusion?

8 A From the first marks of contact with the ground,  
9 as I recall, there were several others, including trees at  
10 various locations along the flight path that were cut off.  
11 Each of these would represent an impact, no matter how slight.

12 Q You are counting the contact with each tree as a  
13 separate impact?

14 A Each tree or wherever the gouge marks might show  
15 up.

16 Q Do you know the speed of the aircraft at the time  
17 of the first touchdown?

18 A I have read the estimates.

19 Q What is your understanding of the speed of the  
20 aircraft based on what you have read?

21 A Somewhere in excess of 250 knots.

22 Q At that speed and given the aircraft that they were

1 riding in, would any of the passengers  
2 the C5A struck the trees in the vicinity  
3 site?

4 MR. FRICKER: Are you asking him if he has an  
5 opinion in that regard?

6 MR. CONNORS: Yes.

7 THE DEPONENT: Because of the unique mechanism of  
8 some injuries, I would say it is possible.

9 BY MR. CONNORS:

10 Q What type of mechanisms are you referring to?

11 A The short pulse, high frequency, high magnitude,  
12 short pulse impact forces that could be transmitted to  
13 occupants. It could possibly cause some injury.

14 Q What is your understanding of what caused the gouge  
15 marks on the first impact side?

16 A I don't know. There are some landing gear parts  
17 that wound up there so I would assume the landing gear  
18 contacted the ground or trees, or both.

19 Q That would be one impact, when the landing gear made  
20 contact?

21 A Or repeated short pulse impacts.

22 Q When the landing gear made contact with the ground,

1 that would be one impact you are referring to?

2 A Yes.

3 Q And when the aircraft hit the trees, that would be  
4 additional impacts?

5 A Yes.

6 Q How many trees were impacted?

7 A I don't recall -- four, five, six trees maybe.

8 Q Other than the impact when the landing gear touched  
9 the ground and the aircraft touched the trees, were there  
10 any other impacts?

11 MR. FRICKER: I would object. I think you are  
12 referring to a singular when referring to impact with the  
13 ground and we are referring to impacts in the plural with  
14 trees. I don't know if that is intentional or not. I  
15 believe the witness has already indicated one or more impacts.  
16 I don't even know whether he has an opinion with respect to  
17 whether the plane impacted more than once on the one side of  
18 the river.

19 BY MR. CONNORS:

20 Q Including the impacts with the trees, how many  
21 impacts were there on the first side of the river?

22 A The photographs indicated there was one primary

1 impact that would have caused the structural integrity of the  
2 landing gear to begin to fail.

3 But it is not clear if the parts that were shed  
4 from the aircraft caused other gouge marks or whether the air-  
5 craft itself, the wing tip or engine cowl struck the ground.  
6 It appeared to me the aircraft was essentially level and  
7 flying straight and was airborne out of the first impact area  
8 or flew itself up out of that impact area.

9 Q In your opinion, how long was the aircraft in contact  
10 with the ground on the first side of the river?

11 MR. FRICKER: Time or distance?

12 BY MR. CONNORS:

13 Q Distance.

14 A I would not be able to judge that accurately from  
15 the photographs.

16 Q You have seen other materials, haven't you? You  
17 indicated you saw the summary of the report of the Air Force.

18 A Yes.

19 Q Is there anything in there which would indicate to  
20 you how long the aircraft was in contact with the ground?

21 A No, that report was lacking in any measurements of  
22 any value.

1 Q You indicated the aircraft then made an impact  
2 with the dike on the second side of the river; is that  
3 correct?

4 A That is right.

5 Q Do you know what portion of the aircraft struck  
6 the dike or do you have an opinion as to what portion of  
7 the aircraft struck the dike?

8 A No, I don't.

9 Q Do you have any measurement or calculations on the  
10 depth of the impact with the dike?

11 A No.

12 Q It is my understanding it is your opinion the air-  
13 craft next made one or two more impacts before disintegrating;  
14 is that correct?

15 A Yes.

16 Q On what do you base that opinion?

17 A On the overall appearance of the air crash site  
18 photographs which indicate a long gouge from the dike area  
19 to one area of major impact and then further along the flight  
20 path a further area from which major structural parts take  
21 divergent courses.

22 Q Would you describe for me, please, what is your

1 understanding of what happened to the aircraft from the  
2 time it struck the dike on the second side of the river until  
3 the major portions came to rest?

4 A It is my opinion that the aircraft was yawed  
5 slightly to the left, roaming to the left and fairly level  
6 longitudinally, struck the ground in that first principal  
7 impact area beyond the dike, sustaining enough structural  
8 damage to cause fuselage failure and wing attachment failure  
9 and begin its disintegration. In that barely hung condition  
10 it impacted from the first area to the second area. The  
11 upper troop compartment continued forward. The wing  
12 assembly did a cart wheeling with a rotational force and  
13 proceeded further down the crash path and the nose of the  
14 aircraft took off in another direction.

15 MR. CONNORS: Let the record reflect Mr. Dubuc  
16 came in a few minutes ago and we now have a brief recess  
17 while Mr. Dubuc and Mr. Connors confer.

18 [Whereupon, there was a brief recess.]

19 MR. FRICKER: Let the record reflect that after  
20 the break of 5 or 10 minutes, Mr. Dubuc is apparently going  
21 to continue with the examination and I have no objection  
22 to that. I am sure he will try to avoid being repetitious

1 and mind if I suggest he is.

2 Do you expect concluding this or just going to  
3 the conference call at three?

4 MR. DUBUC: Mr. Connors is doing something else  
5 and we are doing this on a tandem basis as best we can.

6 BY MR. DUBUC: Mr. Carroll, I was here when you  
7 described your opinion as to what events occurred with this  
8 aircraft as it impacted the ground on the west side of the  
9 Saigon River, which was the second or, as you described it,  
10 more than the second impact. I think I understood you to  
11 say that you believe some portion of the aircraft hit the  
12 dike; is that correct?

13 A That is correct.

14 Q Have you examined pictures of the dike?

15 A I have seen pictures with the dike included as  
16 part of the overall scene.

17 Q You have seen the two movies?

18 A I have seen two movies, one of which appeared to  
19 be clips from the larger one.

20 Q Can you describe, at least as far as your own  
21 observation and opinion, how many marks you observed that  
22 you would attribute to the aircraft's impact with the dike



1 on the dike?

2 A On the dike?

3 Q Yes.

4 A I don't know.

5 Q Did you make any determination how high the dike  
6 was from ground level?

7 A No.

8 Q Did you make any determination whether the height  
9 was the same side on the east side of the dike as it is on  
10 the west side of the dike?

11 A No.

12 Q You also described in the portion of your testi-  
13 mony I just overheard that there was a long gouge on the  
14 west side of the river beyond the dike and I thought I  
15 heard you say multiple impacts?

16 A I believe there was some impact with the dike,  
17 that there were two principal impacts from what I have seen  
18 of the photographs of the accident scene.

19 Q You testified you reviewed the Air Force report  
20 summary.

21 A Yes, sir.

22 Q Did you also review the collateral report?

1           A       That was it. I reviewed the summary and later the  
2 attachments in two or three volumes.

3           Q       Do you recall if you reviewed what is referred  
4 to as the aircraft accident report, the one prepared under  
5 Regulation 127-4? Did you review the official accident  
6 report?

7           A       No, I never saw that.

8           Q       Did you have occasion to review what has already  
9 been marked as an exhibit several years ago and has been  
10 used from time to time -- it is a wreckage diagram, a  
11 dispersal of wreckage for this accident?

12          A       Among the attachments of, I believe, volume 1  
13 appended to the collateral report I believe there were one,  
14 maybe two pages showing the wreckage distribution diagram.

15          Q       Is this the one you have seen? It is Exhibit D-9.

16          A       That looks like the one.

17          Q       You have looked at this and for the purpose of this  
18 questioning I would like you to assume this is the wreckage  
19 diagram from the accident report prepared by the Air Force  
20 and its investigation showing the dike, the Saigon River,  
21 the impact on the east side to the right and the impact area  
22 on the west side of the river, which is to the left.

1                   You see at the bottom there, there are some yard  
2 markers. Do you see that?

3           A     Yes.

4           Q     And also there are some markers up the left side  
5 similarly. Do you see them?

6           A     Yes.

7           Q     You have given your opinion that the aircraft  
8 touched the dike or struck the dike in some way and then  
9 there was an impact at some point to the ground; is that  
10 correct?

11          A     Where the chart shows the second impact, it is  
12 labeled second impact.

13          Q     Is that in your opinion where the second impact  
14 occurred, just beyond the dike?

15          A     I can't be convinced from what I have seen that  
16 that is the second impact of the aircraft.

17          Q     In your opinion, referring to D-9, would you  
18 tell us what in your opinion based upon what you have reviewed  
19 what you believe to be the second point of impact?

20          A     The wreckage diagram does not agree in detail  
21 except for general indication of debris or burn area, it  
22 does not agree with photographs. I would say where the chart

1 depicts the initial touchdown area, to me that would be the  
2 first impact and then there is a secondary area of impact  
3 indicated by broken trees.

4 Q Where it shows broken trees, there would be other  
5 impacts with the ground?

6 A Whatever part of the aircraft touched down and  
7 indicted the initial touchdown, nothing touched those trees.  
8 At least there would be additional impact points

9 Q Maybe I am not explaining my question very well.  
10 I am interested in impacts with the ground. Where it is  
11 marked initial touchdown on the east side of the Saigon  
12 River, to the right on D-9, would you agree that is the  
13 approximate area of initial touchdown?

14 A Yes.

15 Q I overheard your discussion of that with Mr. Connors.  
16 Is it your opinion that the aircraft remained on the ground  
17 for a period of time from that initial touchdown point  
18 moving to the west on Exhibit 9?

19 A No. I think it can probably be determined from the  
20 gouge marks which left me with the impression that the air-  
21 craft either rebounded up from that impact or was flown up  
22 from that initial impact area with some portion of the aircraft

1 striking the trees thereafter at heights above the elevation  
2 at the initial touchdown point.

3 Q So there was only one impact with the ground which  
4 the initial touchdown is concerned. Is that a fair summary  
5 of what you are telling us?

6 A Yes.

7 Q In your opinion, was there any second impact of the  
8 aircraft with the ground itself on the east side of the Saigon  
9 River in the area of the initial touchdown point?

10 A I would have to examine photographs further to  
11 see if any of the marks between the path and the point marked  
12 the second impact if any of those could possibly be made by  
13 a wing tip or engine cowl or some other part of the aircraft.

14 Q In your opinion, was the aircraft intact as far as  
15 fuselage, empennage, troop compartment, flight deck and nose  
16 area after it became airborne again following the initial  
17 touchdown on the east side of the Saigon River.

18 A I would say it was not intact because parts were  
19 left in that path.

20 Q How about the empennage, for instance?

21 A I have not seen anything that would identify the  
22 parts that were found in this wreckage path area.

1 Q Have you seen where

2 A Yes, sir.

3 Q In your opinion, could the  
4 rest where it came to rest if it was not an  
5 aircraft after it left the ground from the initial

6 A I would say no, it was not intact.

7 Q Maybe we are discussing too deep detail the word  
8 intact. In your opinion, were the main elements and the  
9 aft portion of the fuselage still attached?

10 A Yes.

11 Q Would the same be true with the troop compartment,  
12 in your opinion, after the initial touchdown?

13 A As soon as any part of the landing gear was torn  
14 away, part of the empennage and part of the cargo compartment,  
15 the structure integrity has been encroached upon.

16 Q How long have you been working on this accident?

17 A Two or three weeks.

18 Q Do you know the areas of the airplane as they relate  
19 to one another as between, for example, the troop compartment,  
20 the term cargo compartment and the term troop compartment?

21 A I know there is an area called the upper troop  
22 compartment and the lower compartment is generally referred  
to as the cargo compartment.

Q Have you seen Exhibit D-4 for identification?

1 A Yes.

2 Q Could you show us on there what you consider to  
3 be the troop compartment by terminology?

4 A There is a forward troop compartment and an aft  
5 troop compartment and the wing section lies in between those  
6 two.

7 Q What is below that?

8 A Below that is labeled cargo floor. It is also my  
9 understanding that personnel are carried in this compartment  
10 as well although it is not labeled as a troop compartment.

11 Q And the landing gear is below that?

12 A Yes.

13 Q How far below the floor of the troop compartment  
14 are the tops of the landing gear located?

15 A The dimensions are not indicated here but it looks  
16 to be about 10 or 12 feet.

17 Q Ten or 12 feet from the top of the gear?

18 A To the bottom of the gear.

19 Q How much distance is below the floor of the troop  
20 compartment and the floor of the cargo compartment?

21 A Thirteen and a half feet.

22 Q And the gear is below that, below the floor of the

1 cargo compartment. It has to be more than 13 and a half  
2 feet between the floor and the top of the gear.

3 A Right.

4 Q How many feet, in your opinion, looking at Exhibit  
5 D-4 between the floor of the troop compartment and the top  
6 of the landing gear?

7 A According to this scale, it would be somewhere  
8 on the order of 17 feet.

9 Q It would be practically 20 feet to the ground?

10 A Approximately.

11 Q Back to our other question, having reviewed  
12 that.

13 With respect to the troop compartment, the aft  
14 troop compartment or if you want to talk about the aft and  
15 forward compartment, the forward being described as the crew  
16 compartment in some terminology but for purposes of the  
17 diagram and deposition today, in your opinion, was the  
18 forward and aft troop compartment intact after the aircraft  
19 left the ground following the initial touchdown?

20 A It is my impression that it was.

21 Q You mentioned the nose and empennage and two other  
22 portions that separated at some point and except for possible



1 minor components I think you already told us the empennage  
2 and the fuselage joining the empennage were intact after  
3 the initial impact?

4 MR. FRICKER: I object to the term intact.

5 BY MR. DUBUC:

6 Q I understand in your opinion the main area of  
7 the main area joining it to the fuselage was structural  
8 intact?

9 A I couldn't agree with that. I could say attached.

10 Q The same would be true with respect to the nose  
11 portion you previously described in your answers to Mr.  
12 Connors' questions; is that correct?

13 A It is not likely that it would be intact but it  
14 would be attached.

15 Q Have you formed an opinion as to the air speed  
16 of the aircraft when it became airborne after the first  
17 impact?

18 A Yes.

19 Q What was it?

20 A That would be essentially on the order of 250 to  
21 270 knots.

22 Q What was the weight of the aircraft?

1 A I don't know.

2 Q Does the formula for computing or determining  
3 deceleration forces have anything to do with the formula  
4 mass times velocity?

5 A Formula for?

6 Q For determining deceleration or G Forces.

7 A It has been my practice to use entrance and exit  
8 velocities for distances.

9 Q You don't use mass in your computations?

10 A No.

11 Q Let's just take this in sequence. The aircraft  
12 became airborne after the first down and reached a point  
13 which is indicated as second impact area on Exhibit D-9; is  
14 that correct?

15 MR. FRICKER: I object to the form of the question  
16 to the extent it intends to imply there was no other impact  
17 with the ground with what is shown as shows two points on  
18 D-9.

19 MR. DUBUC: I thought I asked him that before.

20 BY MR. DUBUC:

21 Q Can you tell me whether or not, in your opinion,  
22 there was another impact with the ground between what is

1 marked initial touchdown area and the general area of second  
2 impact on Exhibit D-9?

3 A At this point, I don't know.

4 Q Can we direct our attention to second impact area  
5 on the west side of the Saigon River to the west of the dike,  
6 which is shown on Exhibit D-9?

7 A It is indicated as the second impact, yes.

8 Q Relevant to the dike, in your opinion, where was  
9 the next impact area following or let me put it this way,  
10 the first impact with the ground on the west side of the  
11 Saigon River?

12 A The first impact with the ground on the west side  
13 of the river would appear to be at the dike.

14 Q You were not sure what portion hit that, is that  
15 correct, nor how many marks there were; is that correct?

16 A No, I don't know how many marks on the dike.

17 Q What was the first point, in your opinion, at which  
18 the aircraft or any portion of the aircraft struck the  
19 actual ground as opposed or distinguished from the dike?

20 A Since it left the gouge mark from the dike forward,  
21 it is in continuous contact with some portion of the aircraft  
22 causing the gouge to be put into the ground.

1 Q In other words, the gouge, in your opinion,  
2 commences at the dike?

3 A Close to it.

4 Q Let's see if we can define that. When you say,  
5 "Close to it," is it a matter of feet or inches west to  
6 where the gouge marks start?

7 A According to the scale here, I would say on the  
8 order of 1100 feet from the crash path.

9 Q Eleven hundred feet measured from where?

10 A From the scale indicated on this wreckage distri-  
11 bution chart, one is 1050 and the other is 1225 feet --  
12 somewhere in the area of 1100 feet the gouge marks start.

13 Q Can you mark on that copy in your opinion where the  
14 gouge marks indicate the first impact with the ground after  
15 it passed over the dike?

16 MR. FIRCKER: I will object. The question was  
17 asking for an opinion but in effect what you are really asking  
18 for him to do is recall what the pictures show and plot that  
19 on this diagram.

20 MR. DUBUC: All I am asking for is his recollection  
21 and his opinion, his opinion on which he is going to base  
22 subsequent opinions, as I understand it, as to where this

1 aircraft first touched the ground as indicated by gouge  
2 marks or whatever else he uses to indicate after it passed  
3 the dike on the west side of the Saigon River. Would you  
4 indicate that for us, where, in your opinion,?

5 MR. FRICKER: If you are able to do so, please  
6 do.

7 Mr. Carroll, do you need to look at the photograph  
8 to do that?

9 THE DEPONENT: Yes, otherwise I am just trying to  
10 remember.

11 MR. FRICKER: Would you prefer to see the movies  
12 or the stills?

13 THE DEPONENT: The stills.

14 MR. FRICKER: Mr. Carroll, there are several  
15 different types of photographs. There are black and white  
16 and there are color. The one you have now is an earlier  
17 picture. Mr. Dubuc appears to be looking through enlarge  
18 prints of the more recently produced pictures. Can you  
19 assist him as to which ones might be most helpful to you  
20 in responding to his questions?

21 THE DEPONENT: The type indicated in photograph  
22 labeled 3-F is helpful.

1 MR. DUBUC: Here is a black and white one.

2 THE DEPONENT: In photograph T-4-R and 3-F, it  
3 appears that the dike is somewhat higher than the overall  
4 terrain. Some portion of the airplane struck the dike and  
5 somewhere on the order of 20 to 50 feet beyond the dike the  
6 gouge marks commence.

7 BY MR. DUBUC:

8 Q You are referring to which photographs?

9 A T-4-R and 3-F.

10 Q Referring to those two photographs, can you  
11 indicate to me where the gouge marks begin?

12 A Here and here.

13 Q And on the other one?

14 A Right here.

15 Q Having looked at those photographs, can you tell  
16 us in your opinion in answer to the previously asked question  
17 where the aircraft struck the ground for the first time west  
18 of the dike as it would appear in Exhibit D-9?

19 A Somewhere on the order of 20 to 50 feet beyond the  
20 dike.

21 Q Can you indicate that on the wreckage diagram?

22 A Yes, sir.

1 Q Put a line there and indicate something such as  
2 first ground impact and maybe initial it.

3 A I have marked that "first ground impact past the  
4 dike."

5 Q Keeping that same diagram, previously in describing  
6 the sequence that occurred beyond the dike, you mentioned  
7 something to the effect of multiple impacts.

8 Now, working from the first ground impact beyond  
9 the dike, do you have an opinion how long the aircraft remained  
10 on the ground after that first ground impact?

11 A First of all, I can't say that the aircraft was on  
12 the ground. I can say that parts of the aircraft were in  
13 contact with the ground.

14 Q Do you have any opinion as to what parts those were?  
15 You have in front of you also Exhibit D-4.

16 A I can't identify beyond a shadow of a doubt what  
17 part of the aircraft caused those gouges.

18 Q Have you made any determination at all?

19 A Pardon?

20 Q Have you made any determination at all?

21 A No. I am still in the process of trying to identify  
22 what parts associated with that gouge that would indicate more

1 definitively if the aircraft is, for instance, right-side up  
2 when it made that contact.

3 Q Have you read anything indicating that it was not  
4 right-side up?

5 A No.

6 Q Have you reviewed any of the statements or testimony  
7 of any of the flight crew members or occupants of the troop  
8 compartment?

9 A Yes.

10 Q Which ones?

11 A All of them that were attached to the Air Force  
12 collateral reports.

13 Q Those are statements?

14 A Statements.

15 Q Have you reviewed any of the trial deposition  
16 testimony of any of those witnesses?

17 A No.

18 Q Assuming the aircraft was right-side up, have you  
19 made any determination as to how long the aircraft or portions  
20 of it, which made the gouges which appear in the photographs  
21 you have just referred to, how long there was contact between  
22 a component of the aircraft and the ground after the first  
ground impact west of the dike as shown on Exhibit D-9?



1           A     I would say that the major portion of the aircraft  
2 impacted somewhere between the 1225 marker and 1400 foot  
3 marker and that some portion of the aircraft from that point  
4 of 20 to 50 feet beyond the dike remained in contact with  
5 the earth until that principal impact between 1250 and 1400  
6 feet.

7           Q     Could you indicate that point that you are referring  
8 to now the same way you did before and label it?

9           A     I would call that the point of principal impact.

10          Q     In your opinion, between the point called the  
11 first ground impact after the dike and the point of principal  
12 impact, which was marked on Exhibit D-9, in your opinion, were  
13 the empennage, forward and aft troop compartments, nose  
14 section and wings still attached?

15               MR. FRICKER: In between the two areas that are  
16 marked?

17               MR. DUBUC: Yes.

18               THE DEPONENT: I would say they are attached.

19               BY MR. DUBUC:

20          Q     At what point did any one of those components  
21 first detach or separate from the aircraft, the nose section,  
22 forward troop compartment, or crew compartment, as it is

1 called, aft troop compartment, empennage or wings?

2 A It should be my judgment that the integrity of those  
3 aircraft components of the aircraft to some degree structural  
4 were weakened and came apart principally at that point of  
5 principal impact from which the trajectory of the flight deck  
6 and troop compartment would leave that mark.

7 Q Did they all detach themselves at that point?

8 A My experience would be it would be a progressive  
9 thing, not an instantaneous explosion.

10 Q When you are talking about progressive, you are  
11 talking about a period of time thereafter?

12 A Milliseconds.

13 Q What portions or what major component portions  
14 separated within the milliseconds following the point of  
15 principal impact?

16 A It would appear within a very short expansion of  
17 milliseconds that the tail separated; that the lower portion  
18 of the fuselage was in the process of disintegration; that  
19 the wing would tear from the fuselage and continue with its  
20 mass and possible degree of air foil lift; that the aft troop  
21 compartment and the flight deck having been separated and  
22 would be on their separate trajectories.

1 Q You mentioned the nose also in your previous  
2 description.

3 A And the flight deck, yes, sir.

4 Q You are referring to the flight deck as opposed to  
5 the forward troop compartment?

6 A Yes.

7 Q Is it your opinion that the flight deck separated  
8 into one component and what is described on D-9 the forward  
9 troop compartment separated into a separate troop compartment?

10 A No, I think that portion probably disintegrated.

11 Q As one component or separate?

12 A That, I wouldn't know.

13 Q Are you in your mind contemplating the cockpit  
14 flight deck as a separate entity from what is labeled on D-4  
15 as the forward troop compartment?

16 I am trying to determine in your opinion when these  
17 components separated at the principal point of impact whether  
18 the flight deck separated into one component in your opinion  
19 or what is described as a forward troop compartment was separate?

20 A No.

21 Q Were they together?

22 A I think portions of them were disintegrated.

1 Q Have you reviewed any testimony as to how many people  
2 were in that forward flight deck and troop compartment?

3 A I don't recall.

4 Q Any that were injured?

5 A I don't recall.

6 Q Would that make any difference in your analysis?

7 A No.

8 Q Isn't that one of the things that accident investi-  
9 gators look at which you may have mentioned in some of the  
10 publications you have, to check the injury and condition of  
11 humans or persons in components to determine what happened  
12 to the components?

13 A There was no crash investigation of this accident  
14 that I can find in the data on injuries.

15 Q But you have statements of who said they were  
16 injured and who were not?

17 A Generally, yes.

18 Q Have you looked at medical records for any of the  
19 crew members?

20 A No.

21 Q And you have not read their trial testimony whether  
22 they stated where they were injured or not?

1 A No.

2 Q That would be an important factor?

3 A For what?

4 Q In determining G forces, possible hazardous environ-  
5 ment as far as humans are concerned in a component such as  
6 the flight deck and forward troop compartment?

7 A It would be vital in a crash injury investigation  
8 to do a thorough crash injury analysis.

9 Q If, as we sit in our position today, if we are  
10 trying to play catch-up and formulate opinions, would it be  
11 helpful to do that?

12 A Yes.

13 Q Have you been asked to do that?

14 A No.

15 Q So it does not make any difference as far as your  
16 opinion develops today as to what the injuries were or were  
17 not to those in the cockpit and flight deck?

18 MR. FRICKER: I object to the form of the question.

19 BY MR. DUBUC:

20 Q Is that correct?

21 A It is interesting to notes that there was survival  
22 in the flight deck area.

1           A     I understand you previously indicated that this was  
2 a nonsurvivable accident.

3           A     That is right.

4           Q     Yet, almost half of the people on the airplane  
5 survived, did they not?

6           A     The fact of survival or nonsurvival, injury or non-  
7 injury does not enter into the criteria for the determination  
8 of the survivable or nonsurvivable accident.

9           Q     Having said that, what makes the determination  
10 whether people survive or don't survive in a nonsurvivable  
11 accident, in your opinion?

12          A     It is my opinion, pardon the expression, it is  
13 referred to as the Jesus factor when survival does occur in  
14 a nonsurvivable environment. It is a chance.

15          Q     Miraculous?

16          A     Yes.

17          Q     Let's go back to our diagram again.

18                After going westward on Exhibit D-9 from the dike,  
19 west of the point that is labeled principal --

20                MR. FRICKER: Point of principal impact of fuselage  
21 is how it is marked.

1 BY MR. DUBUC:

2 Q Was there any period of time, in your opinion, when  
3 any part of the fuselage was then not in contact with the  
4 ground and when it recontacted the ground west of that point?

5 A Any part of the fuselage?

6 Q Yes.

7 A The entire cargo area, which is the principal area  
8 of the fuselage, was in the process of disintegration from  
9 that impact point area.

10 Q How long did it take to disintegrate, in your opinion?

11 MR. FRICKER: Time or distance?

12 BY MR. DUBUC:

13 Q Either one or both. You are talking about the cargo  
14 compartment and it is in the process of disintegrating from  
15 the principal impact point westward. In your opinion, how  
16 much time or distance did it take?

17 A From zero point of principal impact to a distance  
18 equal to its own length for the cargo compartment to disinte-  
19 grate.

20 Q Looking at Exhibit D-9, could you tell us approximately  
21 how many feet or yards that would be?

22 A Approximately the dimension indicated by the overall

1 length of the cargo compartment, 121 feet.

2 Q So it completely disintegrated in 121 feet, in your  
3 opinion; is that correct?

4 A Yes.

5 Q Would you put that on the diagram, where the  
6 disintegration ceased as far as the cargo compartment is  
7 concerned.

8 MR. CONNORS: Should the record reflect Mr. Fricker  
9 is calculating here?

10 MR. FRICKER: It can reflect anything you want.

11 The question is, can he plot it on here and I am  
12 frankly thinking outloud on a scale this size whether that is  
13 practical. The question is pending and the record should  
14 reflect presumably the conference call from the court has  
15 come in and Mr. Dubuc has left the room and Mr. Connors is  
16 waiting an answer from Mr. Carroll.

17 MR. CONNORS: And Mr. Carroll is supposed to be  
18 indicating on there the point at which the cargo compartment  
19 would have disintegrated.

20 MR. FRICKER: I thought it was more the area in which  
21 that disintegration would have commenced in his judgment.

22 Do you want to read back the question?

MR. CONNORS: Why don't we read back the question.



1 [The Reporter read the pending question.]

2 MR. FRICKER: Can you do that, Mr. Carroll?

3 THE DEPONENT: No. My problem is I have not  
4 identified what other components of the cargo compartment may  
5 have been found further down the crash path, which would  
6 lead to some indication as to the possible sequence in which  
7 they came apart and how long they were coming apart  
8 and whether they continued to come apart beyond the point of  
9 principal impact of the fuselage.

10 BY MR. CONNORS:

11 Q Have you been able to identify in any of the  
12 photographs or from any source portions of the cargo compart-  
13 ment?

14 A Only the section of the cargo floor which is a  
15 rather large section along immediately to the right of the  
16 crash path at the point of principal impact.

17 The wreckage diagram indicates a large section of  
18 the cargo floor at approximately 1375 feet.

19 Q Have you been able to determine if any other por-  
20 tions of the cargo compartment were identified in the wreck-  
21 age diagram or any of the photographs which you have examined?

22 A No.

1 Q You have not been able to identify any portions of  
2 the cargo compartment?

3 A I have not found any data that accurately identify  
4 the parts that were found indicated on the wreckage diagram  
5 for the location of the section of the cargo floor.

6 Q Mr. Carroll, on Exhibit D-4, which you have in front  
7 of you, would you please outline in red and indicate the four  
8 portions of the aircraft which were identified in the wreck-  
9 age diagram, as you understand -- that it, the empennage,  
10 wing area, troop compartment and, however it is referred to,  
11 flight deck.

12 MR. FRICKER: You don't want the cargo floor?

13 MR. CONNORS: No, I want the portions he understands  
14 came to rest shown on the diagram as the T tail, cargo  
15 compartment, wing section, and the flight deck.

1 BY MR. CONNORS:

2 Q Would you mark on D-4 those sections. Label them,  
3 please. T Tail is also the empennage; is that correct?

4 A Yes.

5 MR. FRICKER: While we are at this point, would it  
6 be appropriate to remark these two documents which have been  
7 marked on by Mr. Carroll and give them a new exhibit number?

8 MR. CONNORS: I am sure we will mark them with the  
9 numbers we have been using in this deposition after they  
10 have been completely marked.

11 BY MR. CONNORS:

12 Q Mr. Carroll, were any portions of the cargo compart-  
13 ment found at the location where the flight deck eventually  
14 came to rest?

15 A I don't know of any.

16 Q Were any portions of the cargo compartment found  
17 in the area where the wing section came to rest?

18 A Again, I don't know there are any. That is not to  
19 say there are not.

20 Q Were any sections of the cargo compartment found in  
21 the troop compartment that came to rest?

22 A The same answer. I don't know.

1 Q Have you studied the photographs which show the var-  
2 ious components as they came to rest, that is, the flight  
3 deck, wings, troop compartment and empennage?

4 A Yes.

5 Q In your opinion, do they indicate any portions of  
6 the cargo compartment in those areas?

7 MR. FRICKER: I object to the form. I don't know  
8 that he has formed an opinion with respect to whether those  
9 pictures disclose that. If he has an opinion, he should  
10 certainly state it. If he does not, that is something else.

11 THE DEPONENT: The photographs don't identify the  
12 parts and I have not seen a wreckage diagram which accurately  
13 depicts each part of the wreckage, so I just don't know.

14 BY MR. CONNORS:

15 Q You have seen photographs of the major portions of  
16 the aircraft as they appeared on the ground, have you not?

17 A Yes, sir.

18 Q Looking at those, is it your opinion any portion of  
19 the cargo compartment is in any of those areas?

20 A I have no opinion on that.

21 Q You have qualified the wreckage diagram, I believe,  
22 by stating that you do not believe it is consistent with

1 the photographs.

2 A What was that?

3 Q Have you stated that the wreckage diagram, Exhibit  
4 D-9 that you have been looking at, is inconsistent with the  
5 photographs?

6 A Yes, essentially in the depicting of the debris area  
7 and the burn area it does not appear to be consistent with  
8 the areas shown to be those in the photographs.

9 Q What burn area are you describing or referring to?

10 A The only burn area that is shown on the wreckage  
11 diagram, D-9, is that engulfing the wing section.

12 Q Is it your opinion there is a burn area in some  
13 other location?

14 A Yes.

15 Q In your opinion, what other area besides the wing  
16 section shows a burn area?

17 A I wouldn't know how to describe that without com-  
18 paring the photographs to the wreckage diagram.

19 Q Can you refer to it in relationship to any of the  
20 items on the wreckage diagram, the flight deck, the engine,  
21 the cargo floor, the T tail, the troop compartment?

22 MR. FRICKER: I object. He just answered he was

1 unable to do it without a comparison with the photographs.

2 BY MR. CONNORS:

3 Q What photographs do you need to see?

4 A I would just about have to see all of them.

5 Q Do you have an opinion whether there is a burn  
6 area in the vicinity of the troop compartment?

7 A I believe some of the photographs show blistering  
8 and cindering which would be associated with a burn area  
9 per se.

10 Q What was the second word you used?

11 MR. FRICKER: I believe he said cindering.

12 BY MR. CONNORS:

13 Q Is it your opinion there is any evidence of any  
14 burning in the area of the flight deck?

15 MR. FRICKER: I will object. I thought you asked  
16 for a comparison.

17 MR. CONNORS: I asked that and he answered and now  
18 I am asking specifically about the flight deck area.

19 THE DEPONENT: I would have to view the photographs  
20 again.

21 BY MR. CONNORS:

22 Q Are there any other disagreements you have with the

1 accident scene as depicted on the wreckage diagram?

2 A From viewing the motion pictures, there appears  
3 there are aircraft parts on the east side of the Saigon  
4 River that do not appear on this wreckage diagram, including  
5 the one of the landing gear and some other structural com-  
6 ponents.

7 Q What structural components?

8 A I don't know. I just saw some structural compon-  
9 ents in the movie. They appeared in a sequence which would  
10 indicate they were taken along with pictures of other wreck-  
11 age and gouges on the east side of the Saigon River.

12 Q Is it your opinion that there was damage or reduc-  
13 tion in the structural integrity of the aircraft following  
14 initial touchdown on the east side of the river?

15 A Would you repeat that?

16 Q Is it your opinion that there was damage to or  
17 reduction in the structural integrity of the aircraft at  
18 the time of the initial touchdown on the east side of the  
19 Saigon River?

20 A Yes.

21 Q Are you able to describe that?

22 A As I recall, one of the landing gears remained

1 over in that initial crash path. Other parts of the aircraft  
2 appear to be in that area. Those parts I have been unable  
3 to identify from the photographs and they do not appear on  
4 the wreckage diagram. So, it is hard to say how much struc-  
5 tural damage was done at that initial touchdown point.

6 Q Is it your opinion that the structural integrity  
7 of the fuselage of the aircraft was damaged or reduced at the  
8 time of the first touchdown on the east side of the Saigon  
9 River?

10 A Yes, you can cause structural damage by a hard land-  
11 ing which does not fail the gear. Particularly in this case,  
12 the gear was torn off, so it is quite probable that struc-  
13 tural damage was done at that point.

14 Q Mr. Carroll, you have stated you have not reviewed  
15 any of the medical records of the crew; is that correct?

16 A That is correct.

17 Q Have you reviewed the medical records of anyone  
18 aboard the C5A aircraft?

19 A No.

20 Q Do you expect to, with reference to any of the  
21 opinions you would expect to render in this case?

22 A No.



1 Q What role could such records play?

2 MR. FRICKER: I think that calls for speculation in  
3 terms of what might be called work product. If the question  
4 is what purpose might we, as attorneys, have in asking him  
5 to do that, I think that is objectionable and non-disclosable

6 If, on the other hand, you are asking what possible  
7 relevance medical records could be to an investigation, I  
8 think that is extremely broad and does not have a direct  
9 bearing on the opinions he has expressed or indicated that  
10 he might be expressing.

11 BY MR. CONNORS:

12 Q In connection with accident investigations you  
13 have conducted, Mr. Carroll, do you utilize the medical  
14 records of the people on board?

15 A It depends largely on the nature of the investiga-  
16 tion. Federal investigations are conducted primarily to  
17 establish the probable cause of the accident. Routinely,  
18 over the years, the federal investigative authorities have  
19 moved toward a capability to conduct crash injury investi-  
20 gations. They have never had enough staff to do a thorough  
21 crash injury of accident. In fact, they have done them in  
22 very few major accidents.

1           Routinely, the deceased crew members will be autopsied,  
2 and occasionally, if it is pertinent to the case for prob-  
3 able cause determination, gross medical examinations and  
4 autopsies are conducted on some or all passengers for  
5 identification with mass disintegration, so my blanket state-  
6 ment would be crash injury investigations are not routinely  
7 conducted.

8           Q    Have you ever conducted one?

9           A    Yes.

10          Q    In conducting such an investigation, are the medi-  
11 cal records of the people on board the aircraft the type of  
12 information you would normally look at?

13          A    In a thorough crash injury investigation, yes.

14          Q    How would you utilize medical records of personnel  
15 in such a crash injury investigation?

16          A    Medical records of personnel?

17          Q    People on board the aircraft.

18          A    Passengers and crew?

19          Q    That is right.

20          A    They would be used to determine the mechanical  
21 causes of an injury in an attempt to develop recommendations  
22 that would prove overall and interior design characteristics,

1 features and concepts to reduce the possibility of injuries  
2 being inflicted in a design engineering preventable method.

3 Q Are such records utilized or can they be utilized  
4 in determination of the forces involved in the accident?

5 A They have been in cases, yes.

6 Q How are they used to determine the forces involved  
7 in an accident?

8 A Normally, these determinations would be made by  
9 aviation pathologists, such as you might find in the Air  
10 Force or at Walter Reed Army Hospital at the Armed Forces  
11 Institute of Pathology where they compare the injuries  
12 that they see with injuries produced in known, quantifiable  
13 conditions, G-force.

14 Q Are you qualified to use such medical records to  
15 render an opinion regarding the forces involved in an  
16 accident?

17 A I am not. I would use the opinions of those who  
18 are qualified.

19 Q I believe you stated that one of the subject areas  
20 which you dealt with for purposes of your investigation and  
21 in the courses that you referred to that you taught, related  
22 to design of aircraft, aircraft structures to prevent

1 accidents mainly; is that correct?

2 A Yes.

3 Q In connection with that, have you done any research  
4 into the area of the seating or restraint systems used in  
5 aircraft?

6 A Yes.

7 Q Is it correct to state that a rearward-facing  
8 seat is likely to afford more protection for a passenger  
9 than a forward-facing in an aircraft accident?

10 MR FRICKER: I will object to the form of the  
11 question. It is overly broad. It depends on the type of  
12 aircraft, what type of accident, what point in time.

13 MR. CONNORS: I will leave the question stand as  
14 I stated it.

15 THE DEPONENT: It would not be correct to say that,  
16 per se, an aft-facing seat would afford more or less protec-  
17 tion.

18 BY MR. CONNORS:

19 Q Under what circumstances would a rear-facing seat  
20 not provide the same sort of protection as a forward-facing  
21 seat, given the type of accident?

22 A Because of the kinematics involved in so many

1 accidents, airplanes do not always crash ahead. There are  
2 some rotational roll forces involved, and very often we  
3 find major portions of the aircraft coming to a principal  
4 final impact going backwards, in which case it would make  
5 a rearward-facing seat a forward-facing seat.

6 MR. FRICKER: I gather we are taking another brief  
7 break. Mr. Dubuc returned, presumably, from his conference  
8 call. It is now 3:25 and apparently Mr. Connors needs some  
9 minutes to confer so Mr. Dubuc would know what questions  
10 had been asked in order to resume the questioning of Mr.  
11 Carroll.

12 (Whereupon, a brief recess was taken.)

13 MR. DUBUC: Let the record reflect that I was out  
14 taking a conference call from Judge Oberdorfer, Mr. Work,  
15 Mr. Lewis, Mr. Patrick and supposedly Mr. Dumbroff, who  
16 never got on. I am sorry for that.

17 BY MR. DUBUC:

18 Q I would like to go back to where I was on Exhibit  
19 D-9.

20 I think the pending question was--and I gather you have  
21 said something to the effect you were not able to do that.

22 The pending question was: Over what distance past

1 the principal impact point upon D-9 west of the Saigon  
2 River had the cargo compartment disintegrated?

3 MR. FRICKER: I object. That was asked and I  
4 believe answered some 25 minutes ago. I think the answer  
5 was he said ground zero to the length of that compartment  
6 and, after you left --

7 MR. DUBUC: I asked him to mark that on here, if  
8 he could.

9 MR. FRICKER: The result was he said he couldn't  
10 for reasons he previously explained on the record.

11 BY MR. DUBUC:

12 Q That is a distance of 121 feet, approximately. Can  
13 you tell me why you can't?

14 A This scale is difficult to indicate 125 feet. The  
15 cargo floor is indicated and it stayed right there.

16 Q The entire cargo floor or a section of it?

17 A A section of the cargo floor.

18 Q In your opinion, did any section of the cargo  
19 floor proceed beyond that point?

20 A I would say from my experience it would have to.

21 Q Have you formed any opinion how far it proceeded  
22 beyond the principal point of impact?

1 A No, because I have no photographs identified as the  
2 cargo section or cargo floor, and it is not indicated on  
3 the wreckage diagram.

4 Q Have you made any determination as to how far in  
5 distance the flight deck forward troop compartment area pro-  
6 ceeded beyond that point of principal impact?

7 A It is indicated that it came to rest at 1,750 feet.

8 Q You are using the scale at the bottom of D-9?

9 A Yes, sir.

10 Q I notice the flight deck arrow points to an area  
11 beyond 1,750.

12 A Between 1,750 and 1,925.

13 Q So you are not looking at a figure relevant to dis-  
14 tance from the dike. Did you say 1,750 feet?

15 A I am saying the wreckage diagram indicates the  
16 location of the troop compartment to be at 1,750 feet along  
17 the flight path from the initial touchdown point.

18 Q I notice that the scale is in yards rather than  
19 feet. Did you notice the same thing?

20 A I am sorry, it is yards.

21 Q Do you have any reason to disagree with the dimen-  
22 sions on Exhibit D-9?

1 A No.

2 Q Is there anything on D-9 that you do disagree with?

3 MR. FRICKER: Object, asked and answered.

4 For your benefit, in your absence he was talking about  
5 the east side of the Saigon River and the absence of wheel  
6 assemblies.

7 BY MR. DUBUC:

8 Q Anything on the west side of the diagram that you  
9 disagree with?

10 A The pattern of the burned area is not entirely  
11 compatible with what is shown in the photographs.

12 Q In your opinion, what is shown in the photographs  
13 as to burn areas that would be incompatible with Exhibit  
14 D-9?

15 MR. FRICKER: Object. Asked and answered.

16 BY MR. DUBUC:

17 Q You can answer unless you are directed not to  
18 answer.

19 A I think I answered that already, in that there are  
20 other portions of the wreckage that show some burn pattern  
21 which are not so indicated on the wreckage diagram.

22 Q What portions?



1 A One portion of the troop compa

2 Q That shows burn patterns?

3 A It shows blistering and cindering.

4 Q Is this inside or outside?

5 A Inside.

6 Q Anything outside the troop compartment that shows  
7 evidence of burning, in your opinion?

8 A I would have to look at the photographs again.

9 Q Here are the color photographs again. Here are  
10 some more.

11 Was there anything in that pile?

12 A No.

13 MR. CONNORS: Those were the Tarbell exhibits,  
14 Exhibit 4 series.

15 THE DEPONENT: Are we on the record?

16 MR. FRICKER: We are on the record.

17 BY MR. DUBUC:

18 Q You have looked through Tarbell series T4-A through  
19 T4-II. You have selected none from there.

20 You have looked through the old exhibits which were  
21 from the original trials which included 3-B, 3-A, 3-C, 3-D,  
22 3-G, and 3-H.

1 MR. FRICKER: He has selected from there 3-E.

2 MR. DUBUC: From the 10 series, he looked through  
3 10-A through 10-K and he has selected --

4 MR. FRICKER: 10-C.

5 MR. DUBUC: Now we have a series from Tarbell,  
6 T3-A through T3-EE.

7 T3-M also labeled L-23.

8 MR. CONNORS: Perhaps the record should reflect  
9 that Mr. McManus is calling for Mr. Fricker.

10 (Whereupon, a brief recess was taken.)

11 MR. DUBUC: Let the record reflect we have asked  
12 Mr. Carroll to look through pictures previously identified  
13 as Tarbell 2-A through 2-K and he has selected --

14 MR. FRICKER: 2-J, otherwise called L-16.

15 MR. DUBUC: We have also had him look at what have  
16 been marked Bandy B-1 through B-36 and he selected --

17 MR. FRICKER: I don't know whether Mr. Carroll has  
18 looked through these.

19 From the Tarbell 3 series, he selected Tarbell 3-M.  
20 From the Tarbell 2 series, he looked at 2-J.

21 MR. DUBUC: You looked through the Bandy series and  
22 selected none.

1 BY MR. DUBUC:

2 Q The basis of this review of photographs was to  
3 find photographs which indicated some kind of fire or evi-  
4 dence of fire which was the basis for your disagreement, as  
5 I understand it, for the fire area described on Exhibit D-9;  
6 is that correct?

7 A Yes, sir.

8 Q I asked you what photographs would show evidence  
9 of fire and you picked out some. One of them I see is an  
10 aerial photograph, Exhibit --

11 MR. FRICKER: 3-E.

12 BY MR. DUBUC:

13 Q Tell us what, in your opinion, 3-E shows as far  
14 as components are concerned.

15 A It is of marginal value to identify areas. However,  
16 it shows the aft troop compartment surrounded by an area  
17 of either fuel mist spray or liquid fuel spray and some  
18 black areas which could possibly be identified as post-  
19 crash fire.

20 Q Is there any similar indication around any of the  
21 other components in the picture and what components, if any?

22 A There are similar indications in the wing area and

1 possibly there are some indications of the flight deck.

2 Q You see some possible indications of fire around  
3 all three from that photograph?

4 A Yes.

5 Q Would you look at, I think it is 10-C. I think  
6 you indicated that had some indications of fire, in your  
7 opinion. What indications?

8 A The compartments above the seat backs show heat  
9 blistering and possible cindering which would be associated  
10 with fire.

11 Q Have you seen the black and white photographs of  
12 that same picture?

13 A I remember seeing one which was black and white.

14 Q I show you Walker 3-193 and 194. Have you seen  
15 those before?

16 A I have seen 194.

17 Q Is there anything different that appears in the  
18 same picture in black and white than appears in the color  
19 picture that is of any significance to you?

20 MR. FRICKER: Let the record reflect they do not  
21 appear to be duplicates. Admittedly, one is in color and  
22 one is in black and white and they are both of the troop

1 compartment.

2 BY MR. DUBUC:

3 Q Does anything appear different to you between the  
4 black and white photograph and the color photograph of  
5 the same area?

6 A I had not seen the color picture before. I have  
7 seen this black and white picture before.

8 Q The black and white picture is the one where you  
9 think you see some bubbling?

10 A Some blistering on the compartments above the seat  
11 backs appear to be overhead stowage bins of some sort.

12 Q Have you made a determination as to what that is  
13 above the stowage bin?

14 A No.

15 Q Have you made a determination as to how the outer  
16 material is attached?

17 A If it is classic interior construction, it would  
18 be cement or laminated to the underlying structure.

19 Q When you say "classic construction," what are you  
20 referring to?

21 A The covering on the structures, themselves.

22 Q Is there a classic covering?

1 A Plastic interior material.

2 Q But those differ in components and differing prod-  
3 ucts from one aircraft to another, depending upon what the  
4 user asks for for interior design and custom finishing.

5 A That is right.

6 Q Do you know, sir, what the Air Force had for materia  
7 on the C5A as might be depicted by that picture?

8 A No, but at the time the C5A was under construction  
9 there was a move to use all flameproof and fireproof interior  
10 materials.

11 Q Those materials do differ, do they not?

12 A Yes, there are different types.

13 Q Are you familiar with the difference between  
14 Teflar and Cafton?

15 A They are similar.

16 Q So they can all differ in properties.

17 The method of attachment of the material to the hard  
18 material of, in this case, the compartment door, might  
19 differ, might it not?

20 A Yes.

21 Q In your experience, have you had any occasion to  
22 deal with the types of adhesive that are used to attach

1 that type of material?

2 A Just in broad terms. I could not identify their  
3 content.

4 Q In your experience, have you ever come across a  
5 situation where the adhesive becomes detached over a period  
6 of time?

7 A Yes.

8 Q It has become detached over a period of time not as  
9 a result of heat but as the result of other factors.

10 A Yes, air entrapment and moisture.

11 Q From time to time in these other situations, have  
12 there been occasions where aircraft have had to have interior  
13 materials reattached by adhesive as part of overhaul or  
14 esthetic cleaning?

15 A That is right.

16 Q In order to determine whether those bubbles were due  
17 to heat or one of these other causes, in order to make a  
18 determination to a scientific certainty, would it not be  
19 necessary to determine the material and the properties of  
20 the material and, if possible, the areas of usage to which the  
21 aircraft is put?

22 MR. FRICKER: I will have to interpose two objections.

1           One, I think you are belaboring under a false  
2 impression that this gentleman is being offered up as an  
3 expert in chemistry or indeed he has or is expected to render  
4 an opinion with reasonable scientific certainty as opposed  
5 to an absolute certainty, which is the phrase you used, that  
6 fire, in fact, existed. That is not what this gentleman  
7 has been offered for.

8           Indeed, your colleague, Mr. Connors, inquired as to  
9 those areas. We are going far afield. It is five minutes  
10 of 4:00. I told Mr. Connors I felt four hours on the area  
11 this gentleman was being offered were sufficient. You can  
12 use your remaining time as you wish.

13           MR. DUBUC: Are you telling us we have to abide by  
14 your determination of time? We have had some of our new  
15 witnesses go far beyond the four hours.

16           Are you shutting this deposition down in five  
17 minutes?

18           MR. FRICKER: Yes.

19           MR. DUBUC: I think we are going to go down to  
20 court on that.

21           Now that the objection is on the record, can you  
22 answer the question for us.



1 Read the question back.

2 (The reporter read the pending question.)

3 THE DEPONENT: In order to make a scientific  
4 determination, it would be necessary to have the panels  
5 subjected to laboratory examination.

6 BY MR. DUBUC:

7 Q You cannot tell even to a reasonable scientific  
8 certainty whether those bubbling effects on those panels  
9 were from heat or some other cause?

10 MR. FRICKER: Are you asking if this man can tell?

11 MR. DUBUC: Yes.

12 MR. FRICKER: I object.

13 THE DEPONENT: All I am saying is that the photo-  
14 graphs are consistent with the appearance of similar  
15 materials being exposed to amounts of fire, heat and cincer-  
16 ing, and so on.

17 BY MR. DUBUC:

18 Q In order to do that, can you do it from photographs  
19 by themselves?

20 A No, not from photographs by themselves.

21 Q Did you check with any of the people in there?

22 A I think there was a female in there who said she

1 felt the heat, saw the flame and felt the cinders.

2 Q Were there any other statements that you read  
3 wherein the occupants testified they did not experience or  
4 see any heat or flame?

5 A I think there were several others who indicated  
6 they felt the heat.

7 Q Several of them felt the heat?

8 A Yes.

9 Q Who were they?

10 A I would have to reread through the tabs on the  
11 Air Force report.

12 Q You have not read any of the actual sworn testimony?

13 A No.

14 Q You also have some pictures there which apparently  
15 show the empennage. Is there any evidence of heat or fire  
16 on the empennage?

17 A Yes, that goes back to my belief that the wreckage  
18 diagram does not actually depict a burn area because it  
19 shows a possible explosion setting on the T tail.

20 Q Those are what pictures?

21 A On the right side --

22 MR. FRICKER: Tarbell 2-J and also called L-16.

1 THE DEPONENT: Same on 3-M.

2 BY MR. DUBUC:

3 Q What kind of areas?

4 A Areas of flame, cindering, flashing and exposing  
5 cindering which would have had to have occurred in another  
6 area other than the burn area which is identified on the  
7 wreckage diagram.

8 Q You have another two photographs. Other than what  
9 you have described in D-9 as not showing parts on the east  
10 side of the Saigon River which might have detached from  
11 the aircraft, is there anything else on D-9 that is, in  
12 your opinion, inaccurate?

13 A I don't understand why the areas identified as  
14 debris area don't include other debris.

15 Q In other words, is there debris in other places,  
16 in your opinion?

17 A The wreckage chart shows little splotches of some-  
18 thing out there; if that is different from the debris, it  
19 is just not identified.

20 Q There might be such in those areas, might there not?

21 A There probably is debris in these areas but it is  
22 not shown as to the debris area, showing the areas encompassing

1 those items.

2 Q I think that is intended to be a debris area.

3 Is there anything else, in your opinion?

4 MR. FRICKER: Excuse me. I don't know what your  
5 intention had been but the record should reflect that the  
6 witness responded to your question about photographic evi-  
7 dence of burn area was only shown, I think literally on two  
8 black and white pictures and there may well be -- I don't  
9 know -- additional black and white pictures which the witness  
10 would rely on if shown to him.

11 BY MR. DUBUC:

12 Q Just so I am clear on this, I understand Mr. Con-  
13 nors has already asked you about where these various portions  
14 of the flight troop compartment, T tail, flight deck, you  
15 have indicated in red -- where those sections evidenced fire.

16 A Yes, since this is not an actual photograph, I can  
17 only roughly indicate the sections.

18 (Said documents marked Exhibits  
19 D-2542-1 and D-2542-2 for  
20 identification.)

21 BY MR. DUBUC:

22 Q You mentioned previously that there was a yaw during

1 the course of the aircraft's foresection westward after  
2 final touchdown or principal touchdown; is that correct?

3 A Yes.

4 Q Were you referring to the entire aircraft when  
5 you were describing the yaw?

6 A I have seen many impacts of this nature when you  
7 find the cargo floor compartment to the right of the center  
8 line of the crash path would indicate at least a minimal  
9 amount of roll to the left and possible yaw to the left.

10 The yaw to the left and the roll to the left would be  
11 indicated by a convergence of some of the gouge marks in  
12 some of the initial crash path on the west side of the river.

13 Q That is yaw to the left of all components?

14 A The whole airplane essentially.

15 Q Did the T tail yaw to the left?

16 A The whole airplane.

17 Q That would be on a Y axis, as far as G-forces relative  
18 to the center line?

19 A I avoid using letter axes because too many people  
20 use them for different purposes.

21 Q Can we refer to left to right, perpendicular to  
22 the center line and the aisle of the troop compartment.

1           A    I have an impression from the components and seeing  
2 the fuselage that the fuselage had a 7 to 15 degree yaw to  
3 the left and the 7 to 15 degree roll to the left.

4           Q    When you say fuselage, are you referring to fuse-  
5 lage in its entirety or are you talking about --

6           A    The entirety.

7           Q    That includes troop compartment, flight deck,  
8 fuselage, T tail?

9           A    What was still intact as it began to come apart.

10          Q    At what point did that yaw commence?

11          A    I don't know.

12          Q    You have no idea?

13          A    No.

14          Q    Did the components yaw together as a unit?

15          A    What is indicated is that in that rolling, yawing  
16 condition, not all of the parts that left went straight  
17 ahead. Some went to the right, some went to the left.

18          Q    Are you going to make a determination as to why  
19 that occurred?

20          A    I could only presume that the crew was doing their  
21 best to keep the airplane on as straight a level as possible  
22 for touchdown but, not having full control, it would find

1     itself in that roll and unique condition.

2           Q     I understand from your last answer this yaw occurred  
3 before principal touchdown.

4           A     I could only say that it was being at the point  
5 of impact and far before it began there would be no way to  
6 tell.

7           Q     Just so I can understand your testimony, when you  
8 say prior to point of impact, do you mean prior to the point  
9 of principal impact as you have marked in on Exhibit D-9  
10 and now referred to as DD-2542-1?

11          A     Yes.

12          Q     Was there any yaw or horizontal, with reference to,  
13 say, the center line and the aisle of the troop compartment  
14 after the point of principal impact?

15          A     There is no good evidence that would give any  
16 indication of what the kinematics were after that point.

17          Q     On Exhibit D-9 there are some lines indicating  
18 direction with respect to the flight deck and the troop  
19 compartment; is that correct?

20          A     Yes.

21          Q     Showing the flight deck with a deviation more to  
22 the left than the troop compartment; is that correct?

1 A Yes.

2 Q Do you agree with that?

3 A Yes.

4 MR. FRICKER: Agree with how he characterized  
5 it or that the diagram is correct?

6 BY MR. DUBUC:

7 Q That one deviated more to the left than the other.

8 A I don't know that these accurately represent the  
9 location of the gouge marks but they are indicated on the  
10 wreckage diagram.

11 Q When you say you are not sure they correctly  
12 represent the gouge marks, what do you mean?

13 A For instance, on the troop compartment there are  
14 two distinct gouge lines that show the ruptured section of the  
15 lower fuselage still remaining. Whether those lines as they  
16 occur actually and as shown in the photographs are compatible  
17 with the depiction of them on the wreckage diagram, I am  
18 not sure.

19 Q You are not sure if that is accurate either?

20 A No.

21 Q I notice you have marked the point of first impact  
22 after the dike one end of a mark on Exhibit D-9 and principal



1 impact point west of the dike on the other end of a line.

2 In your opinion, is that a gouge mark line?

3 A That is about the only thing that appears in the  
4 photographs that that could represent.

5 Q Are you sure about that?

6 A The photographs indicate some water trough lines  
7 that may or may not be gouge lines?

8 Q Which ones are those?

9 A 3-F --

10 Q Let's take 3-F for example. Which are gouge lines  
11 and which are not?

12 MR. FIRCKER: I object. He said may or may not  
13 be.

14 BY MR. DUBUC:

15 Q Which lines may or may not be gouge lines on 3-F?

16 A The ones that proceed from the first ground impact  
17 passed the dike.

18 Q Those may or may not be gouge marks?

19 A Yes.

20 Q Which ones would be gouge marks to a more definite  
21 extent as far as your opinion is concerned?

22 A I would say the ones that are in between the two

1 are outstanding.

2 Q How about those on the left? What are those or  
3 to the left of those where there are some more lines?

4 A That looks like some sort of a canal.

5 Q How about just to the right of the gouge marks  
6 you previously indicated?

7 A That looks like some sort of a canal.

8 Q How about to the far right?

9 A That looks like some sort of a canal.

10 Q Have you seen any photographs or diagrams which  
11 would indicate to you which gouge marks are canals and which  
12 ones are gouge marks?

13 A No, I have not seen any data that would indicate  
14 that.

15 Q When you put your marks on Exhibit 9, now marked  
16 DD-2542-1, where you have marked the two impact points west  
17 of the dike, was that on the assumption that the line which  
18 connects the two X marks were gouge marks?

19 A No, that is indicated on the basis of the disturbed  
20 earth, which appears to be more disturbed to the right of  
21 its path than to the left of its path, which again indicates  
22 some rotational motion at touchdown.

1 Q Maybe you misunderstood my question. Did you  
2 understand D-9 with the two X marks at either end of what  
3 appear to be a dual line on that exhibit on the assumption  
4 that that represented gouge marks?

5 A No. I went by the principal disturbance of the  
6 earth near the beginning of that line and again up near the  
7 end of that line there is another major disturbance of the  
8 earth there.

9 Q With respect to the paths of the flight deck and  
10 the troop compartment indicated on Exhibit D-9, in your  
11 opinion, do those paths commence in reference to the path  
12 you have marked between first and second impact on the west  
13 side or ground impact and principal impact on the west side?  
14 Do they continue, in your opinion, from the photographs or  
15 whatever else you are using directly from the gouge marks?

16 A No. As I recall, the gouge marks behind the troop  
17 compartment do not necessary extend all the way back to that  
18 point but rather some shorter distance that is indicated  
19 to be the debris area.

20 Q Do those commence to the right or the left of the  
21 initial gouge marks between first ground impact west of the  
22 dike and principal impact west of the dike?

1           A     Pretty much in line with the crash path which is  
2 between zero and 175 feet to the right of the center line  
3 of the wreckage diagram. I don't agree that the center  
4 line of the wreckage diagram is necessarily the center line  
5 of the crash path.

6           Q     Maybe you misunderstood my question.

7                     In your opinion, do the gouge marks showing the  
8 final path of, let's say, the flight deck commence on the  
9 line of the direction of the gouges as they appear on the  
10 west side of the dike between first ground impact and  
11 principal impact or do they commence to the right or to the  
12 left of that center line?

13          A     They are indicated on the wreckage diagram -- it  
14 would appear they are on the left.

15          Q     They commence on the left.

16          A     They travel to the left.

17          Q     And commence on the center line between the first  
18 ground impact and the point of principal impact that you have  
19 marked, or do they commence to the right or to the left of  
20 that?

21          A     I don't recall any photographs that would indicate  
22 those lines that are depicted on this wreckage diagram.

1 Q You don't recall any?

2 A Not going back to this point of principal fuselage  
3 impact.

4 Q So you don't know if it is to the right or left?

5 MR. FRICKER: I object. I think there is confusion  
6 between your question and what Mr. Carroll is understanding.

7 Mr. Dubuc, is your question simply whether the  
8 point at which the gouge marks as shown on this diagram  
9 begin at approximately the 1400 yard vertical line? Is your  
10 question simply whether that point is right or left of the  
11 line between the two red Xs on the diagram?

12 MR. DUBUC: No, sir. I am asking for his recollec-  
13 tion and on what his opinion is based as to where the gouge  
14 marks start with respect to the flight deck and troop  
15 compartment west of the point of principal impact and whether  
16 it is left or right of the line between the point of initial  
17 impact west of the dike and the principal impact.

18 THE DEPONENT: At this point, I don't remember any  
19 gouge marks as they are depicted on this wreckage diagram.

20 BY MR. DUBUC:

21 Q You have marked here on what is Exhibit DD-2542-2,  
22 previously D-4, marked separation of the forward troop

1 compartment and flight deck as one component and showed some  
2 lines where it separated?

3 A Yes.

4 Q In your opinion, did that separate with a division  
5 in the aircraft from the top of the aircraft down through  
6 the forward troop compartment and the lower cargo compartment  
7 as an entity, vertically from the top of the aircraft to  
8 the bottom?

9 A I can't identify the extent to which it was torn  
10 and what portion was carried with it. The photograph shows  
11 a section of the nose section, the dome, the upper flight  
12 deck, part of the fuselage, skin going back some distance.  
13 I can't say it is clearly broken between the wing area and  
14 that section or the portions disintegrated in between.

15 Q Did that section of the forward flight deck and  
16 forward troop compartment separate, in your opinion, before  
17 or after the wing separated?

18 A It would be about simultaneous.

19 Q Did the aft troop compartment separate before or  
20 after the wing separated, in your opinion?

21 A I would think simultaneous.

22 Q Did the empennage section separate before or after

1 the wing separated, in your opinion?

2 A I would say it was still attached up to that point  
3 and separated simultaneously.

4 Q With respect to the portions on Exhibit DD-2542-2,  
5 which you have not marked in red, which represent for the most  
6 part certain sections of the aft section of the fuselage  
7 between the troop compartment and the empennage and the  
8 remainder representing a substantial portion of the cargo  
9 compartment, in your opinion, did that separate or did that  
10 all wear away?

11 A It looks like it separated.

12 Q That also separated; is that correct?

13 A Right.

14 Q Did that also separate before or after the wing  
15 separated?

16 A Simultaneously.

17 Q Do you recall how many people survived in the cargo  
18 compartment?

19 A No.

20 Q Would you want that statistic?

21 A I have seen it, yes.

22 Q Do you know how many people survived in the troop

1 compartment?

2 A I don't know the exact numbers.

3 Q Do you know how many people were killed in the  
4 cargo compartment?

5 A I would have to review the notes.

6 Q Do you know how many people survived from the flight  
7 deck or forward troop compartment?

8 A It was a small number, as I recall.

9 Q Only a small number survived?

10 A Right.

11 Q Can you tell me how many people died in the troop  
12 compartment?

13 MR. FRICKER: I object. Asked and answered.

14 MR. DUBUC: I am asking him survived.

15 MR. FRICKER: I object. It has been asked and  
16 answered.

17 THE DEPONENT: I don't have those numbers in mind.

18 MR. FRICKER: It is now 245 and I think we will  
19 have to end the deposition.

20 MR. DUBUC: We will call the Judge right now.

21 Are you stating on the record you are terminating  
22 this deposition right now?



1 MR. FRICKER: I am stating on the record, as I  
2 stated at 11 when we came here, we felt that four hours  
3 should be more than adequate to take the deposition of this  
4 gentleman. We are not going to have it open ended so you  
5 and Mr. Connors can go back and forth and inquire into areas  
6 for which the gentleman is not being offered as an expert.

7 MR. DUBUC: I thought he was being offered  
8 on G forces.

9 MR. FRICKER: He is not being offered on G forces.  
10 No one ever said he was being offered on G forces.

11 MR. CONNORS: When I asked for a proffer of his  
12 testimony, you refused to give me one.

13 MR. FRICKER: That is your characterization. You  
14 or Mr. Dubuc have yet to ask this man the direct question  
15 what he has opinions on. That is what he is here for and  
16 that is what you are to do. You are going all over the  
17 place and nearly at 4:30 Mr. Dubuc says the man is being  
18 offered for G forces and there has not been a shred of testi-  
19 mony that he is being offered for that purpose.

20 BY MR. DUBUC:

21 Q What opinions have you been asked to formulate in  
22 connection with this case?

1           A     Primarily whether there was a survivable or non-  
2 survivable accident; to review the circumstances surrounding  
3 the severity of the impact and the controllability of the  
4 aircraft at the point of impact to indicate whether it was  
5 controllable or not and the general area of crash survival,  
6 what injury causing agents may have existed, particularly  
7 in the area where most of the survivors came from.

8           Q     In those areas where most of the survivors came  
9 from were what areas?

10          A     The upper troop compartment, for one.

11          Q     You say the forces -- the opinion you are to  
12 give are the forces which may have been operative as to  
13 whether it was a survivable or nonsurvivable area?

14          A     Not the forces but the severity of the impact.

15          Q     How do you measure the severity of impact? What  
16 criteria or format do you need?

17               MR. FIRCKER: I object. I advise the witness not  
18 to answer.

19               I terminate the deposition.

20               You have talked about definitions and survivability  
21 and all the rest of it. This is absurd.

22               MR. DUBUC: Call the Judge.

1 [Whereupon, the deposition suspended at 4:25

2 o'clock p.m.]

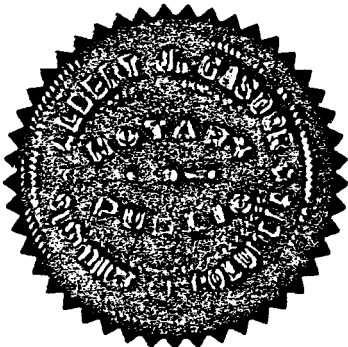
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JOHN JOSEPH CARROLL

UNITED STATES OF AMERICA )  
 ) ss.  
DISTRICT OF COLUMBIA )

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my  
notarial seal this 29<sup>th</sup> day of October, 1981.



Albert J. Gasdor  
Notary Public in and for  
the District of Columbia

July 31, 1985