

BUSBY

1/22/82

KURTH

1748

1 BUSBY.

2 WHEREUPON,

3 DOUGLAS EARL BUSBY

4 WAS CALLED AS A WITNESS, AND, HAVING BEEN FIRST DULY SWORN,  
5 WAS EXAMINED AND TESTIFIED AS FOLLOWS:

6 THE COURT: MR. MC MANUS.

7 MR. MC MANUS: GOOD MORNING, YOUR HONOR.

8 GOOD MORNING, LADIES AND GENTLEMEN.

9 DIRECT EXAMINATION

10 BY MR. MC MANUS:

11 Q. DR. BUSY, COULD YOU STATE YOUR NAME, SIR?

12 A. DOUGLAS EARL BUSBY.

13 Q. AND YOUR ADDRESS?

14 A. [REDACTED] SHAKER HEIGHTS, OHIO.

15 Q. AND YOU ARE A MEDICAL DOCTOR; IS THAT CORRECT,  
16 SIR?

17 A. THAT IS CORRECT.

18 Q. COULD YOU GIVE ME A SUMMARY OF YOUR EDUCATIONAL  
19 BACKGROUND?

20 A. I RECEIVED MY DOCTORATE IN MEDICINE FROM THE  
21 UNIVERSITY OF WESTERN ONTARIO IN 1960.

22 I HAD GRADUATE TRAINING IN GENERAL SURGERY, PULMONARY  
23 PHYSIOLOGY, AND BIOPHYSICS, AND AEROSPACE MEDICINE, AND  
24 OCCUPATIONAL MEDICINE.

25 I RECEIVED MY MASTER'S DEGREE IN BIOPHYSICS IN 1964

1 FROM THE UNIVERSITY OF WESTERN ONTARIO.

2 MY SPECIALTY IN AEROSPACE MEDICINE WAS RECEIVED IN  
3 1968.

4 Q. DOCTOR, WHAT IS BIOPHYSICS?

5 A. BIOPHYSICS IS A STUDY OF THE EFFECTS OF VARIOUS  
6 PHYSICAL FORCES, EITHER INSIDE A BODY OR ACTING FROM WITHOUT  
7 ON BODY FUNCTIONS.

8 Q. AND, DOCTOR, YOU MENTIONED AEROSPACE MEDICINE.  
9 COULD YOU PLEASE TELL ME ABOUT YOUR CAREER IN AEROSPACE  
10 MEDICINE?

11 A. MY CAREER IN AEROSPACE MEDICINE BEGAN BEFORE  
12 I STARTED -- BEFORE I GRADUATED FROM MEDICAL SCHOOL, HAVING  
13 WORKED WITH THE ROYAL CANADIAN AIR FORCE INSTITUTE OF  
14 AVIATION MEDICINE ON DECOMPRESSION RESEARCH IN THE SUMMERS  
15 OF 1958 AND 1959.

16 THEREAFTER, I CONTINUED AN ACTIVE AFFILIATION THROUGH  
17 MY RESERVE TIME IN THE ROYAL CANADIAN AIR FORCE IN AEROSPACE  
18 MEDICINE.

19 I WORKED IN AEROSPACE MEDICINE, IN RESEARCH AREAS  
20 RELATED TO IT, AT LEAST DURING MY YEARS IN BIOPHYSICS  
21 AND PULMONARY PHYSIOLOGY.

22 AND THEN I BEGAN MY FORMAL CAREER ON A FULL-TIME  
23 BASIS IN 1964, WHEN I JOINED THE LOVELACE FOUNDATION FOR  
24 MEDICAL EDUCATION AND RESEARCH IN ALBUQUERQUE, NEW MEXICO.

25 THEREAFTER, I WORKED FOR THREE YEARS FOR LOVELACE;

1 AND, DURING THAT PERIOD OF TIME, RETURNED TO OHIO STATE,  
2 WHERE I RECEIVED MY DIDACTIC TRAINING TO COMPLETE MY SPECIALTY  
3 IN AEROSPACE MEDICINE.

4 I LEFT THE LOVELACE FOUNDATION TO JOIN THE GARRETT  
5 AIR RESEARCH MANUFACTURING COMPANY, WHERE I WORKED IN  
6 THE SPACE-SUIT DEVELOPMENT PROGRAM AND ALSO DEVELOPING  
7 THE BLOOD-PRESSURE MEASURING SYSTEM FOR USE IN SPACE.

8 THIS WAS FOLLOWED BY MY BECOMING MEDICAL DIRECTOR  
9 OF CONTINENTAL AIRLINES FOR THREE YEARS.

10 AND, THEREAFTER, I HAD FOUR YEARS AS A CONSULTANT  
11 IN AEROSPACE MEDICINE IN LOS ANGELES AND IN CANADA.

12 I RETURNED TO THE UNITED STATES IN 1974, TO BECOME  
13 THE CHIEF OF THE AEROMEDICAL RESEARCH BRANCH AT THE FEDERAL  
14 AVIATION ADMINISTRATION'S CIVIL AEROMEDICAL INSTITUTE  
15 IN OKLAHOMA CITY.

16 IN 1976, I WAS PROMOTED TO DEPUTY FEDERAL AIR SURGEON,  
17 AND I MOVED TO WASHINGTON. I SPENT THREE YEARS IN WASHINGTON.  
18 THIS WAS FOLLOWED BY MY ASSUMING A POSITION AT THE CLEVELAND  
19 CLINIC FOUNDATION, WHERE I DEVELOPED A NEW DEPARTMENT,  
20 THE DEPARTMENT OF ENVIRONMENTAL HEALTH.

21 AND, MORE RECENTLY, I HAVE JOINED THE LUTHERAN MEDICAL  
22 CENTER TO DIRECT A NEW FACILITY IN CLEVELAND.

23 Q. DOCTOR, YOU HAVE MENTIONED AEROSPACE MEDICINE.  
24 WHAT IS AEROSPACE MEDICINE?

25 A. AEROSAPCE MEDICINE IS A SPECIALIZED AREA OF

1 MEDICINE DEDICATED TO PROMOTING THE HEALTH AND SAFETY  
2 OF PILOTS, ASTRONAUTS, AND OTHERS WHO FLY IN THE ATMOSPHERE,  
3 AND BEYOND THE ATMOSPHERE INTO SPACE.

4 Q. DOCTOR, YOU MENTIONED YOU WERE DEPUTY FEDERAL  
5 AIR SURGEON?

6 A. YES.

7 Q. WHAT WERE YOUR RESPONSIBILITIES, SIR?

8 A. THE DEPUTY FEDERAL AIR SURGEON SERVES THE FEDERAL  
9 AIR SURGEON'S WISHES, AS THE FEDERAL AIR SURGEON INCUMBENT  
10 HAS ALWAYS SAID, AS HIS ALTER EGO. IN ESSENCE, THEY SHARE  
11 FUNCTIONS.

12 THE DEPUTY FEDERAL AIR SURGEON IS THE FEDERAL AIR  
13 SURGEON WHEN THE FEDERAL AIR SURGEON ISN'T THERE.

14 BASICALLY, THE FEDERAL AIR SURGEON'S RESPONSIBILITIES,  
15 THEN, ARE TO PROMOTE AND DEVELOP THE STANDARDS THAT APPLY  
16 TO ALL AIRMEN WHO FLY.

17 IN OTHER WORDS, HE IS RESPONSIBLE FOR THE MEDICAL  
18 CERTIFICATION OF AIRMEN.

19 HE SUPPORTS THE ACCIDENT INVESTIGATION IN THE AIRCRAFT  
20 AREA FROM THE STANDPOINT OF MEDICAL FACTORS THAT MAY BE  
21 INVOLVED.

22 HE HAS AN ACTIVE AEROMEDICAL RESEARCH PROGRAM UNDER  
23 HIM, SPECIFICALLY DOWN AT THE CIVIL AEROMEDICAL INSTITUTE  
24 IN OKLAHOMA CITY, WHICH I MENTIONED BEFORE.

25 HE HAS A RESPONSIBILITY TO TELL ALL AIRMEN IN THE

1 UNITED STATES AND IN MANY OTHER PARTS OF THE WORLD ABOUT  
2 HOW THE FACTORS, THE ENVIRONMENTAL FACTORS, CAN AFFECT  
3 PILOT SAFETY.

4 HE ALSO IS RESPONSIBLE FOR THE AIR TRAFFIC CONTROLLER  
5 HEALTH PROGRAM, AMONG OTHER THINGS.

6 HE IS AN ADVISER TO THE ADMINISTRATOR, THE SECRETARY  
7 OF TRANSPORTATION, IN SUCH MATTERS AS RELATE TO MEDICAL  
8 FITNESS IN FLYING, PASSENGER SAFETY IN FLYING, AND HAS  
9 A NUMBER OF RESPONSIBILITIES THAT ARE ADMINISTRATIVE.

10 Q. DOCTOR, DO YOU HAVE ANY PUBLICATIONS IN THE  
11 FIELD OF AEROSPACE MEDICINE?

12 A. YES, I HAVE MANY PUBLICATIONS.

13 Q. DOCTOR, COULD YOU TELL ME IN WHICH JURISDICTIONS  
14 YOU ARE LICENSED TO PRACTICE MEDICINE?

15 A. I HAVE A NUMBER OF LICENSES. MY PRIMARY LICENSE  
16 IN THE UNITED STATES IS IN OHIO, BUT I AM ALSO LICENSED  
17 IN MARYLAND, OKALHOMA, CALIFORNIA, AND -- I BELIEVE THAT  
18 IS IT. OH, AND NEW MEXICO.

19 Q. DOCTOR, IS THERE A CERTIFICATION, A BOARD-  
20 CERTIFICATION, FOR AEROSPACE MEDICINE?

21 A. YES, THERE IS.

22 Q. AND ARE YOU SO CERTIFIED?

23 A. YES, I AM.

24 Q. AND ARE YOU A MEMBER OF ANY PROFESSIONAL COMMITTEES  
25 IN THE FIELD OF AEROSPACE MEDICINE?

1 A. YES, I AM. I AM A MEMBER OF MANY ORGANIZATIONS.  
2 THE MAIN ONE THAT WOULD BE PERTINENT HERE IS THE AEROSPACE  
3 MEDICAL ASSOCIATION.

4 IN THE AEROSPACE MEDICAL ASSOCIATION, I AM A MEMBER  
5 OF THE EXECUTIVE COUNCIL OF THE ASSOCIATION, AS WELL AS  
6 THE CHAIRMAN OF ONE OF ITS LARGEST COMMITTEES, THE AIR  
7 TRANSPORT MEDICINE COMMITTEE.

8 Q. AND DID YOU SAY, SIR, THAT YOU HAVE BEEN MADE  
9 A FELLOW IN THE AEROSPACE MEDICAL ASSOCIATION?

10 A. YES.

11 Q. AND IS THAT AN HONOR OR DISTINCTION IN THAT  
12 ORGANIZATION?

13 A. YES.

14 THAT IS AN HONORARY, ELECTED POSITION; WHEREAS, THE  
15 AMERICAN COLLEGE OF PREVENTIVE MEDICINE, THAT IS AN ACADEMIC  
16 POSITION.

17 Q. AND HAVE YOU RECEIVED ANY AWARDS OR RECOGNITION  
18 FROM THE FEDERAL AVIATION ADMINISTRATION?

19 A. YES.

20 JUST BEFORE I LEFT THE FEDERAL AVIATION ADMINISTRATION,  
21 I RECEIVED A SPECIAL RECOGNITION AWARD FOR THE WORK I  
22 DID, PARTICULARLY IN REORGANIZING THE MEDICAL INVESTIGATION  
23 OF AIRCRAFT ACCIDENTS.

24 Q. DOCTOR, I WOULD LIKE TO SHOW YOU WHAT HAS BEEN  
25 MARKED AS PLAINTIFFS' EXHIBIT 80, SIR, AND ASK YOU IF

1 YOU CAN IDENTIFY THIS.

2 A. THIS IS MY UPDATED CURRICULUM VITAE AS OF THIS  
3 MONTH.

4 Q. AND, DOCTOR, COULD YOU TURN TO THE PUBLICATIONS  
5 SECTION?

6 A. YES, SIR.

7 Q. COULD YOU TELL ME SOME OF YOUR MORE SIGNIFICANT  
8 PUBLICATIONS IN THE FIELD OF AEROSPACE MEDICINE?

9 A. MY FIRST TASK, WHILE AT THE LOVELACE FOUNDATION,  
10 WAS TO REVISE THE GLOSSARY OF TECHNICAL AND PHYSIOLOGICAL  
11 TERMS RELATING TO AEROSPACE OXYGEN SYSTEMS. THIS GAVE  
12 ME A GOOD GROUNDING AND AN UPDATE ON WHAT WAS PRESENTLY  
13 BEING USED IN THE PROTECTION OF PASSENGERS AND PILOTS.

14 BUT I THINK THE FIRST MAJOR CONTRIBUTION WAS THE  
15 REPORT, WHICH TOOK ALMOST THREE YEARS TO WRITE. IT WAS  
16 A LITERATURE-SEARCH, AS WELL AS INFORMATION-GATHERING,  
17 PROJECT, WHICH RELATED TO CLINICAL SPACE MEDICINE, PROBLEMS  
18 ARISING FROM THE HAZARDS OF SPACE OPERATIONS.

19 THIS WAS A PROJECT TO IDENTIFY WHAT VARIOUS HAZARDS  
20 EXISTED DURING A LONG SPACE MISSION, AND, IN PARTICULAR,  
21 HOW TO HANDLE MEDICAL PROBLEMS THAT MIGHT ARISE FROM THESE  
22 HAZARDS, IF THEY AFFECTED THE ASTRONAUTS.

23 THESE WERE SUCH THINGS AS DECOMPRESSION, WITH RESULTING  
24 HYPOXIA; AND EVEN TISSUE BOILING WAS CONSIDERED; DECOMPRESSION  
25 SICKNESS, OF COURSE; CARBON DIOXIDE ACCUMULATING IN THE

1 ATMOSPHERE, AND MANY OTHER FACTORS.

2 WE LOOKED AT THE POSSIBLE EFFECTS OF MAGNETIC FIELDS  
3 IN SPACE ON THE ASTRONAUT POPULATION.

4 I WAS GIVEN THE OPPORTUNITY TO REVISE MY ORIGINAL  
5 REPORT AND PUBLISH IT AS A BOOK BY THE REIDEL PUBLISHING  
6 COMPANY, WHICH WAS PUBLISHED IN 1969.

7 I WAS GIVEN THE HONOR OF BEING THE EDITOR OF AN ACCUMULA  
8 TION OF PAPERS RESULTING FROM A SCIENTIFIC MEETING THAT  
9 WAS HELD IN AMSTERDAM IN, I BELIEVE, 1968. AND THAT  
10 WAS PUBLISHED AS RECENT ADVANCES IN AEROSPACE MEDICINE.

11 I WAS ASKED, THEREAFTER, TO WRITE THE SECTION ON  
12 AEROSPACE MEDICINE FOR THE ENCYCLOPEDIA BRITANNICA, WHICH  
13 IS STILL IN THE CURRENT ISSUE OF THE ENCYCLOPEDIA.

14 AGAIN, FOR NASA, "GENERAL MEDICAL FACTORS,"  
15 A CHAPTER IN HUMAN FACTORS IN LONG-DURATION SPACEFLIGHT.

16 THIS, AGAIN, RELATED TO MEDICAL HAZARDS AND PROBLEMS.

17 I THINK THAT PROBABLY ONE OF MY MOST INTERESTING  
18 ACTIVITIES THAT RELATES TO PUBLICATIONS WAS STUDIES OF  
19 DECOMPRESSION CONDUCTED ON INDIVIDUALS WHO WERE AT REST  
20 AND WORKING IN THE ENVIRONMENT.

21 THIS FOLLOWED THE DC-10 DECOMPRESSION OVER ALBUQUERQUE  
22 SOME YEARS AGO, AND WE CONDUCTED THIS RESEARCH. IT WAS  
23 DIRECTLY UNDER ME, AS PROJECT SCIENTIST, AT THE CIVIL  
24 AEROMEDICAL INSTITUTE.

25 AND THIS WAS CONTRIBUTED IN TWO OR THREE PAPERS.



1 WE GOT INVOLVED IN THE EMERGENCY ESCAPE OF  
2 HANDICAPPED AIR TRAVELERS. THIS WAS RELATED TO SOME  
3 ONGOING LEGISLATION.

4 I HAVE WRITTEN EXTENSIVELY, OF COURSE, IN OTHER  
5 AREAS AND LECTURED EXTENSIVELY. I HAVE SPOKEN ON THE  
6 RESEARCH IN VARIOUS AREAS.

7 Q. THANK YOU, SIR.

8 MR. MC MANUS: YOUR HONOR, AT THIS TIME I  
9 WOULD MOVE PLAINTIFFS' EXHIBIT 80 INTO EVIDENCE.

10 THE COURT: ANY OBJECTION?

11 MR. DUBUC: NO OBJECTION.

12 MR. PIPER: NO, YOUR HONOR.

13 THE COURT: IT IS RECEIVED.

14 (PLAINTIFFS' EXHIBIT NO. 80  
15 RECEIVED IN EVIDENCE.)

16 MR. MC MANUS: AND, YOUR HONOR, AT THIS TIME  
17 I WOULD TENDER DR. BUSBY AS AN EXPERT IN THE FIELD OF  
18 AEROSPACE MEDICINE.

19 MR. DUBUC: NO OBJECTION.

20 MR. PIPER: NO OBJECTION.

21 THE COURT: HE IS QUALIFIED.

22 MR. MC MANUS: THANK YOU, SIR.

23 BY MR. MC MANUS:

24 Q. DR. BUSBY, HAVE YOU BEEN ASKED TO REVIEW MATERIALS  
25 DEALING WITH THE CRASH OF THE C-5A THAT OCCURRED ON APRIL

1 4, 1975, NEAR SAIGON, VIETNAM?

2 A. YES, I HAVE.

3 Q. AND COULD YOU TELL ME, SIR, WHICH MATERIALS  
4 YOU HAVE REVIEWED?

5 A. I HAVE REVIEWED A GREAT MANY MATERIALS, MOST  
6 SIGNIFICANT AMONG WHICH IS THE COLLATERAL REPORT OF THE  
7 AIRCRAFT ACCIDENT; A DEPOSITION BY DR. RUSSELL RAYMOND  
8 OF THE UNITED STATES AIR FORCE, SCHOOL OF AEROSPACE MEDICINE.

9 I HAVE HAD ACCESS TO MATERIALS THAT RELATE TO THE  
10 INJURIES THAT WERE SUSTAINED AND SOME OF THE CHILDREN'S  
11 MEDICAL RECORDS, TO MOST OF WHICH I HAVE GIVEN A CURSORY  
12 REVIEW, BUT SPECIFICALLY RELATED TO A CASE WITH WHICH  
13 I WAS INVOLVED EARLIER.

14 I HAVE REVIEWED A GREAT MANY REPORTS: SOME PREPARED  
15 BY THE PLAINTIFFS AND OTHERS PREPARED BY THE DEFENDANTS,  
16 SIR.

17 Q. DO YOU RECALL WHO, BY NAME, SIR, PREPARED THOSE  
18 REPORTS?

19 A. FOR THE PLAINTIFFS, THE GAUME REPORT, THE TURNBOW  
20 REPORT, THE EDWARDS REPORT, THE --

21 Q. ARE THOSE REPORTS FOR THE PLAINTIFF, SIR, OR  
22 FOR THE DEFENDANT?

23 A. I AM SORRY. I MEAN FOR THE DEFENDANT.

24 Q. ALL RIGHT.

25 A. THE EDWARDS REPORT, TURNBOW, THE BERRY REPORT,

1 THE DAVIS AND DUNN REPORT.

2 I HAVE REVIEWED A DEPOSITION, I BELIEVE, GIVEN BY  
3 DR. GIBBONS.

4 FOR THE PLAINTIFFS, THERE HAS BEEN A MORAIN REPORT.  
5 MORE RECENTLY, I BELIEVE THERE HAS BEEN A TURNER REPORT.  
6 I HAVE A REPORT THAT IS UNDATED AND UNSIGNED, BUT I BELIEVE  
7 IT WAS PREPARED BY AN ENGINEER BY THE NAME OF DR. TURNER.

8 I REVIEWED TWO FILMS, A SHORT FILM AND A LONG FILM.

9 I HAVE LOOKED AT HUNDREDS OF PICTURES.

10 Q. ARE THOSE BLACK-AND-WHITE PICTURES?

11 A. BLACK-AND-WHITE AND COLOR PICTURES THAT WERE  
12 PROVIDED, I BELIEVE, IN SEPTEMBER, TO THE COURT.

13 I HAVE HAD A LOOK AT AN UPDATED WRECKAGE DIAGRAM,  
14 AND I HAVE ALSO RECENTLY ASKED FOR, AND HAVE OBTAINED,  
15 THE DISTRIBUTION OF INDIVIDUALS IN THE AISLE AND BETWEEN  
16 THE SEATS IN THIS ACCIDENT, AND HAVE CORRELATED IT WITH  
17 THE KNOWN EXTENT OF THE INJURIES OF THESE INDIVIDUALS,  
18 OTHER THAN THE CHILDREN, THAT WERE REPORTED.

19 Q. DOCTOR, YOU MENTIONED THE COLLATERAL REPORT.  
20 ARE THERE STATEMENTS OF CREW MEMBERS AND OTHERS WHO WERE  
21 PASSENGERS ON THE C-5A --

22 A. YES. YES, THERE WERE.

23 Q. ALL RIGHT.

24 CAN YOU BRIEFLY DESCRIBE WHAT OTHER TYPES OF MATERIALS  
25 ARE FOUND IN THE COLLATERAL REPORT?

1 A. SPECIFICALLY RELATED TO THIS CASE?

2 Q. YES.

3 A. AS I MENTIONED, I LOOKED OVER SOME INFORMATION  
4 ON THE MEDICAL CONDITION. I SHOULD ADD THAT I DID SEE  
5 SOME CURSORY INFORMATION RELATED TO AUTOPSY FINDINGS OF  
6 THE DECEASED IN THIS ACCIDENT.

7 THIS IS ALL I CAN RECALL AT THE PRESENT TIME.

8 Q. DOCTOR, I WOULD LIKE YOU TO ASSUME, SIR, THAT --  
9 MR. DUBUC: YOUR HONOR, MAY WE APPROACH THE  
10 BENCH?

11 THE COURT: YES.

12 ( AT THE BENCH )

13 MR. DUBUC: I AM SORRY, YOUR HONOR, BUT, FROM  
14 WHAT HE HAS JUST SAID -- I DIDN'T REALIZE THIS BEFORE  
15 WE STARTED.

16 YOUR HONOR, HIS DEPOSITION WAS TAKEN ON DECEMBER  
17 18TH, AND IT WAS REPRESENTED BY MR. FRICKER, WHEN I ASKED  
18 WHAT DR. BUSBY WILL TESTIFY ABOUT FOR THE PURPOSES OF  
19 THE DEPOSITION AND THE TRIAL, THAT HE WAS NOT GOING TO  
20 TESTIFY ABOUT G-FORCES.

21 IN THE COURSE OF THE DEPOSITION, HE STATED  
22 CLEARLY AT PAGES 132 TO 133 THAT HE WAS STILL IN THE PROCESS  
23 HE HAD NOT YET RECEIVED WHAT HE JUST MENTIONED; IT IS  
24 A TROOP-COMPARTMENT ANALYSIS OF ADULTS -- HE WAS STILL  
25 IN THE PROCESS OF DOING THIS AND HAD NOT LOOKED AT THE

1 AUTOPSIES.

2 BUT, IN VIEW OF THE REPRESENTATION THAT HE  
3 WASN'T GOING TO TESTIFY ABOUT G-FORCES, WE DID NOT COVER  
4 IT.

5 WE DID INDICATE THAT THE DEPOSITION WAS NOT  
6 COMPLETED AT THE END OF IT.

7 NOW, HE MAY NOT BE GOING TO TESTIFY ABOUT G-FORCES,  
8 AND, IF THAT IS THE CASE, WE WILL PROCEED.

9 IF HE IS, IF THAT IS CHANGED, THEN, BEFORE  
10 HE TESTIFIES ABOUT WHATEVER ANALYSIS HE MADE FROM THESE  
11 AUTOPSIES HE JUST MENTIONED, AND APPARENTLY A WORK-UP --  
12 I GUESS IT IS A WORK-UP BY SOMEBODY; ALTHOUGH I DON'T  
13 KNOW WHO IT MIGHT BE -- I WOULD LIKE A VOIR DIRE ON THAT  
14 SUBJECT BEFORE WE GET TO IT.

15 I DON'T MEAN TO STOP NOW, BUT I JUST WANT TO  
16 BRING IT UP, SO THAT IF HE IS GOING TO TESTIFY ABOUT  
17 G-FORCES RELATED TO THAT --

18 THE COURT: LET'S FACE THAT WHEN WE COME TO  
19 IT.

20 MR. DUBUC: OKAY, YOUR HONOR.

21 THE COURT: IF WE COME TO IT, WE WILL DISCUSS IT.

22 MR. DUBUC: PARDON ME, YOUR HONOR?

23 THE COURT: I SAID IF THEY DO IT, WE WILL  
24 TALK ABOUT IT. YOU HAVE RESERVED THE POINT.

25 MR. DUBUC: IF THEY DO IT, AND THE ANSWER IS

1 OUT, IT IS GOING TO BE --

2 THE COURT: YOU ARE TALKING TO ME EX-PARTE.

3 MR. PIPER: THEY HAVE LEFT.

4 ( OPEN COURT )

5 THE COURT: YOU MAY PROCEED, MR. MC MANUS.

6 MR. MC MANUS: THANK YOU, SIR.

7 BY MR. MC MANUS:

8 Q. DOCTOR, I WOULD LIKE YOU TO ASSUME THAT CARLY  
9 KURTH WAS LOADED ON THE C-5A ON APRIL 4TH AND PLACED IN  
10 THE TROOP COMPARTMENT OF THE C-5A, WITH APPROXIMATELY  
11 150 OTHER CHILDREN.

12 BASED ON YOUR REVIEW OF THE MATERIALS YOU HAVE INDICATED  
13 TO ME, SIR, DO YOU HAVE AN OPINION, WITH A REASONABLE  
14 DEGREE OF MEDICAL CERTAINTY, AS TO WHETHER OR NOT THE  
15 CHILDREN IN THE TROOP COMPARTMENT WERE SUBJECTED TO A  
16 DECOMPRESSION, HYPOXIA, DECELERATION FORCES, AND THE INHALATION  
17 OF SMOKE AND FUMES?

18 A. I DO HAVE AN OPINION.

19 MR. DUBUC: NOTE MY OBJECTION TO THE FORM,  
20 YOUR HONOR.

21 THE COURT: OVERRULED.

22 BY MR. MC MANUS:

23 Q. AND WHAT IS THAT OPINION, SIR?

24 A. THE OPINION IS THAT THEY WERE EXPOSED TO THE  
25 AFOREMENTIONED HAZARDS.

1 Q. AND, DOCTOR, DO YOU HAVE AN OPINION, WITH A  
2 REASONABLE DEGREE OF MEDICAL CERTAINTY, AS TO WHETHER  
3 OR NOT THE DECOMPRESSION, THE HYPOXIA, THE DECELERATION  
4 FORCES, AND THE INHALATION OF SMOKE AND FUMES WERE SUFFICIENT  
5 TO CAUSE BRAIN INJURY TO THOSE CHILDREN LOCATED IN THE  
6 TROOP COMPARTMENT?

7 A. I DO HAVE AN OPINION.

8 MR. DUBUC: SAME OBJECTION.

9 THE COURT: SAME RULING.

10 BY MR. MC MANUS:

11 Q. AND WHAT IS THAT OPINION, SIR?

12 A. THE OPINION IS THAT, IN THE COMPOSITE, OR IN  
13 THE AGGREGATE, OR ALL TOGETHER, OR IN COMBINATION, THESE  
14 VARIOUS HAZARDS TO WHICH THE INDIVIDUALS, THE CHILDREN,  
15 WERE EXPOSED CAUSED BRAIN INJURY.

16 Q. AND, DOCTOR, WHAT IS DECOMPRESSION, SIR? COULD  
17 YOU EXPLAIN THAT?

18 A. DECOMPRESSION IS SIMPLY A LOSS OF THE ATMOSPHERIC  
19 PRESSURE, A DECLINE IN THE ATMOSPHERIC PRESSURE.

20 Q. AND HYPOXIA, SIR?

21 A. HYPOXIA IS THE EFFECT OF LOWERING THE PRESSURE  
22 OF OXYGEN IN THE ATMOSPHERE ON BODY TISSUES.

23 Q. AND DECELERATION FORCES, SIR?

24 A. DECELERATION FORCES ARE A CHANGE IN A SINGLE  
25 DIRECTION OR IN A TURN IN THE VELOCITY OF AN OBJECT.

1 Q. IN UNDERSTANDING WHAT HAPPENED IN THE TROOP  
2 COMPARTMENT, IN RELATION TO THESE ITEMS, SIR, IS IT IMPORTANT  
3 TO CONSIDER THEM ALL TOGETHER?

4 A. ABSOLUTELY.

5 Q. AND WHY IS THAT?

6 A. THERE ARE MANY EFFECTS THAT EACH ONE OF THESE  
7 EVENTS OR HAZARDS COULD HAVE HAD ON THE BODY; SOME, RELATIVELY  
8 SMALL; SOME, RELATIVELY LARGE.

9 SOME WOULD ACT INDEPENDENTLY OF EACH OTHER; AND I  
10 BELIEVE VERY STRONGLY, ALTHOUGH THERE IS NOT RESEARCH  
11 TO SUPPORT THIS, THAT WE HAD SOME SYNERGISTIC EFFECTS;  
12 THAT IS, NOT ONLY SIMPLY ADDITIVE EFFECTS, BUT THE TWO  
13 EFFECTS WOULD HAVE COMBINED TO MAKE THEIR ADDITION MUCH  
14 GREATER THAN WOULD OTHERWISE BE EXPECTED.

15 Q. DOCTOR, TO YOUR KNOWLEDGE, SIR, HAVE THERE  
16 EVER BEEN ANY EXPERIMENTS WHERE CHILDREN NINE TO TEN MONTHS  
17 OF AGE WOULD BE EXPOSED TO DECOMPRESSION, HYPOXIA, DECELERATION  
18 FORCES, AND THE INHALATION OF SMOKE AND FUMES?

19 MR. DUBUC: NOTE MY OBJECTION, YOUR HONOR.  
20 IT IS LEADING.

21 THE COURT: THE OBJECTION IS OVERRULED.

22 THE WITNESS: SIR, I HAVE SPENT THE BETTER  
23 PART OF TWO YEARS, NOW, LOOKING THROUGH THE SCIENTIFIC  
24 LITERATURE FOR SOME EVIDENCE OF RESEARCH THAT WOULD BE  
25 SPECIFICALLY RELATED TO THIS CASE, AND I HAVE BEEN UNABLE



1 TO FIND IT.

2 Q. THANK YOU, SIR.

3 MR. MC MANUS: I HAVE NO FURTHER QUESTIONS,  
4 YOUR HONOR.

5 THE COURT: CROSS-EXAMINATION.

6 MR. DUBUC: MAY WE APPROACH THE BENCH, YOUR  
7 HONOR.

8 THE COURT: YES.

9 ( AT THE BENCH )

10 THE COURT: THIS DIRECT WAS SO ABBREVIATED  
11 THAT I AM NOT GOING TO HOLD MR. DUBUC TO THE RULE. I  
12 WILL EXPECT YOU TO --

13 MR. DUBUC: I WILL DO WHAT I CAN.

14 THE COURT: (CONTINUING) -- TO GET IT OUT,  
15 BUT IF YOU WILL TRY TO FINISH IT BY THE RECESS, I WOULD  
16 APPRECIATE IT.

17 MR. DUBUC: I WILL DO MY BEST, YOUR HONOR,  
18 BUT MY PROBLEM --

19 THE COURT: I UNDERSTAND.

20 MR. DUBUC: (CONTINUING) -- IS THIS:

21 I DID OBJECT TO THE HYPOTHETICAL, AND I DON'T  
22 BELIEVE THAT THE HYPOTHETICAL HAS BEEN EXPLAINED. SO  
23 I OBJECT AND MOVE TO STRIKE HIS TESTIMONY.

24 I THINK THE RULE IS THAT HE CAN ANSWER IT THAT  
25 WAY, BUT HE HAS TO DOCUMENT THE BASIS FOR IT, AND I DON'T THINK

1 WE HAVE THAT IN THIS RECORD NOW.

2 NOW, I MAY BE WRONG.

3 THE COURT: YOUR MOTION IS DENIED.

4 MR. DUBUC: I UNDERSTAND.

5 THE COURT: TRY TO FINISH BY ELEVEN O'CLOCK,

6 MR. DUBUC.

7 MR. DUBUC: I WILL TRY, YOUR HONOR.

8 ( OPEN COURT )

9 CROSS-EXAMINATION

10 BY MR. DUBUC:

11 Q. GOOD MORNING, DOCTOR.

12 A. GOOD MORNING, MR. DUBUC.

13 Q. DOCTOR, I NOTE FROM YOUR DISCUSSION WITH MR.

14 MC MANUS THAT YOU HAVE JUST RECENTLY, IN NOVEMBER, WAS

15 IT, OF 1981, MOVED FROM THE CLEVELAND CLINIC TO THE LUTHERAN

16 IS IT THE LUTHERAN CLINIC?

17 A. LUTHERAN MEDICAL CENTER, SIR.

18 Q. SORRY. THE LUTHERAN MEDICAL CENTER.

19 A. YES, SIR.

20 Q. AND WOULD IT BE A FAIR STATEMENT THAT, AT THE  
21 LUTHERAN MEDICAL CENTER, SINCE NOVEMBER, YOU HAVE BEEN  
22 PRIMARILY ENGAGED IN EITHER ADMINISTRATION, ABOUT 50 PERCENT  
23 OF YOUR TIME, OR --

24 A. THAT IS CORRECT.

25 Q. AND WOULD IT ALSO BE A FAIR STATEMENT THAT

1 THE OTHER 50 PERCENT HAS BEEN IN CONNECTION WITH THE PRACTICE  
2 OF MEDICINE, BUT THAT HAS BEEN OCCUPATIONAL MEDICINE,  
3 FOR THE MOST PART?

4 A. FOR THE MOST PART.

5 Q. ALL RIGHT.

6 A. AND THE THIRD 50 PERCENT HAS BEEN INVOLVED,  
7 IN PART, WITH THIS CASE, SIR.

8 Q. OKAY. THAT IS 150 PERCENT; IS THAT CORRECT?

9 A. YES.

10 Q. NOW, DOCTOR, AT THE CLEVELAND CLINIC, YOU WERE  
11 THERE FOR APPROXIMATELY TWO YEARS; IS THAT CORRECT?

12 A. OVER TWO YEARS, YES.

13 Q. TWO-AND-A-HALF YEARS --

14 A. YES.

15 Q. (CONTINUING) -- GIVE OR TAKE A MONTH?

16 A. YES.

17 Q. AND A GOOD PORTION OF YOUR WORK THERE WAS ALSO  
18 IN OCCUPATIONAL MEDICINE; WAS IT NOT?

19 A. APPROXIMATELY 70 TO 80 PERCENT, YES.

20 Q. SEVENTY TO 80 PERCENT?

21 A. YES. THIS WOULD BE AS PART OF MY REGULAR  
22 WORK WEEK.

23 Q. I UNDERSTAND THAT.

24 Q. YES, SIR.

25 Q. NOW, WOULD YOU SAY, DOCTOR, THAT OVER THE LAST

1 THREE TO THREE-AND-A-HALF YEARS SINCE YOU MOVED TO THE  
2 CLEVELAND CLINIC AND NOW RECENTLY TO THE LUTHERAN CLINIC,  
3 YOUR WORK IN AEROSPACE MEDICINE HAS SUBSTANTIALLY DECLINED,  
4 WHATEVER THE CIRCUMSTANCES, TIME OR OTHERWISE?

5 A. THAT IS CORRECT.

6 Q. DOCTOR, YOU MENTIONED THE THINGS THAT YOU HAVE  
7 REVIEWED.

8 DID YOU HAVE OCCASION TO REVIEW DR. MC MEEKIN'S PRESSURE-  
9 CHAMBER SIMULATION AND REPORT OF THIS PARTICULAR CIRCUMSTANCE  
10 IN THIS ACCIDENT?

11 A. NO, I DIDN'T.

12 Q. YOU DID NOT?

13 A. I HAVE NEVER HEARD OF IT, IN FACT.

14 Q. VERY WELL.

15 DOCTOR, YOU HAVE MENTIONED IN YOUR OPINION SEVERAL  
16 ASPECTS OF THIS ACCIDENT, AND I WROTE DOWN SOME OF THEM,  
17 BUT I DON'T KNOW WHETHER I GOT THEM ALL.

18 ONE WAS DECOMPRESSION?

19 A. THAT IS CORRECT.

20 Q. WOULD YOU AGREE, DOCTOR -- WITHDRAWN.

21 IS DECOMPRESSION A PHENOMENON THAT IN AEROSPACE --  
22 THE AEROSPACE PRACTICE OF MEDICINE IS CONSIDERED TO BE  
23 AN EVENT RELATED TO SOMETHING CALLED "DECOMPRESSION SICKNESS"?

24 A. WELL, DECOMPRESSION SICKNESS IS THE RESULT  
25 OF, OR AN EFFECT OF, DECOMPRESSION.

1 Q. DOCTOR, WOULD YOU AGREE THAT -- WITHDRAWN.

2 AT WHAT ALTITUDE DID YOU ASSUME THIS AIRPLANE TO  
3 BE AT THE TIME OF DECOMPRESSION?

4 A. FROM THE REPORTS, SIR, APPROXIMATELY 5000 FEET  
5 CABIN ALTITUDE.

6 I UNDERSTAND THAT THE AIRCRAFT, AGAIN, FROM THE REPORTS,  
7 WAS FLYING AT AN ALTITUDE OF 23,400 FEET, GIVE OR TAKE  
8 A FEW FEET.

9 Q. DOCTOR, WOULD YOU AGREE THAT THE PHENOMENON  
10 OF DECOMPRESSION SICKNESS IS UNLIKELY TO OCCUR AT ALTITUDES  
11 BELOW 25,000 FEET?

12 A. IT IS MUCH MORE UNLIKELY TO OCCUR BELOW, AS  
13 COMPARED TO ABOVE, ALTHOUGH IT HAS OCCURRED BELOW.

14 Q. ALL RIGHT.

15 AND YOU MENTIONED SOME PUBLICATIONS THAT YOU HAD  
16 WRITTEN, IN RESPONSE TO MR. MC MANUS' QUESTIONS. IN THOSE  
17 PUBLICATIONS, LET'S TAKE SPECIFICALLY THE ONE RELATING  
18 TO A SUMMARY OF A SYMPOSIUM THAT YOU HAD DONE.

19 THERE IS AN ARTICLE IN THERE BY DR. GAUME; IS THERE  
20 NOT?

21 A. YES.

22 Q. AND THAT ARTICLE IS IN YOUR SUMMARY, YOUR BOOK?

23 A. NO. DR. GAUME --

24 Q. IS IT IN THERE?

25 A. (CONTINUING) -- SUBMITTED A PAPER FOR PUBLICATION,

1 AND I ACTED AS THE EDITOR OF THE ENTIRE BOOK, WHICH WAS  
2 A COMPOSITE OF PAPERS.

3 Q. AND YOU LOOKED AT THE ARTICLE, OF COURSE --

4 A. YES.

5 Q. (CONTINUING) -- SINCE YOU WERE THE EDITOR?

6 A. BEING THE EDITOR, I READ THE ARTICLE FOR CONTENT,  
7 PARTICULARLY AS RELATED TO GRAMMAR AND PRESENTATION.

8 Q. AND YOU INCLUDED IT IN YOUR PUBLICATION?

9 A. ALONG WITH ALL THE OTHERS THAT WERE SUBMITTED,  
10 SIR.

11 Q. ALL RIGHT.

12 AND YOU ALSO INDICATED YOU PUBLISHED SOMETHING FOR  
13 THE ENCYCLOPEDIA BRITANNICA DESCRIBING CERTAIN THINGS,  
14 AMONG THEM, DECOMPRESSION; IS THAT CORRECT?

15 A. I BELIEVE I ADDRESSED MORE THE EFFECTS OF DECOMPRES  
16 SION, RATHER THAN DECOMPRESSION, ITSELF.

17 Q. OKAY.

18 DO YOU RECALL WHETHER IN THAT ENCYCLOPEDIA PUBLICATION,  
19 OR IN THE ARTICLE BY DR. GAUME IN YOUR PUBLISHED PAPERS,  
20 YOU INDICATED THAT THE CRITICAL ALTITUDE FOR DECOMPRESSION  
21 SICKNESS WOULD BE, IN MOST CASES, 25,000 FEET?

22 A. I DON'T RECALL A SPECIFIC ALTITUDE, SIR. IT  
23 WAS APPROXIMATELY 1972, OR TEN YEARS SINCE I WROTE THAT  
24 CHAPTER.

25 Q. I HAVE DR. GAUME'S ARTICLE HERE. I WILL

1 SHOW YOU A COPY OF IT.

2 THIS IS FROM RECENT ADVANCES IN AEROSPACE MEDICINE,  
3 EDITED BY DOUGLAS E. BUSBY; IS THAT RIGHT?

4 A. RIGHT, SIR.

5 Q. THAT IS THE ONE WE ARE TALKING ABOUT?

6 A. CORRECT.

7 Q. AND I NOTE THAT DR. GAUME REFERS ON PAGE 199,  
8 TOWARD THE BOTTOM, TO AN ALTITUDE OF 25,000 FEET; IS THAT  
9 CORRECT?

10 A. WITH RESPECT TO WHAT? ARE WE TALKING ABOUT  
11 DECOMPRESSION SICKNESS STILL, SIR?

12 Q. YES.

13 A. WELL, HE MENTIONS 25,000 FEET, BUT HE IS NOT  
14 TALKING ABOUT DECOMPRESSION SICKNESS. HE IS TALKING  
15 ABOUT HYPOXIA.

16 Q. AND HE SAYS IT IS UNLIKELY TO HAVE HYPOXIA --  
17 WITHDRAWN.

18 A. I THINK WE HAVE A CONFUSION OF TERMS.

19 Q. AT THOSE ALTITUDES; IS THAT RIGHT?

20 A. I AM SORRY, SIR. I THINK WE HAVE BEEN TALKING  
21 ABOUT DECOMPRESSION SICKNESS --

22 Q. OH, OKAY.

23 A. (CONTINUING) -- WHICH IS QUITE DIFFERENT FROM  
24 HYPOXIA.

25 Q. ALL RIGHT.

1 A. AND YOU ARE ASKING ME TO SAY: TOLERATE SEVERAL  
2 MINUTES OF HYPOXIA AT ALTITUDES OF UP TO 25,000 FEET.  
3 THEY ARE TWO DIFFERENT THINGS.

4 Q. OKAY. WELL, LET'S FINISH DECOMPRESSION, THEN,  
5 FIRST.

6 IN THIS PARTICULAR CASE, DO YOU RECALL TELLING ME  
7 THIS AT YOUR DEPOSITION:

8 THAT, IN YOUR OPINION, IT WAS UNLIKELY THAT THESE  
9 INFANTS WOULD HAVE SUFFERED DECOMPRESSION SICKNESS UNDER  
10 THE CIRCUMSTANCES OF THIS ACCIDENT, I THINK, BECAUSE OF  
11 THE TIME INVOLVED?

12 A. THAT IS CORRECT.

13 Q. OKAY.

14 SO THAT, BY ITSELF, IS UNLIKELY, IN YOUR OPINION;  
15 IS THAT CORRECT?

16 A. BY ITSELF.

17 Q. OKAY. I UNDERSTAND THAT.

18 NOW, DOCTOR, DO YOU CONSIDER THIS A SURVIVABLE ACCIDENT?

19 A. IT DEPENDS UPON WHICH TERMINOLOGY YOU ARE GOING  
20 TO USE FOR "SURVIVABLE."

21 I WILL STATE IT WITH MY CAVEAT. I BELIEVE IT WAS  
22 A SURVIVABLE ACCIDENT.

23 Q. OKAY.

24 AND IS THAT RELATED TO THE FACT THAT OCCUPANTS, A  
25 HIGH PERCENTAGE OF OCCUPANTS IN THE TROOP COMPARTMENT



1 AND COCKPIT, SO FAR AS THOSE COMPONENTS WERE CONCERNED,  
2 SURVIVED --

3 A. YES.

4 Q. (CONTINUING) -- WITHOUT --

5 A. YES.

6 Q. (CONTINUING) -- WITHOUT SIGNIFICANT INJURY?

7 A. YES.

8 Q. OKAY.

9 NOW, YOU MENTIONED HYPOXIA, AND MAYBE I GOT AHEAD  
10 OF MYSELF. WE WERE TALKING ABOUT RECENT ADVANCES IN  
11 AEROSPACE MEDICINE, WHICH IS YOUR PUBLICATION, AND YOU  
12 CORRECTED ME, AND YOU DID SO CORRECTLY. THANK YOU VERY  
13 MUCH.

14 DR. GAUME TALKS ABOUT HYPOXIA AT ALTITUDES OF UP  
15 TO 25,000 FEET; DOES HE NOT?

16 A. YES, HE DOES.

17 Q. AND HE SUGGESTS THAT MOST SUBJECTS WHO HAVE  
18 BEEN EXPOSED IN ALTITUDE CHAMBERS CAN TOLERATE SEVERAL  
19 MINUTES OF HYPOXIA AT ALTITUDES UP TO 25,000 FEET; IS  
20 THAT CORRECT?

21 A. THAT IS WHAT HE SAYS, "MOST SUBJECTS."

22 Q. AND HE SAID, ALSO, THAT BELOW 25,000 FEET IS  
23 CONSIDERED RELATIVELY SAFE, WITHOUT BECOMING UNCONSCIOUS;  
24 IS THAT CORRECT?

25 A. YES.

1 Q. OKAY.

2 AND THAT IS IN YOUR PUBLICATION, WHAT WE ARE TALKING  
3 ABOUT, JUST SO WE ARE SURE; IS THAT CORRECT, SIR?

4 A. WELL, I THINK --

5 Q. SIR, THE QUESTION IS:

6 IS THE --

7 A. THIS IS NOT MY PUBLICATION, SIR. I WAS THE  
8 EDITOR OF THIS.

9 Q. THIS IS IN A PUBLICATION OF WHICH YOU WERE  
10 THE EDITOR, AND YOU REVIEWED THE ARTICLES THAT WENT IN;  
11 IS THAT CORRECT?

12 A. YES, SIR.

13 Q. THANK YOU.

14 NOW, DID I GIVE YOU ONE OF THE ENCYCLOPEDIA THINGS  
15 THAT YOU PUBLISHED?

16 A. I DON'T BELIEVE THAT YOU DID, SIR.

17 Q. ALL RIGHT. I WILL GIVE YOU THAT. DO YOU  
18 RECALL, FROM JUST TAKING A LOOK AT THAT -- AND I DON'T  
19 WANT TO RUSH YOU -- IS THAT THE SECTION IN THE ENCYCLOPEDIA  
20 YOU REFERRED TO IN ANSWER TO MR. MC MANUS' QUESTION?

21 A. YES.

22 Q. AND I AM LOOKING AT PAGES 142 TO 143, DO YOU  
23 SEE THAT?

24 A. YES.

25 Q. ARE THESE YOUR WORDS IN THIS PUBLICATION?

1 A. YES.

2 Q. ALL RIGHT.

3 NOW, DID YOU STATE THAT AT 20,000 TO 23,000 FEET,  
4 UNCONSCIOUSNESS CAN OCCUR WITHIN SEVERAL MINUTES?

5 A. YES.

6 Q. OKAY.

7 NOW, IS HYPOXIA, OR THE EFFECTS OF HYPOXIA, A FUNCTION  
8 OF TIME, AS INFERRED FROM THAT STATEMENT? IN OTHER WORDS,  
9 THE LONGER YOU ARE AT AN ALTITUDE, THE MORE HYPOXIA; IS  
10 THAT CORRECT?

11 A. IT IS A FUNCTION OF TWO FACTORS RELATED TO  
12 TIME.

13 ONE IS THE SPEED OF GETTING UP THERE --

14 Q. OKAY.

15 A. (CONTINUING) -- WHICH IS, IN ITSELF, AN INSULT,  
16 AS WELL AS THE TIME THAT YOU ARE AT ALTITUDE. THAT IS  
17 CORRECT.

18 Q. AND THE OTHER ONE IS THE TIME YOU ARE THERE;  
19 IS THAT CORRECT, SIR?

20 A. I BEG YOUR PARDON?

21 Q. THE OTHER IS THE TIME THE PERSON, OR PERSONS,  
22 ARE AT THE ALTITUDE?

23 A. THAT IS JUST WHAT I SAID.

24 Q. ALL RIGHT.

25 NOW, WITH RESPECT TO THE FACTOR OF TIME, IN THIS

1 ACCIDENT, WHAT ASSUMPTIONS OR EVIDENCE DID YOU USE IN  
2 FORMING YOUR OPINION AS TO THE TIME THE AIRCRAFT, AFTER  
3 THE DECOMPRESSION, LEFT 23,400 FEET, AND DESCENDED TO  
4 LOWER ALTITUDES?

5 IN OTHER WORDS, DID YOU CONSIDER TIME AT ALTITUDE,  
6 AND TIME TO, SAY, AN ALTITUDE OF, SAY, 10,000 FEET?

7 A. TO A DEGREE, YES.

8 Q. DO YOU RECALL HOW MANY MINUTES ELAPSED BETWEEN  
9 THE DECOMPRESSION AND THE TIME THE AIRCRAFT WAS AT 18,000  
10 FEET?

11 A. NO, I DO NOT.

12 Q. DO YOU RECALL HOW MANY MINUTES ELAPSED BETWEEN  
13 THE TIME THE AIRCRAFT WAS AT 23,000 FEET, AND THE TIME  
14 IT REACHED 12,000 FEET?

15 A. I DO NOT.

16 Q. DOCTOR, IN CONNECTION WITH A DESCENT, ASSUME  
17 FOR THE PURPOSES OF THIS QUESTION THAT THE AIRCRAFT DID  
18 START TO DESCEND AT 23,400 FEET, AND WITHIN SEVERAL MINUTES -  
19 AND WE WON'T GET TO THE NUMBER OF MINUTES YET, BECAUSE  
20 THAT IS THE NEXT QUESTION. I JUST WANT THE PRINCIPLE  
21 HERE, SO THE JURY UNDERSTANDS WHAT WE ARE TALKING ABOUT,  
22 BECAUSE I AM NOT SURE I UNDERSTAND IT.

23 AS IT DESCENDS, THE HYPOXIC ATMOSPHERE, IF ONE EXISTS,  
24 BECOMES LESS HYPOXIC; DOES IT NOT?

25 A. THAT IS CORRECT.

1 Q. AND THAT IS BECAUSE, AS WE DESCEND, THE PARTIAL  
2 PRESSURES OF AIR AND THE PERCENTAGE OF OXYGEN THAT GETS  
3 INTO THE BLOOD AT LOWER ALTITUDES INCREASES; IS THAT CORRECT?

4 A. NO.

5 THE PERCENTAGE OF OXYGEN IN THE ATMOSPHERE REMAINS  
6 THE SAME OUT TO SPACE.

7 Q. NO, YOU MISUNDERSTAND MY QUESTION.

8 A. SEVENTY-ONE THOUSAND FEET.

9 Q. THE PERCENTAGE THAT GETS INTO THE BLOODSTREAM.

10 A. YOU MEAN THE PERCENTAGE OF SATURATION OF OXYGEN  
11 IN THE BLOOD STREAM?

12 Q. YES.

13 A. IT DOES INCREASE.

14 Q. OKAY.

15 A. THAT IS CORRECT.

16 Q. SO IF SOMEONE, FOR EXAMPLE, IS IN AN HYPOXIC  
17 SITUATION, AS THE AIRPLANE DESCENDS, THE SYMPTOMS AND  
18 PROBLEMS, IF ANY, CONNECTED WITH IT ARE LIKELY TO DISAPPEAR,  
19 THE LOWER THE ALTITUDE YOU GET; IS THAT CORRECT?

20 A. THAT IS TRUE.

21 Q. ALL RIGHT.

22 AND ARE THERE SOME FIGURES USED IN THE AVIATION WORLD  
23 THAT INDICATE AN ALTITUDE AT WHICH A PERSON CAN CONTINUE  
24 TO FUNCTION WITHOUT -- AND I DON'T MEAN FUNCTION AS A  
25 CREW MEMBER, BUT BE AWAKE AND BE CONSCIOUS -- WITHOUT

1 THE USE OF OXYGEN?

2 A. IT DEPENDS ON HOW RAPIDLY THE INDIVIDUAL WENT  
3 TO ALTITUDE, HOW LONG WOULD HAVE BEEN ALLOWED DURING THIS  
4 DECOMPRESSION FOR COMPENSATING FACTORS TO OCCUR, AND HOW  
5 LONG THE INDIVIDUAL WOULD HAVE BEEN EXPOSED TO ALTITUDE.

6 Q. OKAY.

7 BUT WOULD YOU AGREE WITH ME, FOR EXAMPLE, THAT AT,  
8 SAY, 15,000 FEET, TO PICK A NUMBER --

9 A. YES

10 Q. (CONTINUING) -- MOST INDIVIDUALS COULD SUSTAIN  
11 THEMSELVES AND BE AWAKE FOR MANY, MANY MINUTES, WITHOUT  
12 THE USE OF OXYGEN, AND WITHOUT ANY DAMAGE TO THEM?

13 A. MOST INDIVIDUALS, YES.

14 Q. OKAY.

15 MR. DUBUC: EXCUSE ME, YOUR HONOR.

16 BY MR. DUBUC:

17 Q. DOCTOR, I AM GOING TO SHOW YOU WHAT HAS BEEN  
18 MARKED FOR IDENTIFICATION AS D-1215, AND I ASK YOU IF YOU  
19 HAVE SEEN THAT, OR SOMETHING LIKE THAT, COPIES OF THAT,  
20 BEFORE?

21 A. I HAVE SEEN THE DATA IN RAW FORM, RATHER THAN  
22 HAVING BEEN PLACED ON A CURVE.

23 Q. WELL, I WANT TO ASK YOU TO ASSUME, FOR THE  
24 PURPOSES OF THIS QUESTION -- I AM USING THIS FOR A REFERENCE  
25 POINT, SO WE BOTH HAVE SOMETHING OF THE DATA.

1 THE COURT: IS THIS AN IDENTIFIED EXHIBIT?

2 MR. DUBUC: YES, IT IS, YOUR HONOR.

3 THE COURT: WHY DO YOU NOT TELL US, SO WE WILL  
4 ALL KNOW?

5 MR. DUBUC: IT IS D-1215. I AM SORRY, YOUR  
6 HONOR. I THOUGHT I MENTIONED IT.

7 BY MR. DUBUC:

8 Q. JUST LOOKING AT THIS, DOCTOR, FOR THE PURPOSES  
9 OF THIS QUESTION, WOULD YOU AGREE WITH ME -- AND ASSUME  
10 THAT THIS EXHIBIT REPRESENTS THE TIMES IN ALTITUDE TAKEN  
11 FROM MADAR DATA AND OTHER DATA AVAILABLE ON THIS ACCIDENT,  
12 AND THAT THEY ARE ACCURATE; OKAY?

13 A. YES.

14 Q. OKAY.

15 AND WOULD YOU AGREE WITH ME, IN LOOKING AT THIS DATA,  
16 THAT IT WOULD APPEAR, ASSUMING THAT IT IS CORRECT, THAT  
17 THIS AIRCRAFT WAS AT AN ALTITUDE OF APPROXIMATELY 15,000  
18 FEET IN APPROXIMATELY FIVE MINUTES?

19 A. YES.

20 Q. ALL RIGHT.

21 NOW, BASED ON YOUR KNOWLEDGE, WOULD YOU AGREE THAT  
22 MOST PEOPLE IN THIS SITUATION WOULD HAVE A TIME OF CONSCIOUS-  
23 NESS AT THE ALTITUDE OF, LET'S SAY, 23,000 FEET OF APPROXIMATELY  
24 TWO MINUTES, IF THE AIRPLANE DIDN'T DESCEND AT ALL?

25 A. WELL, SIR, YOU WOULD HAVE TO CLARIFY FOR ME

1 HOW QUICKLY THAT DECOMPRESSION OCCURRED TO GET UP THERE  
2 AND THE CIRCUMSTANCES; AND ARE YOU DISCUSSING ADULTS,  
3 JUVENILES --

4 Q. WELL, LET'S START WITH ADULTS.

5 A. (CONTINUING) -- OR INFANTS?

6 Q. LET'S START WITH ADULTS. .

7 A. OKAY. WELL-DEVELOPED, HEALTHY ADULTS COULD  
8 HAVE A TIME OF USEFUL CONSCIOUSNESS IN THE RANGE THAT  
9 YOU ARE STATING.

10 Q. TWO MINUTES AT 23,000 FEET?

11 A. TWO MINUTES, POSSIBLY LONGER.

12 Q. OKAY.

13 A. AS YOU KNOW, THERE IS A GREAT DEAL OF INDIVIDUAL  
14 VARIATION AMONG PEOPLE.

15 Q. ALL RIGHT.

16 THERE IS A VARIATION; ISN'T THERE?

17 A. A MARKED VARIATION BETWEEN PEOPLE AT THIS ALTITUDE.

18 Q. SOME PEOPLE MIGHT BE AFFECTED; SOME MIGHT NOT?

19 A. WELL, I AM SURE EVERYONE IS AFFECTED.

20 Q. I MEAN AFFECTED PERMANENTLY. IN FACT, SOME  
21 MIGHT NOT EVEN BE UNCONSCIOUS, AND SOME MIGHT BE DROWSY,  
22 FOR EXAMPLE?

23 A. OVER WHAT PERIOD OF TIME?

24 Q. WELL, LET'S TAKE AN ADULT AT 23,000 FEET.  
25 WHAT WOULD YOU SAY WOULD BE THE LENGTH OF TIME FOR AN



1 ADULT AT 23,000 FEET, IF HE STAYED THERE?

2 THE COURT: FOR WHAT?

3 BY MR. DUBUC:

4 Q. AS TO THE TIME HE WOULD REMAIN CONSCIOUS?

5 A. WHAT IS YOUR DEFINITION OF "CONSCIOUSNESS,"  
6 SIR?

7 Q. AWAKE.

8 A. AWAKE?

9 Q. YES.

10 A. ABLE TO RESPOND?

11 Q. ABLE TO TALK, EVEN; ABLE TO FOLLOW DIRECTIONS.

12 A. ON THE AVERAGE, I WOULD SAY IN THE AREA YOU  
13 HAVE MENTIONED.

14 Q. TWO MINUTES?

15 A. POSSIBLY LONGER.

16 Q. OKAY.

17 NOW, IF WE GO DOWN TO 20,000 FEET, AN INDIVIDUAL  
18 COULD REMAIN WITHOUT OXYGEN AND WITHOUT SUBSTANTIAL EFFECTS  
19 FOR A LONGER PERIOD; COULD HE NOT?

20 A. YES.

21 Q. HOW LONG WOULD YOU SAY?

22 A. AT THIS LEVEL THERE ARE SUCH MARKED INDIVIDUAL  
23 VARIATIONS THAT A GREAT DEAL, AGAIN, HAS TO RELATE TO  
24 THE TIME OF THE DECOMPRESSION, ITSELF, INITIALLY, AND  
25 THE RATE OF DESCENT, THE AVAILABILITY OF OXYGEN TO THE

1 BODY TISSUES, AND SO ON.

2 Q. ALL RIGHT.

3 A. AND I CAN'T STATE THAT FIGURE. AS YOU KNOW,  
4 MOST DECOMPRESSIONS THAT HAVE BEEN ACCOMPLISHED, AND DATA  
5 STATED, ARE RATHER SLOW DECOMPRESSIONS TO ALTITUDE; AND,  
6 IN MANY CASES, WITH PRE-EXISTING OXYGEN.

7 Q. DOCTOR, YOU ARE FAMILIAR WITH THE PHYSIOLOGICAL  
8 TRAINING DOCUMENT PUBLISHED BY THE FEDERAL AVIATION ADMINISTRA-  
9 TION; ARE YOU NOT, SIR?

10 A. YES.

11 Q. TAKE A LOOK AT THIS, JUST TO BE SURE WE ARE  
12 TALKING ABOUT THE SAME ONE.

13 I AM GOING TO DIRECT YOUR ATTENTION TO PAGE 10, WHICH  
14 IS IN HERE; BUT, IF YOU WANT TO LOOK AT IT FOR JUST A  
15 SECOND, GO AHEAD, DOCTOR. I THINK YOU HAVE SEEN THAT  
16 BEFORE AT A DEPOSITION, OR SOMETHING.

17 WHY DON'T YOU TAKE A LOOK?

18 A. ALL RIGHT.

19 Q. HAVE YOU LOOKED AT THAT, DOCTOR?

20 A. PARDON?

21 Q. HAVE YOU HAD A CHANCE TO LOOK AT IT?

22 A. YES. I AM QUITE FAMILIAR WITH IT --

23 Q. ALL RIGHT.

24 A. (CONTINUING) -- BECAUSE IT CONTAINS SOME WORDS  
25 THAT I REQUESTED BE PLACED IN THIS REVISION OF THE DOCUMENT.

1 Q. OKAY.

2 AND WHEN WAS THIS REVISED, IN 1980?

3 A. YES. THIS VERSION WAS IN PROCESS WHEN I WAS  
4 STILL WITH THE FAA.

5 Q. BUT THE FINAL PUBLICATION WAS AFTER YOU WENT  
6 TO THE CLEVELAND CLINIC; WAS IT NOT, SIR?

7 A. YES. I LOOKED AT THE GALLEYS BEFORE IT WENT  
8 TO PRESS.

9 Q. NOW, THEY HAVE SOME FIGURES HERE WHICH ARE  
10 BASED, I REALIZE, ON CIRCUMSTANCES WHERE THE INDIVIDUALS  
11 WHO WERE IN THE DECOMPRESSION ARE ON OXYGEN BEFORE THE  
12 DECOMPRESSION; ISN'T THAT CORRECT?

13 A. ABSOLUTELY.

14 Q. ALL RIGHT.

15 A. YES.

16 Q. NOW, ARE YOU FAMILIAR WITH THE LUFT CURVE?

17 A. YES.

18 Q. IS RANDEL'S AEROSPACE MEDICINE AN AUTHORITY  
19 IN THIS FIELD?

20 A. IT IS AN AUTHORITATIVE TEXT OF A COMPOSITE  
21 NUMBER OF PAPERS.

22 Q. RIGHT.

23 A. CHAPTERS.

24 Q. AND YOU ARE FAMILIAR WITH -- ARE YOU FAMILIAR  
25 WITH THE CHAPTER IN THERE ON HYPOXIA?

1 A. QUITE FAMILIAR, YES.

2 Q. AND THE SECTION THAT DEALS WITH THE LUFT CURVE?

3 A. YES.

4 Q. THE LUFT CURVE IS A PLOTTING, IS IT NOT, OF  
5 VARIOUS ALTITUDES AND TIMES FOR MEASURING OR DOCUMENTING  
6 WHAT HAPPENS, SO FAR AS HYPOXIA IS CONCERNED, AT VARIOUS  
7 ATLTTITUDES OVER VARIOUS TIMES UNDER THREE CIRCUMSTANCES:

8 ONE, IF THEY ARE ON OXYGEN BEFORE THE DECOMPRESSION?

9 A. YES.

10 Q. TWO, IF THEY ARE NOT ON OXYGEN BEFORE THE DECOMPRES-  
11 SION, AND SO ON; ISN'T THAT TRUE?

12 A. THAT'S CORRECT.

13 Q. NOW, WHAT I AM PARTICULARLY<sup>REFERRING</sup>/TO IS IN THE TEXTBOOK,  
14 RANDEL'S AEROSPACE MEDICINE, WHICH WE HAVE JUST MENTIONED,  
15 AND WHAT I WOULD LIKE YOU TO LOOK AT IS ON PAGE 72. I  
16 BELIEVE YOU HAVE SEEN THIS BEFORE?

17 A. YES.

18 Q. IS THAT CORRECT, SIR?

19 A. YES. IN FACT, I MODIFIED THIS AND CORRECTED  
20 IT AND PUBLISHED IT IN MY CLINICAL SPACE MEDICINE.

21 DR. LUFT AND I LOOKED AT THE RAW DATA THAT WENT  
22 INTO THIS, WHICH COMES FROM A PUBLICATION BY BLOCKLEY  
23 AND HANIFAN, WHICH HE EARLIER CITED IN HIS REFERENCE 50,  
24 WHICH HE MENTIONS HERE.

25 Q. ALL RIGHT. NOW, THAT CURVE SHOWS TWO LINES;

1 DOESN'T IT? IT SHOWS ONE WHICH CORRESPONDS TO THE CIRCUMSTANCE  
2 IN THIS FAA DOCUMENT; AND, THAT IS, IF SOMEBODY IS BREATHING  
3 OXYGEN, AND YOU HAVE A DECOMPRESSION AT A CERTAIN ALTITUDE,  
4 THERE IS A CERTAIN AMOUNT OF TIME OF CONSCIOUSNESS IF  
5 YOU TAKE THE OXYGEN AWAY.

6 IS THAT CORRECT?

7 A. THAT'S TRUE.

8 Q. OF COURSE, THERE IS ONE LINE THERE: IF YOU  
9 ARE BREATHING OXYGEN AT ALTITUDES UP TO, MAYBE, 45,000  
10 OR 50,000 FEET, YOU CAN BREATHE OXYGEN AND JUST STAY THERE.

11 ISN'T THAT CORRECT?

12 A. YES.

13 Q. IF YOU TAKE THE OXYGEN AWAY, THEN YOU HAVE  
14 TO DESCEND IN ORDER TO REMAIN CONSCIOUS AND TO AVOID ANY  
15 PROBLEMS; IS THAT CORRECT?

16 A. THAT IS CORRECT.

17 Q. OKAY..

18 AND THEN THERE IS PART OF THIS CURVE THAT PLOTS THE  
19 TIMES AND THE ALTITUDES FOR PEOPLE WHO WERE NOT BREATHING  
20 OXYGEN AT THE TIME OF DECOMPRESSION; IS THAT CORRECT?

21 A. YES.

22 Q. IN THE CHART, I AM JUST TALKING ABOUT.

23 A. YES.

24 Q. ALL RIGHT.

25 NOW, ISN'T THERE A WAY TO CORRELATE, FOR EXAMPLE,

1 BY LOOKING AT A LUFT CHART, SUCH AS THE ONE YOU ARE LOOKING  
2 AT, A FACTOR BETWEEN THE LINE SHOWING WHAT HAPPENS IF  
3 YOU ARE BREATHING OXYGEN BEFORE, AS INDICATED IN THE FAA  
4 DOCUMENT, AND WHAT HAPPENS IF YOU ARE NOT BREATHING OXYGEN,  
5 TO GET A FACTOR THAT MIGHT BE APPLIED, LET'S SAY, TO THE  
6 FIGURES IN THE FAA DOCUMENT?

7 A. WELL, THE GREATEST PROBLEM, MR. DUBUC --

8 Q. DO YOU UNDERSTAND WHAT I MEAN? I AM NOT TALKING  
9 ABOUT A PROBLEM. THE QUESTION IS JUST: IS THERE A  
10 WAY TO APPLY YOUR SCIENCE TO THIS KIND OF A CURVE AND  
11 GET A FACTOR?

12 WHEN I SAY "A FACTOR," I AM TALKING ABOUT A MULTIPLE  
13 AS A FRACTION OF THE TIME OUTLINED IN THE FAA DOCUMENT,  
14 SO THAT YOU CAN SAY:

15 THIS IS THE TIME IF YOU ARE BREATHING OXYGEN. I  
16 TAKE THIS FACTOR. AND THIS WOULD BE THE TIME IF YOU  
17 ARE NOT BREATHING OXYGEN.

18 A. I WISH THERE WAS.

19 Q. YOU DON'T KNOW HOW TO DO THAT?

20 A. NO. AND I DON'T THINK ANYONE ELSE DOES, EITHER.

21 Q. ALL RIGHT, DOCTOR.

22 JUST SO THE JURY UNDERSTANDS IT, DOES THAT FAA DOCUMENT  
23 INDICATE THAT PEOPLE BREATHING OXYGEN BEFORE A DECOMPRESSION,  
24 AND IF THE OXYGEN IS TAKEN AWAY, MOST PEOPLE CAN STAY  
25 AT 20,000 FEET FOR 30 MINUTES. IS THAT CORRECT?

1 A. NO. I AM AFRAID YOU HAVE MISINTERPRETED THAT  
2 STATEMENT.

3 THIS IS BASED ON AN INTERRUPTION OF OXYGEN WHILE  
4 AT ALTITUDE, RATHER THAN BEING DECOMPRESSED.

5 Q. OKAY. LET'S PUT IT THAT WAY.

6 A. OKAY.

7 Q. IF YOU INTERRUPT OXYGEN AT ALTITUDE AND YOU  
8 TAKE THE OXYGEN AWAY --

9 A. RIGHT.

10 Q. THAT IS WHAT HAPPENS IN A DECOMPRESSION WHEN  
11 A DOOR --

12 A. NO, NOT IN ANY WAY.

13 Q. DOCTOR, WHEN WE EXPOSE THE OUTSIDE OF THE AIRPLANE  
14 TO THE AIR -- IN THIS CASE, THE DOOR CAME OFF, SO THE  
15 AIR COMES IN; IS THAT CORRECT?

16 A. ONE-HUNDRED-PERCENT-OXYGEN AIR, OR AIR?

17 Q. WELL, THIS PLANE --

18 A. BECAUSE WHEN THE INDIVIDUAL --

19 Q. DOCTOR, THIS AIRPLANE WAS AT 23,400 FEET; WAS  
20 IT NOT?

21 A. RIGHT.

22 Q. NOW, IN FORMING YOUR OPINION, DID YOU ASSUME  
23 THAT THE DOOR CAME OFF; AND, THEREFORE, THE PRESSUE INSIDE  
24 THE AIRPLANE AND THE PRESSURE OUTSIDE THE AIRPLANE WERE  
25 EQUALIZED; AND, THEREFORE, THE OXYGEN CONTENT WAS DIFFERENT?

1 IS THAT CORRECT?

2 A. THE OXYGEN CONTENT OF THE ATMOSPHERE, PERCENTAGE-  
3 WISE, IS THE SAME OUT TO SPACE. IT IS THE PRESSURE OF  
4 OXYGEN IN THE AIR, 21 PERCENT OXYGEN IN THE AIR; AND THAT  
5 REPRESENTS A PRESSURE.

6 Q. I UNDERSTAND.

7 A. DEPENDING ON TOTAL PRESSURE.

8 Q. ALL RIGHT.

9 AND -- I GUESS MY QUESTION WAS NOT WELL FRAMED. WHAT  
10 I MEANT TO ASK YOU WAS:

11 IF A DOOR LIKE THIS COMES OFF AND WE HAVE INSIDE  
12 AND OUTSIDE AIR EQUALIZED, THE PERCENTAGE OF OXYGEN REMAINS  
13 THE SAME, BUT THE CONTENT, SO FAR AS THE PEOPLE INSIDE  
14 ARE CONCERNED, THE CONTENT IN THEIR BLOOD, IS LOWER. IS  
15 THAT BASICALLY WHAT HAPPENS?

16 A. THAT IS CORRECT.

17 Q. OKAY.

18 SO, IN EFFECT, WHAT WE ARE DOING IS TO PARTIALLY --  
19 PARTIALLY -- DO WHAT IS IN THIS FAA DOCUMENT; IS IT NOT?

20 A. NO, SIR, I AM AFRAID NOT.

21 Q. YOU DO NOT AGREE WITH THAT?

22 A. NO, I DON'T.

23 Q. OKAY.

24 NOW, YOU DID A COMPUTATION, I BELIEVE, IN A DEPOSITION  
25 WITH RESPECT TO THIS HYPOXIA ELEMENT OF YOUR OPINION; IS



1 THAT CORRECT?

2 A. I MADE A COMPUTATION WITH RESPECT TO CERTAIN  
3 CIRCUMSTANCES INVOLVING THE HYPOXIA.

4 Q. AND, AS I RECALL, THE ASSUMPTIONS IN THAT COMPUTATION  
5 DID NOT TAKE INTO CONSIDERATION CERTAIN FACTORS, IS THAT  
6 CORRECT, ONE OF THEM BEING A FACTOR FOR HYPERVENTILATION?  
7 IS THAT CORRECT?

8 YOURS WAS A WORST-CASE COMPUTATION?

9 A. IT DID NOT TAKE INTO EFFECT AN INCREASE IN  
10 BREATHING AS A RESULT OF BEING EXPOSED TO HYPOXIA.

11 Q. OKAY.

12 NOW, THE REASON -- WITHDRAWN.

13 ONE OF THE COMPENSATING FACTORS IN HUMAN BEINGS EXPOSED  
14 TO HYPOXIA IS, IN FACT, THAT THEY AUTOMATICALLY BREATHE  
15 FASTER, AND THAT HELPS TO COMPENSATE FOR THE SITUATION;  
16 IS THAT NOT TRUE?

17 A. IT DOES.

18 Q. I AM SAYING THIS FAIRLY SIMPLY, AND YOU CORRECT  
19 ME IF I AM WRONG.

20 A. YES.

21 Q. NOW, INDIVIDUALS, INCLUDING CHILDREN, HYPER-  
22 VENTILATE INVOLUNTARILY; DO THEY NOT?

23 A. YES.

24 Q. AND, GENERALLY, CHILDREN WITHSTAND HYPOXIA  
25 BETTER THAN ADULTS; DO THEY NOT?

1 A. I THINK YOU WOULD HAVE TO REFER TO THE CIRCUMSTANCES  
2 UNDER THE EXPOSURE.

3 IF WE ARE REFERRING TO AN OPERATING ROOM OR CHILDREN  
4 SEATED IN AN AIRPLANE, EXPOSED TO A SUDDEN DECOMPRESSION,  
5 I DON'T BELIEVE WE CAN DRAW ANY CONCLUSIONS AS TO WHETHER  
6 OR NOT CHILDREN, LET'S SAY, UNDER THE CIRCUMSTANCES THAT  
7 WE ARE TALKING ABOUT IN THIS CASE, WOULD HAVE TOLERATED  
8 IT ANY BETTER THAN ADULTS.

9 Q. DOCTOR --

10 A. BUT, CERTAINLY, WITH AN IMMATURE BRAIN, AND  
11 BEING EXPOSED TO HYPOXIA, ONE WOULD EXPECT THAT THERE  
12 WOULD BE TWO ENTIRELY DIFFERENT CIRCUMSTANCES.

13 Q. DOCTOR, IN CONNECTION WITH YOUR CONSULTATIONS  
14 IN THIS CASE, HAVE YOU HAD OCCASION TO MEET DR. MARIANNE  
15 SCHUELEIN?

16 A. I BELIEVE I --

17 Q. SHE IS ONE OF THE EXPERTS FOR THE PLAINTIFF.

18 A. (CONTINUING) -- JUST MET HER ONLY SOCIALLY.

19 Q. ALL RIGHT.

20 AND WHEN YOU MET HER, WERE YOU INTRODUCED TO YOU,  
21 AND WAS SHE IDENTIFIED AS THE PEDIATRIC NEUROLOGIST?

22 A. SHE HAD BEEN PREVIOUSLY IDENTIFIED AS SUCH,  
23 SIR, AS PART OF A CONFERENCE THAT WAS HAD BY THE PARTIES.

24 Q. DO YOU HAVE ANY SPECIAL -- ANY CERTIFICATIONS  
25 OR SPECIALTIES IN PEDIATRICS?

1 A. NO, I DO NOT.

2 Q. WOULD YOU DEFER TO DR. SCHUELEIN'S OPINION  
3 WITH RESPECT TO WHETHER CHILDREN TOLERATE HYPOXIA BETTER  
4 THAN ADULTS?

5 A. IN WHAT CIRCUMSTANCES, SIR?

6 Q. I GUESS THESE CIRCUMSTANCES, THE CIRCUMSTANCES  
7 OF THIS CASE.

8 MR. MC MANUS: I WOULD OBJECT TO THE FORM  
9 OF THE QUESTION, IF HE IS NOT GOING TO BE MORE SPECIFIC.

10 THE COURT: THE OBJECTION IS OVERRULED.

11 BY MR. DUBUC:

12 Q. YES, THESE CIRCUMSTANCES.

13 THE COURT: I ASSUME THIS IS JUST PRELIMINARY.

14 MR. DUBUC: IT IS. THANK YOU, YOUR HONOR.

15 THE WITNESS: I THINK SHE WOULD HAVE TO QUALIFY  
16 HER OPINION TO ME, PARTICULARLY IN LIGHT OF THE FACT  
17 THAT THERE IS JUST NO SUPPORTING DOCUMENTATION FOR THE  
18 CIRCUMSTANCES IN THIS CASE, FROM THE SCIENTIFIC LITERATURE.

19 BUT I WOULD AGREE WITH HER THAT INFANTS AT  
20 CERTAIN AGES APPEAR TO TOLERATE HYPOXIA BETTER, PARTICULARLY  
21 IN THE PERIOD JUST AFTER BIRTH.

22 BY MR. DUBUC:

23 Q. OKAY.

24 NOW, DOCTOR, WITH RESPECT TO HYPOXIA, ARE THERE SOME  
25 OUTWARD SIGNS OR SYMPTOMS, OR SOMETHING OF THAT NATURE,

1 THAT ARE OBSERVABLE BY, SAY, A TRAINED OBSERVER, IN AN  
2 AIRPLANE OR AN AIRPLANE SITUATION?

3 A. YES.

4 Q. WHAT WOULD THOSE BE?

5 A. ONE OF THE SIGNS WOULD BE A DEGREE OF INCOORDINATION,  
6 INCOHERENCE, INABILITY TO ACCOMPLISH PURPOSEFUL MOVEMENTS.  
7 THE SKIN BECOMES PALE OR ACTUALLY CHANGE COLOR TO MORE  
8 OF A BLUE TONE, A CONDITION CALLED CYANOSIS, DUE TO THE  
9 LEVEL OF OXYGEN IN THE BLOOD.

10 THE INDIVIDUAL MAY MAKE SOME MOVEMENTS WHICH ARE  
11 QUITE INAPPROPRIATE, DOING SILLY THINGS, ALMOST AS IF  
12 THEY HAVE RECEIVED NITROUS OXIDE GAS; OR THEY MAY BECOME  
13 BELLIGERENT, A LESS COMMON EFFECT, AND THEN, FINALLY,  
14 LOSE CONSCIOUSNESS.

15 Q. DOCTOR, YOU LISTED THE THINGS THAT YOU HAD  
16 REVIEWED BEFORE GIVING YOUR OPINION.

17 DID YOU REVIEW THE TESTIMONY, THE DEPOSITION TESTIMONY,  
18 OR THE STATEMENT, EITHER ONE, OF NURSE AUNE, ONE OF THE  
19 NURSES IN THE TROOP COMPARTMENT?

20 A. I BELIEVE THAT THERE WAS A SWORN STATEMENT  
21 IN THE COLLATERAL REPORT THAT I MAY HAVE REVIEWED.

22 Q. DO YOU RECALL, IN READING THAT, THAT NURSE  
23 AUNE WAS WORKING ON SOME CREWMAN WHO HAD HURT HIS LEG  
24 CLIMBING UP THE LADDER DURING THE DECOMPRESSION; AND THAT  
25 SHE DID NOT USE ANY OXYGEN?

1 A. I DO NOT RECALL THAT SPECIFICALLY, SIR.

2 Q. DO YOU RECALL READING THE DEPOSITION OR STATEMENT  
3 OF DR. STARK, A 58-YEAR-OLD PEDIATRICIAN, WHO WAS IN THE  
4 TROOP COMPARTMENT?

5 A. I RECALL READING HIS STATEMENT.

6 Q. ALL RIGHT.

7 AND DO YOU RECALL ANYTHING HE DESCRIBED, OR ANYTHING  
8 HIS DEPOSITION OR SWORN TESTIMONY, THAT INDICATED ANY OF THE  
9 SIGNS THAT YOU HAVE JUST DESCRIBED?

10 A. I DO NOT RECALL SPECIFICALLY ANYTHING HE SAID.  
11 IT HAS BEEN SOME TIME AGO SINCE I REVIEWED THE COLLATERAL  
12 REPORT.

13 Q. AND DO YOU RECALL ANY SUCH SIGNS WITH RESPECT  
14 TO NURSE AUNE?

15 A. NO. BUT I RECALL SIGNS BY A NUMBER OF OTHER  
16 PEOPLE.

17 Q. WELL, ALL RIGHT. I AM JUST TALKING ABOUT NURSE  
18 AUNE.

19 THERE HAS BEEN DESCRIBED -- I BELIEVE MISS LIEVERMANN  
20 HAS INDICATED THAT ONE CHILD BECAME BLUE, AND SHE GAVE  
21 HIM OXYGEN, AND APPARENTLY IT WORKED.

22 IS THAT ONE OF THE ONES YOU ARE REFERRING TO?

23 A. THAT MAY BE ONE I AM REFERRING TO. I BELIEVE  
24 THERE WERE A NUMBER OF GENERAL STATEMENTS MADE ABOUT THE  
25 CHILDREN BECOMING QUIET.

1 Q. RIGHT.

2 A. YES.

3 Q. ALL RIGHT.

4 IN FACT, SOME WERE ASLEEP; WERE THEY NOT?

5 A. AT THE TIME OF DECOMPRESSION?

6 Q. YES.

7 SOME WERE ASLEEP AT THE TIME OF DECOMPRESSION, AND  
8 SOME WERE ASLEEP AFTERWARDS; WERE THEY NOT?

9 A. I DON'T KNOW. I WASN'T THERE.

10 Q. NO, I REALIZE THAT, DOCTOR. BUT YOU ARE GIVING  
11 YOUR OPINION, I ASSUME, BASED ON WHAT YOU READ. AND  
12 MY QUESTION PERTAINS -- I AM SORRY IF IT WAS MISUNDERSTOOD,  
13 BUT MY QUESTION PERTAINS TO WHAT YOU READ. YOU HAVE REVIEWED  
14 DOCUMENTS.

15 A. IT IS MY UNDERSTANDING THAT SOME CHILDREN WERE  
16 ASLEEP WHEN THE AIRCRAFT DECOMPRESSED, BUT I DON'T KNOW  
17 ABOUT AFTER THE DECOMPRESSION.

18 Q. AND, DOCTOR, BETWEEN CONSCIOUSNESS -- WITHDRAWN.  
19 SOMEONE COULD BE ASLEEP WITHOUT BEING UNCONSCIOUS; ISN'T  
20 THAT TRUE?

21 A. I THINK IT DEPENDS ON WHAT YOU DEFINE "UNCONSCIOUSNESS"  
22 AS.

23 Q. WELL, I THINK YOU HAVE DEFINED IT FOR US, DOCTOR.  
24 ISN'T "UNCONSCIOUSNESS" AT THE POINT WHERE NORMAL CEREBRAL  
25 FUNCTIONS EITHER SLOW DOWN OR CEASE? NOT CEASE, BUT SLOW

1 DOWN?

2 A. I BELIEVE I GAVE A DEFINITION AT MY DEPOSITION  
3 OF: A POINT AT WHICH AN INDIVIDUAL DOES NOT REACT EFFECTIVELY  
4 TO SIMULI.

5 Q. OKAY.

6 A. I THINK THAT WOULD PROBABLY BE A MORE ACCURATE  
7 DEPICTION OF THAT.

8 Q. ALL RIGHT.

9 AND THEN THERE IS A PERIOD, EVEN AFTER SOMEONE IS  
10 UNCONSCIOUS, THAT HAS BEEN REFERRED TO A PERIOD OF SAFE  
11 UNCONSCIOUSNESS, DURING WHICH, IN MOST CASES, YOU WOULD  
12 HAVE NO RESIDUAL PROBLEMS AFTER, LET'S SAY, THE AIRPLANE  
13 HAD DESCENDED, OR WHATEVER.

14 IS THAT CORRECT?

15 A. WELL, WE ARE NOW MIXING APPLES AND ORANGES,  
16 IN TERMS OF UNCONSCIOUSNESS REPRESENTING STAGES OF WHAT  
17 WE CALL ANESTHESIA VERSUS AN HYPOXIC EFFECT.

18 "SAFE UNCONSCIOUSNESS" IS A TERM USED ONLY IN AEROSPACE  
19 MEDICINE -- THAT I HAVE SEEN IT -- AND REPRESENTS THE  
20 PERIOD OF TIME DURING WHICH A PERSON COULD BE EFFECTIVELY  
21 UNCONSCIOUS, THAT IS, BEYOND HIS TIME OF USEFUL CONSCIOUSNESS,  
22 AND BE RECOMPRESSED, OR BE GIVEN OXYGEN, AND SUBSEQUENTLY  
23 NOT BE FOUND TO HAVE ANY BRAIN DAMAGE.

24 Q. ALL RIGHT.

25 AND THE FIGURE GENERALLY ACCEPTED AS TO THAT IS

1 FOUR MINUTES; ISN'T IT?

2 YOU CAN BE UNCONSCIOUS, ACTUALLY UNCONSCIOUS, FOR  
3 FOUR MINUTES, AND IN MOST PEOPLE THERE IS NO PROBLEM?

4 A. WELL, THIS IS THE TERM USED IN EMERGENCY DEPARTMENTS  
5 AS IN HAVING A CARDIAC ARREST AND BEING TOTALLY WITHOUT  
6 OXYGEN FOR FOUR MINUTES.

7 UNFORTUNATELY, THAT IS NOT ALWAYS THE CASE.

8 I HAVE SEEN PEOPLE DIE WITHIN A MATTER OF A MINUTE  
9 AND NOT BE -- AND BE RESUSCITATED AND BE IN A COMA FOR  
10 QUITE SOME TIME.

11 A GREAT DEAL HAS TO DO WITH THE MEDICAL CONDITION  
12 OF THE INDIVIDUAL --

13 Q. WELL --

14 A. (CONTINUING) -- AND HOW SOON BLOOD FLOW AND  
15 BLOOD PRESSURE GET BACK UP, AND HOW QUICKLY YOU GET THE  
16 OXYGEN INTO THE TISSUES.

17 Q. WELL, UNDER --

18 A. WE ARE NOT TALKING ABOUT AN EMERGENCY ROOM,  
19 I REALIZE.

20 Q. AGAIN, WITH RESPECT TO CHILDREN, WOULD YOU  
21 DEFER TO DR. SCHUELEIN, WITH RESPECT TO TIMES OF UNCONSCIOUSNESS  
22 DURING WHICH THERE MIGHT NOT BE ANY PERMANENT EFFECT?

23 A. UNDER THE CIRCUMSTANCES SHE IS DESCRIBING,  
24 YES, I WOULD DEFER TO HER.

25 Q. ALL RIGHT. DOCTOR, YOU MENTIONED THAT



1 THIS TIME OF SAFE UNCONSCIOUSNESS, YOU SAID THAT IS ONLY  
2 A TERM USED IN AEROSPACE MEDICINE?

3 A. THAT IS THE ONLY PLACE I HAVE SEEN IT USED.

4 Q. IN FACT, DR. GAUME REFERS TO THAT TERM SPECIFICALLY  
5 IN THE SAME ARTICLE WE WERE REFERRING TO BEFORE, WHICH  
6 WAS IN YOUR PUBLICATION -- I KEEP SAYING "YOUR" -- IN  
7 THE PUBLICATION EDITED BY YOU, RECENT ADVANCES IN AEROSPACE  
8 MEDICINE.

9 IS THAT CORRECT?

10 A. YES.

11 Q. AND HE TALKS IN TERMS OF SEVERAL MINUTES; DOES  
12 HE NOT?

13 A. AGAIN, IT DEPENDS ON WHAT ALTITUDE YOU ARE  
14 AT.

15 Q. WELL, HE IS TALKING ABOUT SEVERAL MINUTES IN  
16 AT THE ALTITUDE OF 23,000, OR BELOW 25,000 FEET; IS THAT  
17 NOT TRUE?

18 A. BASED ON THE DATA THAT HE HAD FOR THE TYPE  
19 OF DECOMPRESSIONS THAT HE WAS REFERRING TO, HE WAS USING  
20 THAT TERM.

21 Q. JUST SO WE UNDERSTAND THIS, IS THIS A FAIR  
22 STATEMENT, JUST ON TERMINOLOGY? WE'VE TALKED ABOUT THE  
23 NUMBERS, BUT, SO FAR AS TIME OF USEFUL CONSCIOUSNESS IN  
24 AN AIRPLANE SITUATION, IT VARIES AT DIFFERENT ALTITUDES.  
25 BUT THAT IS A TIME OF USEFUL CONSCIOUSNESS DURING WHICH

1 PEOPLE CAN DO THINGS: GO AND PERFORM CREW DUTIES, FOR  
2 EXAMPLE, OR MOVE AROUND.

3 IS THAT A FAIR STATEMENT?

4 A. "TIME OF USEFUL CONSCIOUSNESS" IS BROADLY DEFINED  
5 AS THAT TIME PERIOD AFTER DECOMPRESSION INITIATES, DURING  
6 WHICH AN INDIVIDUAL CAN INITIATE A MEASURE WHICH WOULD  
7 BE LIFE-SAVING; THAT IS, PUT AN OXYGEN MASK ON.

8 Q. THINK, TALK, MAKE DECISIONS, AND GO AND DO  
9 SOMETHING -- THAT WOULD BE --

10 A. NO, NOT GO AND DO SOMETHING. TO JUST SIMPLY  
11 PUT AN OXYGEN MASK ON OR PUSH A STICK FORWARD OR ACTIVATE  
12 THE OXYGEN LEVER, CHECKING THE OXYGEN SUPPLY, AND SO ON.

13 Q. OKAY. ALL RIGHT.

14 A. BUT "TO GO DO SOMETHING" --

15 Q. YES. ALL RIGHT.

16 THEN, WOULD IT BE FAIR THAT THERE MIGHT BE A TIME  
17 BETWEEN USEFUL CONSCIOUSNESS AND THE TIME SOMEONE BECAME  
18 UNCONSCIOUS?

19 IN OTHER WORDS, HE CAN NO LONGER DO THINGS, BUT HE  
20 IS STILL CONSCIOUS? JUST SO WE GET THE TERMINOLOGY,  
21 DOCTOR --

22 A. I DON'T BELIEVE THAT THAT AREA, WHICH IS QUITE  
23 GRAY, HAS EVER BEEN DEFINED AS CLEARLY AS "TIME OF USEFUL  
24 CONSCIOUSNESS" AND "TIME OF SAFE UNCONSCIOUSNESS," OR  
25 "CRITICAL REACTION TIME."

1 Q. BUT, THEN, AFTER -- SO THAT YOU SAY IT HASN'T  
2 BEEN DEFINED. OKAY.

3 THEN, THERE IS A PERIOD OF UNCONSCIOUSNESS, DURING  
4 WHICH SOMEONE CAN BE UNCONSCIOUS WITHOUT ANY PROBLEM.

5 WE MENTIONED FOUR MINUTES, AND WE ALSO MENTIONED  
6 DEFERRAL TO DR. SCHUELEIN.

7 BUT ASSUME IT IS FOUR MINUTES; THAT THE TIME OF SAFE  
8 UNCONSCIOUSNESS IS FOUR MINUTES.

9 WHAT WE ARE TALKING ABOUT IS SAFE UNCONSCIOUSNESS.  
10 THAT FOUR MINUTES WOULD BE TIME -- IF YOU ASSUME THE FOUR  
11 MINUTES, AND JUST ASSUME IT FOR THE QUESTION, BECAUSE  
12 I AM TRYING TO DEFINE WHAT --

13 A. I DON'T WANT TO ASSUME FOUR MINUTES.

14 Q. ALL RIGHT. WELL, LET'S ASSUME --

15 A. BASED ON MY EXPERIENCE.

16 Q. WELL, LET'S ASSUME NO MINUTES THEN. LET'S  
17 JUST ASSUME THE TERM --

18 A. "X."

19 Q. (CONTINUING) -- "X." BUT THAT PERTAINS TO  
20 A TIME DURING WHICH SOMEBODY MIGHT BE ACTUALLY UNCONSCIOUS,  
21 WITHOUT ANY RESIDUAL PROBLEMS.

22 IS THAT WHAT WE ARE TALKING ABOUT?

23 A. YES.

24 Q. OKAY.

25 I GATHER, FROM YOUR REFERENCE, THAT YOU DON'T TOTALLY

1 AGREE WITH DR. GAUME'S ARTICLE?

2 A. I NEVER SAID THAT.

3 Q. OH, OKAY.

4 DO YOU AGREE WITH HIS THEORY ON TIME OF SAFE UNCONSCIOUS-  
5 NESS?

6 A. I BELIEVE THE THEORY IS PLAUSIBLE, AND THAT  
7 IS THE TERMINOLOGY I USED BEFORE.

8 Q. HAVE YOU MADE ANY SPECIFIC STUDIES YOURSELF?  
9 I THINK YOU MENTIONED YOU HADN'T DONE ANYTHING IN THE  
10 GRAY AREA.

11 HAVE YOU DONE ANYTHING YOURSELF, SPECIFICALLY ON  
12 THE TIME OF SAFE UNCONSCIOUSNESS, ANY SPECIFIC STUDIES?

13 A. NO. NO, I HAVE NOT.

14 Q. WOULD YOU DEFER TO DR. GAUME ON THAT?

15 A. WELL, DR. GAUME HAS NOT DONE ANY STUDIES, EITHER.  
16 HE HAS BEEN INVOLVED IN ASSEMBLING THE WORLD'S LITERATURE  
17 AND INTERPRETING IT.

18 SO THAT IS NOT REALLY A STUDY, IN MY MIND.

19 Q. ALL RIGHT.

20 YOU WOULDN'T DEFER TO HIM, THEN?

21 A. I BELIEVE DR. GAUME PRESENTED A VERY INTERESTING  
22 CASE BACK IN 1968 FOR REMOVING OXYGEN FROM AIRLINE OVERHEAD  
23 COMPARTMENTS AND FROM BEHIND THE SEATS FOR DOUGLAS AIRCRAFT  
24 COMPANY.

25 Q. ALL RIGHT. NOW, DOCTOR, IN ADDITION TO

1 HYPERVENTILATION -- WITHDRAWN.

2 WAS YOUR ROUGH COMPUTATION THE THEORY THAT IS THE  
3 BASIS FOR YOUR OPINION IN THIS CASE?

4 A. IT WAS --

5 Q. AS TO HYPOXIA?

6 A. HYPOXIA WAS ONE OF THE COMPOSITE OF FACTORS  
7 THAT I CONSIDERED, YES.

8 Q. AND THE COMPUTATION YOU MADE AS TO PARTIAL  
9 PRESSURES OF OXYGEN RELATES TO THAT THEORY OF HYPOXIA;  
10 DOES IT NOT?

11 A. YES.

12 Q. AND YOU HAVE TOLD US THAT ONE FACTOR YOU DID  
13 NOT INCLUDE -- AND I RECOGNIZE THE COMPUTATION WAS A WORST-  
14 CASE COMPUTATION, BUT YOU HAVE ALREADY TOLD US YOU DID  
15 NOT INCLUDE COMPENSATION QUANTIFICATION FOR WHAT EFFECT  
16 INVOLUNTARY FAST-BREATHING, OR HYPERVENTILATION, WOULD  
17 HAVE?

18 A. OR THE FACT THAT THE CHILDREN WERE SLEEPING.

19 Q. DID YOU INCLUDE ANY FACTOR FOR WHAT HAS BEEN  
20 SOMETIMES REFERRED TO AS A PREFERENCE FOR THE BRAIN, OR  
21 SHUNTING?

22 IN OTHER WORDS, IF THE BRAIN NEEDS OXYGEN, THE ARTERIES  
23 CONTRACT IN OTHER AREAS OF THE BODY, AND A PREFERENCE  
24 IS GIVEN TO THE BRAIN?

25 A. I DON'T THINK THERE IS WHAT WE CALL "SHUNTING,"

1 SIR.

2 I BELIEVE IT IS MORE OF AN INCREASE JUST SIMPLY IN  
3 THE BRAIN BLOOD FLOW.

4 Q. ALL RIGHT.

5 A. CERTAINLY, THE CARDIAC OUTPUT INCREASES TO COMPENSATE  
6 FOR THAT.

7 WE DO HAVE A CONSTRICTION OF THE VEINS IN THE LUNGS  
8 IN RESPONSE TO HYPOXIA.

9 THE INITIAL COMPUTATION, AS I TOLD YOU, WAS BASED  
10 SIMPLY ON WHAT HAPPENED OVER A POINT -- IMMEDIATELY AFTER  
11 A POINT-THREE OF A SECOND.

12 Q. I UNDERSTAND THAT.

13 A. AND I WANTED TO FIND OUT HOW HARD, IF YOU WILL  
14 EXCUSE THE TERM, A WHACK OF LACK OF OXYGEN THE INFANTS'  
15 BRAINS SUSTAINED --

16 Q. ALL RIGHT.

17 A. (CONTINUING) -- IN THE IMMEDIATE PERIOD AFTER  
18 DECOMPRESSION. SO --

19 Q. MY QUESTION, SIR -- THE QUESTION --

20 THE COURT: LET HIM FINISH HIS ANSWER.

21 MR. DUBUC: YOUR HONOR, THE QUESTION WAS WHETHER  
22 HE CONSIDERED THE FACTOR, AND WE ARE INTO ABOUT THE THIRD  
23 DIMENSION --

24 THE COURT: LET HIM FINISH HIS SENTENCE..

25 MR. DUBUC: ALL RIGHT.

1 BY MR. DUBUC:

2 Q. GO AHEAD. FINISH YOUR ANSWER.

3 A. ALL OTHER FACTORS BEING EQUAL, I DID NOT CONSIDER  
4 ADDING IN SUCH ELEMENTS AS AN INCREASE IN BODY TEMPERATURE,  
5 WHICH COULD HAVE OCCURRED AS A RESULT OF THE PROLONGED  
6 EXPOSURE TO HIGH ATMOSPHERIC TEMPERATURES IN BEING BUNDLED  
7 ON THE AIRPLANE; AND I DIDN'T CONSIDER THE FACT THAT SOME  
8 OF THE CHILDREN WERE SLEEPING AT THE TIME OF THE DECOMPRESSION  
9 AND WOULD HAVE HAD A HIGHER CARBON DIOXIDE TENSION IN  
10 THE BLOOD.

11 SO I TOOK JUST WHAT WE WOULD CALL THE AVERAGE CIRCUMSTANCES  
12 FOR AN INDIVIDUAL AT ROOM TEMPERATURE AT 5000 FEET BEING  
13 DECOMPRESSED.

14 Q. AND I THINK YOU TOLD US IN YOUR DEPOSITION  
15 YOU DID NOT CONSIDER WHAT HAS BEEN DESCRIBED IN OTHER  
16 TERMS, BUT WHAT I AM GOING TO DESCRIBE IN AS SIMPLE TERMS  
17 AS POSSIBLE, THE DECREASING GRADIENT ACROSS THE LUNG WALL  
18 AND THE ARTERIAL WALL?

19 THAT CAN BE QUANTIFIED, BUT IN YOUR PARTICULAR COMPUTATION  
20 YOU DIDN'T DO THAT; IS THAT CORRECT?

21 A. THE DIFFERENCE IN --

22 Q. THE QUESTION IS: YOU DID NOT DO THAT?

23 A. I DID NOT DO THAT.

24 Q. ALL RIGHT. THANK YOU.

25 DOCTOR, YOU MENTIONED YOU HAD REVIEWED DR. MORAIN'S

1 AND DR. TURNER'S REPORTS?

2 A. I HAVE READ THEM, YES.

3 Q. DID YOU RELY ON THEM?

4 A. TO A DEGREE, YES, SIR.

5 Q. ALL RIGHT.

6 DOCTOR, YOU LOOKED AT MR. EDWARDS' REPORT?

7 A. I LOOKED AT MR. EDWARDS' REPORT.

8 Q. AND YOU LOOKED AT DR. GAUME'S REPORT?

9 A. YES.

10 Q. IS DR. GAUME ALSO A MEMBER OF THE ASSOCIATION  
11 OF AEROSPACE MEDICINE?

12 A. YES.

13 Q. DO YOU KNOW HIM BY REPUTATION?

14 A. NO. I KNOW HIM AS A FELLOW ASSOCIATION MEMBER.

15 THE COURT: THE QUESTION IS WHETHER YOU KNOW  
16 HIM BY REPUTATION.

17 THE WITNESS: NOT SINGLY BY REPUTATION. HE  
18 IS A NEIGHBOR OF MINE.

19 BY MR. DUBUC:

20 Q. DID YOU READ DR. BERRY'S REPORT?

21 A. YES.

22 Q. CHARLES BERRY?

23 A. YES.

24 Q. HE IS ALSO A MEMBER OF THE AEROSPACE ASSOCIATION  
25 YOU HAVE REFERRED TO?



1 A. YES.

2 Q. IS HE A PAST PRESIDENT?

3 A. YES.

4 Q. DO YOU KNOW HIM BY REPUTATION?

5 A. YES.

6 Q. DOES HE ENJOY A REPUTATION FOR COMPETENCE IN  
7 THE FIELD OF AEROSPACE MEDICINE?

8 A. TO MY UNDERSTANDING, YES.

9 Q. DOES DR. GAUME ENJOY THE SAME REPUTATION?

10 A. YES.

11 Q. DO YOU KNOW -- WITHDRAWN.

12 WHEN YOU READ THEIR REPORTS, DID YOU DISAGREE WITH  
13 THEM, OR DO YOU DISAGREE WITH THEM?

14 A. ON CERTAIN POINTS, YES.

15 Q. DID YOU MAKE ANY INDEPENDENT COMPUTATION OF  
16 ANY OF THE DECELERATION FORCES IN FORMING THE OPINION  
17 YOU GAVE, WHICH, I UNDERSTAND, INCLUDED THAT IN IT?

18 A. I WENT BACK OVER THE CALCULATIONS THAT WERE  
19 DONE BY DR. TURNER, AND THEY APPEARED TO BE PLAUSIBLE.

20 Q. IN READING DR. TURNER'S REPORT, DID YOU NOTE  
21 THAT DR. TURNER RELIED ON DR. MORAIN'S MEASUREMENTS OF  
22 CERTAIN DISTANCES TO FORMULATE HIS COMPUTATIONS AS TO  
23 SLIDE MARKS?

24 MR. MC MANUS: OBJECTION, YOUR HONOR. I  
25 DON'T BELIEVE THAT THAT IS COMPLETELY ACCURATE.

1 THE COURT: WELL, IF IT IS NOT ACCURATE, THE  
2 WITNESS CAN ANSWER "NO."

3 LET ME JUST SAY RIGHT NOW:

4 THE JURY UNDERSTANDS THAT WHEN A LAWYER IS  
5 ASKING A QUESTION, HE IS NOT GIVING TESTIMONY. THE LAWYER  
6 IS NOT TESTIFYING.

7 THE TESTIMONY COMES FROM THE WITNESS.

8 THE WITNESS: WHEN I REVIEWED THE TURNER REPORT,  
9 I HAD AN OPPORTUNITY TO HAVE SOME DATA IN FRONT OF ME.

10 AT THAT TIME I HAD NOT READ THE MORAIN REPORT;  
11 AND, CONSEQUENTLY, I CAN'T GIVE YOU THE ANSWER TO THAT QUESTION,  
12 BECAUSE I DON'T KNOW WHO PUT THE NUMBERS DOWN.

13 BY MR. DUBUC:

14 Q. DID YOU HAVE A CONFERENCE WITH DR. TURNER?

15 A. YES, WE MET ON A WEEKEND.

16 Q. WHERE DID YOU MEET?

17 A. IN THE OFFICES OF LEWIS, WILSON, LEWIS, AND  
18 JONES.

19 Q. ALL RIGHT.

20 AND WAS ANYBODY ELSE, ANY OTHER EXPERT, PRESENT,  
21 CONSULTANT OR EXPERT?

22 A. THERE WAS AN INDIVIDUAL WHOSE NAME I CAN'T  
23 RECALL. I BELIEVE HE WAS AN AERODYNAMICIST OR --

24 Q. AN AERODYNAMICIST?

25 A. I BELIEVE SO.

1 Q. AND YOU DON'T REMEMBER HIS NAME?

2 A. I DON'T REMEMBER HIS NAME.

3 Q. WAS IT DR. MORAIN?

4 A. NO.

5 Q. WAS IT DR. TURNER?

6 A. NO.

7 Q. WAS IT MR. CARROLL?

8 A. NO, IT WAS NOT.

9 Q. YOU DON'T KNOW WHO IT WAS?

10 A. I DO NOT KNOW.

11 THE COURT: HE HAS ALREADY SAID THAT.

12 THE WITNESS: HE WAS A YOUNG CHAP.

13 THE COURT: HE HAS SAID THAT HE DOES NOT KNOW.

14 THE WITNESS: HE RAN THE PROJECTOR AND SHOWED  
15 ME SOME PICTURES AND DID VARIOUS OTHER THINGS, BUT REALLY  
16 DID NOT PARTICIPATE ACTIVELY IN THE CONVERSATION.

17 THE COURT: LET'S DROP THAT, MR. DUBUC. IF  
18 HE SAYS HE DOESN'T KNOW, HE DOESN'T KNOW.

19 MR. DUBUC: YOUR HONOR, THERE IS ONLY ONE QUESTION  
20 ON THAT I WANT TO ASK HIM, IF I MAY?

21 THE COURT: ALL RIGHT. GO AHEAD.

22 BY MR. DUBUC:

23 Q. WERE THERE ANY FACTS THAT THIS UNNAMED INDIVIDUAL  
24 GAVE YOU, OR ANY BRIEFING THAT HE GAVE YOU, THAT YOU RELIED  
25 UPON?

1 A. NO.

2 Q. NOW, DID YOU LOOK AT DR. MORAIN'S REPORT, ULTIMATELY?

3 A. YES, I DID.

4 Q. AND DID YOU MAKE ANY INDEPENDENT MEASUREMENTS  
5 OF DISTANCES FROM PHOTOGRAPHS, OR OTHERWISE, WITH RESPECT  
6 TO THE ACCIDENT SCENE?

7 A. AS I MENTIONED BEFORE, I HAD ACCESS TO A WRECKAGE  
8 DIAGRAM. I CORRELATED IT WHEN I READ HIS REPORT.

9 IT WAS, IN ESSENCE, BASED ON HIS COMPUTATIONS.

10 I USED A RULER IN THE LAW OFFICES TO DOUBLE-CHECK  
11 THE TRACKS AND THE MEASUREMENTS THAT HE MADE, AND, CONSEQUENTLY,  
12 I, SUBSEQUENTLY, DID NOT RIGOROUSLY RE-ANALYZE HIS DATA.

13 Q. YOU DID NOT?

14 A. I DID NOT RE-ANALYZE THE DATA, SIR.

15 Q. ALL RIGHT.

16 ASSUME FOR THIS QUESTION THAT IF DR. MORAIN'S BEGINNING  
17 MEASUREMENTS OF CERTAIN ITEMS THAT ARE SET FORTH IN HIS  
18 REPORT THAT YOU HAVE READ WERE NOT CORRECT, SO THAT THEY  
19 WOULD REFLECT DIFFERENT AND LONGER DISTANCES, SO FAR AS  
20 THE TRAVEL OF THE TROOP COMPARTMENT AND THE COCKPIT, WOULD  
21 THAT AFFECT YOUR OPINION AS TO THE MAGNITUDE OR AMOUNT  
22 OF ANY G'S?

23 A. THE MAGNITUDE OR AMOUNT OF G'S, SIR?

24 Q. YES.

25 A. WELL, IT, IN ESSENCE, WOULD NOT. BECAUSE,

1 AS I PREVIOUSLY TESTIFIED, I AM NOT CONCERNED AS MUCH  
2 WITH THE OVERALL AVERAGE OF THE DECELERATION, THE STOPPING  
3 OF THIS AIRCRAFT, AS MUCH AS WITH THE JOLTS THAT OCCURRED.

4 Q. ALL RIGHT.

5 A. AND I PREDICTED THAT THERE WAS THE SEVERE JOLT  
6 INVOLVED IN THIS CRASH, AND SUBSEQUENT INFORMATION HAS  
7 CERTAINLY CONFIRMED THAT.

8 Q. ARE YOU TALKING ABOUT -- WITHDRAWN.

9 ARE YOU REFERRING TO THE SUGGESTION IN DR. MORAIN'S  
10 REPORT THAT THERE WAS AN ELEVATION AT THE END OF THE TRAVEL  
11 OF THE TROOP COMPARTMENT?

12 A. WELL, AT THE TIME THAT THE QUESTION WAS RAISED  
13 AS TO THE STOPPING DISTANCE, I HAD NOT SEEN THE MORAIN  
14 REPORT.

15 AND I WAS SHOWN SOME PICTURES TO DESCRIBE THE LAYOUT  
16 OF THE WRECKAGE, AS WELL AS WHERE THE WRECKAGE STOPPED.

17 AND I RECALL SEEING A COLOR PICTURE IN WHICH I WAS  
18 PARTICULARLY CONCERNED THAT THE AREA OF VEGETATION HAD  
19 NOT BEEN BURNED.

20 AND WHEN THIS HAPPENS, IT MEANS THE FIREBALL WENT  
21 UP AND BOUNCED OFF OF SOMETHING, AND WENT STRAIGHT UP.

22 AND I SAID:

23 BY GOSH, THAT FITS WHAT I HAD SUPPOSED ALL ALONG.  
24 THERE WAS AN ABRUPT STOP HERE.

25 AND, CERTAINLY, THIS RESULTED IN A NUMBER OF INJURIES.

1 THAT WAS THE SEQUENCE OF HOW THIS CAME ABOUT. IN  
2 OTHER WORDS, WE HAD COME INTO THE OFFICE. WE STARTED  
3 TALKING.

4 AND THEY SAID:

5 LOOK AT THESE PICTURES THAT HAVE BEEN FOUND.

6 AND THEN, SUBSEQUENTLY, I WAS FURTHER BRIEFED ON  
7 THE WRECKAGE DIAGRAM IN DETAIL, AND I TOOK THE RULER OUT  
8 AND DID SOME -- WENT OVER TURNER'S COMPUTATIONS WITH HIM,  
9 SIR.

10 Q. WELL, MY QUESTION WAS WITH RESPECT TO AN ELEVATION  
11 AND YOU REFERRED TO AN ABRUPT STOP. WE FINALLY GOT THERE.

12 IS THAT THE BASIS FOR YOUR VIEW THAT THERE MAY HAVE  
13 BEEN AN ABRUPT STOP:

14 THAT YOU THINK, FROM EXAMINING THE ONE PHOTOGRAPH,  
15 YOU SEE AN ELEVATION?

16 A. NO, I EXAMINED SEVERAL PHOTOGRAPHS.

17 Q. AND IS THIS BASED ON YOUR OWN EXAMINATION,  
18 OR --

19 A. YES.

20 Q. (CONTINUING) -- DO YOU RELY ON DR. MORAIN?

21 A. NO, I AM RELYING ON MY OWN OBSERVATION.

22 Q. ALL RIGHT.

23 AND WERE THESE PHOTOGRAPHS -- HOW DID YOU EXAMINE  
24 THEM, BY THE NAKED EYE?

25 A. BY NAKED EYE.

1 Q. DID YOU USE ANY MAGNIFIER?

2 A. I DON'T RECALL WHETHER I DID OR NOT.

3 Q. DID YOU -- ARE YOU FAMILIAR WITH THE USE OF  
4 STEREO-PHOTOGRAPHY TO MEASURE ELEVATIONS IN ACCIDENT INVESTIGA-  
5 TIONS?

6 A. I HAVE USED STEREO-PHOTOGRAPHY FOR OTHER PURPOSES  
7 IN MEDICINE, BUT THIS IS ALSO USED FOR MEASUREMENT, SIR.

8 Q. ALL RIGHT.

9 AND YOU DID NOT USE ANYTHING OF THAT KIND IN DRAWING  
10 YOUR --

11 A. NO.

12 Q. (CONTINUING) -- CONCLUSIONS?

13 A. NO.

14 Q. SO, AS I UNDERSTAND IT, YOU BASE YOUR OPINION  
15 AS TO ELEVATION ON YOUR OWN OBSERVATIONS, AND NOT ON  
16 DR. MORAIN?

17 A. IN ESSENCE, YES.

18 Q. OKAY.

19 HOW MANY PHOTOGRAPHS DID YOU LOOK AT?

20 A. HUNDREDS.

21 Q. ALL RIGHT.

22 HOW MUCH ELEVATION DID YOU CONCLUDE THERE WAS FROM  
23 THE LEVEL PART OF THE RICE PADDY TO WHATEVER THE ELEVATION  
24 YOU CONCLUDED EXISTED THERE?

25 A. I DIDN'T CONCLUDE THAT THERE WAS ANY HEIGHT

1 TO THE ELEVATION IN SPECIFIC INCHES OR FEET.

2 I FELT THAT THE INCLINATION AT THAT POINT WAS ENOUGH  
3 TO STOP, ABRUPTLY STOP, THE COMPARTMENT.

4 Q. DID YOU MAKE ANY ANALYSIS OF FOLIAGE, AS TO  
5 WHETHER OR NOT FOLIAGE MIGHT BE GROWING IN THAT AREA,  
6 OR --

7 A. WELL, THERE WAS FOLIAGE GROWING ALL OVER THE  
8 PLACE.

9 THE COURT: MR. DUBUC, WE WILL TAKE OUR RECESS  
10 AT THIS TIME.

11 MR. DUBUC: ALL RIGHT, YOUR HONOR.

12 THE COURT: EXCUSE THE JURY. WE WILL COME  
13 BACK AT 11:15.

14 (WHEREUPON, AT THIS POINT A BRIEF RECESS WAS  
15 TAKEN, AFTER WHICH THE FOLLOWING PROCEEDINGS WERE HAD:)

16 (TRANSCRIPT CONTINUED ON PAGE 1816)



1 THE COURT: CALL THE JURY BACK.

2 MR. DUBUC, CAN YOU GIVE ME AN ESTIMATE?

3 MR. DUBUC: I'D SAY FIVE, SIX, SEVEN MINUTES.

4 SOMETHING LIKE THAT, YOUR HONOR. I HAVE VERY FEW QUESTIONS  
5 LEFT.

6 I'M SORRY I WENT OVER. I THINK WE GOT INVOLVED  
7 IN SOME QUESTIONS.

8 THE COURT: ALL RIGHT.

9 YOU MAY HAVE YOUR SEAT, DOCTOR.

10 (WHEREUPON, THE JURY ENTERS THE COURTROOM AND  
11 TAKES THEIR SEATS IN THE JURY BOX.)

12 BY MR. DUBUC:

13 Q DOCTOR, JUST BEFORE THE BREAK WE WERE DISCUSSING  
14 THE ELEVATION AND WITH RESPECT TO THAT YOU TOLD US YOU  
15 LOOKED AT SOME PICTURES AND OBSERVED IT.

16 A YES.

17 Q DOCTOR, IN LOOKING AT THE PICTURES DID YOU  
18 NOTICE THE ELEVATION YOURSELF FIRST OR BEFORE YOU NOTICED  
19 IT DID SOMEBODY ELSE POINT IT OUT TO YOU?

20 A I CAN'T SPECIFICALLY RECALL. I BELIEVE IT WAS  
21 IN THE CONTEXT, THOUGH, OF AN INDIVIDUAL SAYING, "LOOK AT  
22 THE TRACKS; LOOK AT THE WAY IT ENDED UP" -- SOMETHING TO  
23 THAT EFFECT.

24 Q DOCTOR, DO YOU RECALL GIVING A DEPOSITION ON  
25 DECEMBER 18TH, 1981 IN THIS CASE?

1 A YES.

2 Q ON THAT SUBJECT.

3 A I BELIEVE I HAD DIFFICULTY ANSWERING IT AT THAT  
4 TIME AS WELL, SIR.

5 Q WELL, DOCTOR, I'D LIKE TO DIRECT YOUR ATTENTION  
6 TO PAGE 61 OF YOUR DEPOSITION OF THAT DATE -- PAGE 60, I'M  
7 SORRY.

8 DID YOU GIVE THIS ANSWER TO THIS QUESTION, DOCTOR:

9 "YOU MENTIONED A HILL OR SOMETHING, A SLIGHT  
10 RISE PREVIOUSLY TODAY. DID YOU DISCERN THAT YOURSELF  
11 FROM PICTURES OR DID YOU RELY UPON EITHER DR. MORAIN'S  
12 OR DR. TURNER'S CONCLUSIONS TO THAT EFFECT? ANSWER:  
13 AS I MENTIONED EARLIER, DR. TURNER AND THE OTHER  
14 GENTLEMEN IN THE ROOM BRIEFED ME ON WHAT WAS KNOWN  
15 OF THE ACCIDENT SCENE AND THE CHANGES FROM PREVIOUSLY-  
16 HELD VIEWS. TOWARD THE END OF DESCRIBING WHAT IS  
17 CONSIDERED THE SERIES OF EVENTS IN THE ACCIDENT,  
18 IT WAS POINTED OUT TO ME THAT THE AFT TROOP COMPARTMENT  
19 CAME TO REST AGAINST THE ELEVATED AREA."

20 "QUESTION: THAT WAS POINTED OUT TO YOU? ANSWER:  
21 THAT IS CORRECT."

22 DO YOU REMEMBER GIVING THOSE ANSWERS TO THOSE  
23 QUESTIONS?

24 A YES. I ALSO RECALL STATING SOMETHING ELSE AFTER  
25 THAT.

1 Q I REALIZE THAT, BUT I'M TAKING IT IN SEQUENCE.

2 DO YOU REMEMBER THAT ANSWER, SIR?

3 A YES.

4 Q THANK YOU, DOCTOR. DOCTOR, YOU MENTIONED, IN  
5 CONNECTION WITH MR. MC MANUS'S QUESTIONS LOOKING AT SOME  
6 DETAILS ABOUT CERTAIN OCCUPANTS. HAVE YOU EXAMINED THE  
7 PLAINTIFF IN THIS CASE, CARLY KURTH?

8 A I HAVE NOT.

9 Q HAVE YOU EXAMINED ANY MEDICAL RECORDS OR OTHER  
10 RECORDS OF OBSERVATION OF THE PLAINTIFF, CARLY KURTH?

11 A NO.

12 Q DO YOU HAVE ANY KNOWLEDGE OF HER LOCATION IN THE  
13 TROOP COMPARTMENT, PLACE?

14 A NO.

15 Q DO YOU HAVE ANY KNOWLEDGE OF ANY OBSERVATIONS OR  
16 CONDITION OF THE PLAINTIFF CARLY KURTH AFTER THE ACCIDENT?

17 A NO.

18 Q DO YOU HAVE ANY OPINION SPECIFICALLY RELATING  
19 TO THE PLAINTIFF CARLY KURTH?

20 A NOT SPECIFICALLY.

21 Q THANK YOU, SIR.

22 THE COURT: DOES THAT COMPLETE YOUR EXAMINATION?

23 MR. DUBUC: I HAVE NO FURTHER QUESTIONS.

24 THE COURT: MR. MC MANUS.

25 MR. MC MANUS: THANK YOU, SIR.

REDIRECT EXAMINATION

BY MR. MC MANUS:

Q DOCTOR BUSBY, MR. DUBUC JUST READ YOU A PORTION OF YOUR DECEMBER 18TH DEPOSITION, SIR, AND I'D LIKE TO ASK YOU IF YOU IMMEDIATELY FOLLOWED -- IMMEDIATELY FOLLOWING THE PORTION THAT MR. DUBUC READ YOU RESPONDED TO THESE QUESTIONS:

"QUESTION: DID YOU MAKE ANY INDEPENDENT DETERMINATION YOURSELF?"

AND YOUR ANSWER:

"I BELIEVE I REPLIED, 'I CAN HARDLY WAIT TO SEE THE PICTURES.'"

"QUESTION: YOU HAVE SEEN THE PICTURES NOW? DID YOU RELY UPON WHAT YOU WERE TOLD OR DID YOU DISCERN IT FROM YOUR OWN OBSERVATIONS?"

YOUR ANSWER:

"I DISCERNED IT FROM MY OWN OBSERVATIONS."

DID YOU MAKE THOSE STATEMENTS, ALSO, SIR?

A THAT'S RIGHT, SIR.

Q DOCTOR, I'D LIKE TO SHOW YOU WHAT'S BEEN PREVIOUSLY MARKED AS DEFENDANTS' EXHIBIT D1226, AND I'D LIKE TO ASK YOU IF YOU'VE SEEN THIS BEFORE, SIR.

A I HAD NOT SEEN THIS.

MR. DUBUC: WHICH EXHIBIT WAS THAT?

MR. MC MANUS: 1226.

THE COURT: D1226.

1 MR. MC MANUS: D1226.

2 THE WITNESS: I HAVE NOT SEEN THIS ONE BEFORE.

3 MR. MC MANUS: THANK YOU, SIR.

4 BY MR. MC MANUS:

5 Q DOCTOR, I'D LIKE TO READ TO YOU SOME TESTIMONY  
6 THAT'S BEEN GIVEN IN THIS CASE BY MS. CHRISTIE LIEVERMANN, AND  
7 I'D LIKE TO ASK YOU A FOLLOW-UP QUESTION ABOUT IT.

8 MR. DUBUC: OBJECTION.

9 THE COURT: I GUESS I BETTER SEE YOU ALL UP HERE.

10 (WHEREUPON, THE WITNESS STEPPED DOWN FROM THE  
11 STAND, COUNSEL FOR ALL PARTIES APPROACHED THE BENCH, AND  
12 CONFERRED WITH THE COURT, AS FOLLOWS:)

13 THE COURT: I THINK I'VE HAD THE PRACTICE IN THIS  
14 GO-AROUND OF RESTRICTING IN THE FIRST INSTANCE MR. DUBUC  
15 TO EXAMINING AN EXPERT ONLY ON THE BASIS OF WHAT THE EXPERT  
16 HAD USED AS THE BASIS OF THE EXPERT OPINION.

17 IF YOU'RE GOING TO ASK THAT QUESTION YOU'LL HAVE  
18 TO ESTABLISH WHETHER HE HAS EVER SEEN THAT AND IS FAMILIAR  
19 WITH IT.

20 MR. LEWIS: HE STARTED TO TESTIFY THAT HE WAS.

21 MR. MC MANUS: YOUR HONOR, THE PURPOSE OF MY  
22 QUESTIONS ARE DIRECTED AT MR. DUBUC'S QUESTIONS CONCERNING  
23 A CYANOTIC CHILD.

24 THE COURT: IF HE CONSIDERED THIS.

25 MR. MC MANUS: HE WOULDN'T HAVE BEEN ABLE TO, SIR,

1 BECAUSE HE WASN'T HERE TO HEAR HER TESTIMONY.

2 THE COURT: THIS IS THE DEPOSITION JUST NOW.

3 MR. MC MANUS: THE ONE THAT WAS READ INTO  
4 EVIDENCE.

5 MR. DUBUC: MY OBJECTION GOES NOT ONLY TO THE  
6 PRACTICE, BUT ALSO READING PARTS OF THE TESTIMONY. WE WOULD  
7 HAVE TO READ THE WHOLE THING. UNLESS HE LOOKED AT HER TRIAL  
8 TESTIMONY I DON'T SEE HOW HE CAN CONSIDER THE WHOLE THING  
9 TO READ PARTS OF IT. OF COURSE, IF YOU WANT TO MAKE AN  
10 ASSUMPTION -- .

11 THE COURT: IF THAT'S YOUR OBJECTION, YOU'RE  
12 OVERRULED.

13 MR. DUBUC: I HAVE A FURTHER OBJECTION. THAT WE  
14 WANT TO SUPPLEMENT THAT WITH A STATEMENT. AND IF HE'S GOING  
15 TO READ IT --

16 THE COURT: LIEVERMANN. WHAT IS THE STATEMENT  
17 YOU'RE TO SUPPLEMENT?

18 MR. DUBUC: HER OWN STATEMENT, THAT'S REFERRED  
19 TO IN THE DEPOSITION.

20 THE COURT: WELL, WHAT YOU CAN DO ON RECROSS, YOU  
21 CAN USE WHATEVER ADDITIONAL ELEMENTS OF THAT TESTIMONY YOU  
22 WANT TO USE, EITHER AS A HYPOTHETICAL OR SOMETHING ELSE. AND  
23 THE SAME WITH WHAT'S IN HER STATEMENT.

24 OBJECTION OVERRULED, WITH THAT CONDITION.

25 MR. DUBUC: I HAVE A FURTHER OBJECTION. IF IN

1 FACT HE'S READ LIEVERMANN'S TRIAL TESTIMONY, I'M NOT SO SURE  
2 THAT IS CONSISTENT WITH YOUR PREVIOUS RULING.

3 THE COURT: WELL, I'LL HAVE TO WORRY ABOUT THAT  
4 LATER.

5 CAN YOU THINK OF ANYTHING ELSE?

6 MR. DUBUC: NO, YOUR HONOR.

7 (WHEREUPON, THE PROCEEDINGS HAD AT THE BENCH  
8 WERE CONCLUDED, THE WITNESS RESUMED THE STAND AND THE TRIAL  
9 CONTINUED, AS FOLLOWS:)

10 BY MR. MC MANUS:

11 Q DOCTOR, I WOULD LIKE YOU TO ASSUME, SIR, THAT  
12 CHRISTIE LIEVERMANN, A PASSENGER IN THE TROOP COMPARTMENT,  
13 HAS TESTIFIED TO THE FOLLOWING FACTS. THE QUESTION WAS  
14 PUT TO HER:

15 "DID YOU THEN TRY TO APPLY MASKS TO THE OTHER  
16 CHILDREN?"

17 HER ANSWER:

18 "I TRIED. THE TUBING IS NOT LONG ENOUGH TO REACH  
19 THE CHILDREN, FOR ONE THING, IN MY SECTION OF THE  
20 PLANE, AND THERE WERE NO MASKS AVAILABLE, FOR ANOTHER  
21 THING."

22 "QUESTION: WHAT WERE THE CHILDREN LIKE AT THIS  
23 TIME? ANSWER: THEY BECAME VERY LISTLESS, VERY, VERY  
24 INACTIVE, VERY HYPOTONIC."

25 "QUESTION: YOU USED THE TERM 'HYPOTONIC.' WHAT

1 DO YOU MEAN BY THAT?"

2 "VERY, VERY WEAK; GENERAL LOSS OF MUSCULAR TONE,  
3 LIMP, UNCONSCIOUS AND SEMI-CONSCIOUS."

4 SIR, IS THAT OBSERVATION OF THE CHILDREN  
5 FOLLOWING THE DECOMPRESSION AND DURING THE PERIOD OF HYPOXIA  
6 CONSISTENT WITH THE OPINIONS THAT YOU HAVE GIVEN US TODAY?

7 A YES, IT IS.

8 Q DOCTOR, I BELIEVE THAT YOU MENTIONED DR. GAUME  
9 AS AN EMPLOYEE OF DOUGLAS AIRCRAFT COMPANY; IS THAT CORRECT?

10 A YES.

11 Q AND MR. DUBUC SHOWED YOU A REPORT, OR A  
12 PUBLICATION OF HIS; IS THAT CORRECT, SIR?

13 A YES.

14 Q DO YOU KNOW, SIR, WHETHER OR NOT THOSE STUDIES  
15 WERE PERFORMED ON ADULTS OR ON CHILDREN?

16 A THEY WERE ALL ADULTS. THERE'S NEVER BEEN ANY  
17 STUDIES ON CHILDREN.

18 Q AND THE STUDY THAT DEALT WITH THE LUFT AND THE  
19 LUFT EFFECTS THAT MR. DUBUC SHOWED YOU; DO YOU RECALL THAT,  
20 SIR?

21 A YES.

22 Q I'D LIKE YOU TO LOOK AT PAGE 72, UNDER THE  
23 PARAGRAPH ENTITLED, "USEFUL CONSCIOUSNESS." IF YOU COULD  
24 READ IN ABOUT THE MIDDLE OF THAT PARAGRAPH, IF YOU COULD  
25 TELL ME WHAT WERE THE SUBJECTS -- AND I WILL GIVE IT TO YOU,



1 SIR -- THE SUBJECTS OF THAT STUDY.

2 A WELL, WITH RESPECT TO THE TABLE?

3 Q YES, SIR.

4 A THE TABLE SAYS -- TABLE 16 SHOWS THE RESULTS OF  
5 A SURVEY OF ONE HUNDRED HEALTHY SERVICEMEN BETWEEN THE AGES  
6 OF TWENTY AND THIRTY YEARS OF AGE, WHO WERE EXPOSED TO A  
7 SLOW ASCENT OF A THOUSAND FEET PER MINUTE, WITH A FIVE-  
8 MINUTE PAUSE AT EACH THREE THOUSAND TWO HUNDRED AND EIGHTY-ONE  
9 FEET. I LEFT OUT THE METRIC EQUIVALENTS, WHICH WERE  
10 MENTIONED.

11 Q DOCTOR, DID THAT STUDY, OR DO THOSE TABLES, THAT  
12 MR. DUBUC REFERRED TO YOU, WERE NINE AND TEN-MONTH OLD BABIES  
13 USED IN ANY WAY IN REACHING THOSE CONCLUSIONS?

14 A NO. NO.

15 Q DOCTOR, I'D LIKE YOU TO ASSUME, SIR, THAT  
16 DR. TURNER PERFORMED A STRUCTURAL ANALYSIS INVOLVING THE  
17 G-FORCES, AND THAT BASED ON HIS STRUCTURAL ANALYSIS, HE  
18 OBTAINED A MEASUREMENT OF RANGE OF FORTY TO ONE HUNDRED G'S  
19 EXPERIENCED ON THE TROOP COMPARTMENT AS IT IMPACTED ON THE  
20 GROUND FOR THE FINAL TIME AND IMPACTED WITH THE SMALL KNOLL.

21 IS THAT STRUCTURAL ANALYSIS CONSISTENT WITH THE  
22 OPINIONS YOU HAVE GIVEN US TODAY, SIR?

23 MR. DUBUC: OBJECTION, YOUR HONOR. I DIDN'T  
24 GO INTO ANY NUMBERS. HE'S NOW BRINGING IN SOMETHING THAT  
25 IS NOT IN --

1 MR. MC MANUS: I BELIEVE, YOUR HONOR, THAT WAS --

2 THE COURT: THE OBJECTION IS OVERRULED, SUBJECT  
3 TO MR. DUBUC'S FURTHER CROSS.

4 THE WITNESS: I BELIEVE THAT DR. TURNER'S REPORT  
5 DEALT WITH, INSOFAR AS THE TROOP COMPARTMENT IS CONCERNED,  
6 WITH TWO LEVELS OF G, TWO RANGES OF G.

7 THE FIRST INVOLVES THE TROOP COMPARTMENT COMING  
8 DOWN AND SETTLING IN, HITTING, AND THE SECOND IS THE STOPPING.

9 SO ONE HAS A VERTICAL, FORWARD COMPONENT; THE  
10 OTHER HAS A STOPPING COMPONENT.

11 THE FIGURE THAT YOU MENTIONED I BELIEVE WAS A  
12 VERTICAL COMPONENT. WAS IT TEN TO THIRTY G? I DON'T  
13 SPECIFICALLY RECALL WITHOUT SEEING THE REPORT.

14 BUT THE OTHER COMPONENT, WHICH WAS THE SUDDEN  
15 ARRESTATION, THE STOPPING, THE ABRUPT STOPPING, WAS IN THE  
16 RANGE, I BELIEVE, TWO HUNDRED EIGHTY TO FOUR HUNDRED G.

17 AND WE'RE TALKING THERE ABOUT A PEAK G -- THAT'S  
18 A JOLT -- AS WE'RE SAYING. A SUDDEN STOPPING.

19 MR. MC MANUS: THANK YOU, SIR.

20 BY MR. MC MANUS:

21 Q ARE YOU AWARE OF CRITERIA USED BY THE FEDERAL  
22 GOVERNMENT IN ACCIDENT INVESTIGATIONS, WHEREBY AN ACCIDENT  
23 IS DEFINED AS BEING SURVIVABLE OR NONSURVIVABLE?

24 A I'M AWARE OF CRITERIA, YES, THAT THE FEDERAL  
25 AVIATION ADMINISTRATION HAS USED.

1 Q ARE THOSE DIFFERENT CRITERIA IN A DIFFERENT AREA  
2 FROM THOSE THAT YOU USE WHEN YOU DESCRIBE OR DEFINE AN  
3 ACCIDENT?

4 A IN GENERAL TERMS, YES.

5 Q AND IN YOUR DEFINITION OF SURVIVABLE ACCIDENT;  
6 SIR, HAVE YOU EVER SEEN OR HEARD OF, OR DETERMINED THAT  
7 AN ACCIDENT WAS SURVIVABLE WHEN IN FACT NO ONE SURVIVED?

8 A THIS IS TRUE, YES.

9 Q AND CAN YOU GIVE ME AN EXAMPLE OF THAT, SIR?

10 A I THINK --

11 MR. DUBUC: OBJECTION, YOUR HONOR. I DON'T THINK  
12 THAT'S RELEVANT. THIS WAS NOT THAT KIND OF ACCIDENT.

13 THE COURT: OBJECTION IS OVERRULED.

14 IF YOU WANT TO DEVELOP THAT FURTHER ON RECROSS,  
15 YOU MAY.

16 THE WITNESS: I THINK A GOOD EXAMPLE OF A  
17 SURVIVABLE ACCIDENT IN RECENT YEARS IS THE TENERIFE ACCIDENT.  
18 THERE WOULD HAVE BEEN A GREAT MANY MORE SURVIVORS IF THE  
19 FUEL HAD HAD AN ANTI-MISTING, ANTI-BURNING COMPOUND PLACED  
20 IN IT, AND THERE'S BEEN MILLIONS OF DOLLARS OF RESEARCH  
21 PUT INTO THE ANTI-MISTING OF FUELS, TO PREVENT THE FIREBALL  
22 FROM OCCURRING AFTER A CRASH.

23 ANOTHER EXAMPLE THAT I --

24 THE COURT: LET'S LEAVE OUT THE EXAMPLES.

25 MR. MC MANUS: THANK YOU, SIR.

1 MR. MC MANUS: THANK YOU, SIR.

2 THAT'S ALL THE QUESTIONS I HAVE.

3 THE COURT: LADIES AND GENTLEMEN, I'D LIKE YOU  
4 TO DISREGARD THE REFERENCE TO SOME OTHER ACCIDENT.

5 RECROSS EXAMINATION

6 BY MR. DUBUC:

7 Q DOCTOR, MR. MC MANUS RAISED A COUPLE OF THINGS ON  
8 HIS REDIRECT.

9 YOU MENTIONED THAT THERE WERE NO STUDIES THAT YOU  
10 KNEW OF THAT HAD BEEN PERFORMED ON CHILDREN TO SHOW THAT  
11 CHILDREN WOULD REACT THE SAME AS ADULTS; IS THAT CORRECT?

12 A I THINK THE QUESTION WAS PHRASED IN THE AVIATION  
13 CONTEXT, IN TERMS OF TIME OF USEFUL CONSCIOUSNESS AT  
14 ALTITUDE. THAT'S WHAT I WAS LOOKING AT ON A SHEET.

15 THERE HAVE BEEN STUDIES CONDUCTED, PARTICULARLY  
16 IN THE REALM OF ANESTHESIA OF HYPOXIC EFFECTS ON CHILDREN,  
17 THESE CHILDREN, OF COURSE, BEING CHILDREN UNDER ANESTHESIA  
18 AND UNDER OTHER CIRCUMSTANCES.

19 Q ALL RIGHT. BUT YOU KNOW OF NONE IN THE AEROSPACE  
20 FIELD THAT WOULD SHOW THAT IN THE AEROSPACE OR AIRPLANE  
21 ENVIRONMENT CHILDREN WOULD NOT REACT THE SAME AS ADULTS; IS  
22 THAT ALSO TRUE?

23 A THAT'S TRUE.

24 Q SO YOUR OPINION IS BASED UPON YOUR OWN OPINION  
25 AND NOT ON ANY RESEARCH TO THE EFFECT THAT CHILDREN MIGHT

1 REACT DIFFERENTLY; IS THAT CORRECT?

2 A I'M NOT SAYING, SPECIFICALLY, SIR, THAT THE  
3 CHILDREN ACTED ANY DIFFERENTLY THAN THE ADULTS. I'M SAYING  
4 THAT THEY SUFFERED AN EXTREME HYPOXIC INSULT, EVEN AT SUCH  
5 A LOW LEVEL AS TWENTY-THREE THOUSAND FOUR HUNDRED FEET AS A  
6 RESULT OF THE CIRCUMSTANCES THEY WERE PLACED IN.

7 THIS WAS A UNIQUE DECOMPRESSION, WHICH HAS NOT  
8 OCCURRED, EXCEPT PERHAPS FOR THE COMET DISASTERS, WHICH  
9 WERE TOTAL DISASTERS.

10 Q IN YOUR OPINION, DID, FOR EXAMPLE, MS. LIEVERMANN,  
11 WHOSE TESTIMONY WAS REFERRED TO, SUFFER AN EXTREME HYPOXIC  
12 INSULT?

13 A I BELIEVE EVERYONE ON THE AIRCRAFT DID TO A  
14 DEGREE.

15 Q DO YOU KNOW WHAT, IF ANY, INJURIES OR PROBLEMS  
16 MS. LIEVERMANN HAD?

17 A I DO NOT KNOW.

18 Q IS IT YOUR OPINION THAT MS. AUNE, NURSE AUNE,  
19 SUFFERED A SEVERE HYPOXIC INCIDENT?

20 A YES.

21 Q DO YOU KNOW WHAT, IF ANY, PROBLEMS OR SYMPTOMS  
22 MS. AUNE HAD AFTER THE ACCIDENT?

23 A I'M NOT KNOWLEDGEABLE. I'VE NOT SEE THE  
24 RESULTS OF HER EXAMINATION.

25 Q IN YOUR OPINION DID DR. STARK SUFFER A SEVERE

1 HYPOXIC INCIDENT?

2 A YES.

3 Q DO YOU KNOW WHAT DR. STARK'S CONDITION WAS, AS  
4 FAR AS ANY PROBLEMS, AFTER THE ACCIDENT?

5 A NO.

6 Q IF YOU ASSUME THAT NEITHER MS. LIEVERMANN,  
7 MS. AUNE OR DR. STARK, FOR EXAMPLE, SUSTAINED ANY EVIDENCE  
8 OF ANY HYPOXIC PROBLEM AFTER THE ACCIDENT, WOULD THAT  
9 AFFECT YOUR OPINION?

10 A WELL, WE'RE TALKING ABOUT APPLES AND ORANGES  
11 AGAIN, AND IT WOULD NOT AFFECT MY OPINION, BECAUSE WE'RE  
12 TALKING ABOUT ADULTS AND CHILDREN.

13 Q WELL, BUT THAT'S MY POINT, DOCTOR. YOU HAVE  
14 NO RESEARCH UPON WHICH YOU BASE YOUR OPINION WITH RESPECT  
15 TO WHAT WOULD HAVE HAPPENED TO THE CHILDREN THAT WOULD HAVE  
16 BEEN DIFFERENT THAN WHAT HAPPENS TO ADULTS; ISN'T THAT TRUE?

17 A ONLY INsofar AS THE HYPOXIA IS CONCERNED. WE  
18 TALKING ABOUT THE COMPOSITE INVOLVING THIS ACCIDENT.

19 Q THAT'S ALL MY QUESTION GOES TO, IS TO HYPOXIA.  
20 YOU HAVE NO SUCH RESEARCH; ISN'T THAT TRUE, SIR?

21 A THE SCIENTIFIC WORLD HAS NO SUCH RESEARCH  
22 SIMPLY RELATING TO THIS ACCIDENT.

23 Q SO YOU HAVE NO RESEARCH OTHER THAN YOUR OWN VIEWS  
24 FOR THIS CASE THAT YOU RELY ON; IS THAT CORRECT?

25 A INsofar AS THE HYPOXIA ALONE IS CONCERNED.

1 Q NOW, YOU MENTIONED -- MR. MC MANUS MENTIONED --  
2 DR. TURNER'S COMPUTATION OF G-FORCES.

3 DID YOU MAKE ANY INDEPENDENT COMPUTATION OF  
4 G-FORCES?

5 A I WENT THROUGH THE FIGURES WITH DR. TURNER.

6 Q YOU WENT THROUGH THEM WITH HIM?

7 A I WENT THROUGH THEM WITH HIM. I ASKED HIM TO  
8 EXPLAIN THEM IN SOME DETAIL AND I WENT OVER HIS CALCULATIONS  
9 WITH HIM.

10 Q AND DID HE RELY ON CERTAIN MEASUREMENTS OF  
11 CERTAIN TRACKS BY DR. MORAIN IN MAKING THOSE CALCULATIONS, AS  
12 YOU WENT THROUGH THEM WITH HIM?

13 A I BELIEVE SO.

14 Q AND FOR THE PURPOSES OF THIS QUESTION, IF THE  
15 MEASUREMENT MADE BY DR. MORAIN HAD BEEN BASED UPON SOME  
16 ERRONEOUS ASSUMPTIONS AND THE MEASUREMENTS WERE WRONG,  
17 WOULD THAT BE A FACTOR, IN YOUR OPINION?

18 A I DON'T BELIEVE SO.

19 Q OKAY. NOW, MR. MC MANUS MENTIONED -- I THINK EITHER  
20 HE OR YOU -- MAYBE IT WAS YOU THAT MENTIONED IN RESPONSE TO  
21 A QUESTION THAT THERE HAD BEEN SOME COMPUTATION OF TWO HUNDRED  
22 AND TWENTY TO FOUR HUNDRED AND EIGHTY G'S AS A FINAL G-FORCE;  
23 IS THAT CORRECT?

24 A AS A FINAL G, YES. I BELIEVE IT WAS IN THAT  
25 RANGE.

1 Q AND DOES THAT COMPUTATION RELATE AND DEPEND  
2 UPON SOME TERMINAL DECELERATION AGAINST THE ELEVATION THAT  
3 YOU PREVIOUSLY DISCUSSED?

4 A YES.

5 Q AND IF THERE WAS NO SIGNIFICANT ELEVATION AT ALL  
6 WOULD THAT AFFECT YOUR OPINION AS TO THAT PARTICULAR  
7 COMPUTATION -- TWO HUNDRED AND TWENTY TO FOUR HUNDRED AND  
8 EIGHTY G'S?

9 A AS I MENTIONED BEFORE --

10 Q THAT --

11 A -- NO, IT WOULD NOT.

12 Q WOULD NOT.

13 A NOT NECESSARILY, NO.

14 Q THEN HOW WOULD YOU HAVE A TERMINAL IF THERE'S  
15 NO ELEVATION -- AS I UNDERSTAND YOUR OPINION, IF THERE'S  
16 NO ELEVATION YOU WOULDN'T HAVE ANYTHING TO CAUSE A SUDDEN  
17 STOPPING OF THE TROOP COMPARTMENT; IS THAT A FAIR  
18 STATEMENT?

19 A I WOULD HAVE TO GO BACK OVER THE TERMINAL  
20 STOPPING DISTANCE AND SPEED, ASSUMING IT CAME TO A SLOWING  
21 STOP.

22 WE'D ALSO HAVE TO LOOK AT THE COMPRESSIBILITY  
23 OF THE MATERIAL THE CHILDREN WERE SITTING ON TO DETERMINE  
24 HOW MUCH THEY WERE THROWN FORWARD AS A RESULT OF THE REBOUND.

25 Q SIR, I'M NOT TALKING ABOUT ANY CHILDREN. I'M



1 JUST TALKING ABOUT THE NUMBERS.

2 DO THE NUMBERS, TWO TWENTY TO FOUR EIGHTY,  
3 DEPEND UPON HAVING SOMETHING INTERRUPT THE DECELERATION  
4 OF THE TROOP COMPARTMENT, OTHER THAN JUST A DISSIPATION  
5 OF ITS OWN MOMENTUM OVER A DISTANCE?

6 A YES, I AGREE.

7 Q OKAY. THEN WOULD YOU ALSO AGREE THAT IF WE DON'T  
8 HAVE AN ELEVATION THOSE NUMBERS WOULD HAVE TO BE LOWER?

9 A THE NUMBERS WOULD HAVE TO BE LOWER.

10 Q NOW, WITH RESPECT TO THE TROOP COMPARTMENT  
11 IN YOUR REVIEW OF RECORDS DID YOU NOTE THAT ALL OF THE  
12 ADULTS IN THE TROOP COMPARTMENT WERE UNRESTRAINED BY  
13 SEATBELTS OR SEATS?

14 THE COURT: I BELIEVE THAT'S BEYOND THE SCOPE  
15 OF THE REDIRECT.

16 MR. DUBUC: YOUR HONOR, IT GOES TO THIS SAME  
17 POINT. IT'S ONLY A QUICK TWO QUESTIONS.

18 IT GOES TO THE POINT RELEVANT TO THESE  
19 NUMBERS THAT HE'S JUST MENTIONED.

20 THE COURT: GO AHEAD AND ASK IT.

21 JUST FOR THE SAKE OF THE WITNESS, I THINK THAT  
22 TECHNICALLY IT'S BEYOND THE SCOPE.

23 MR. DUBUC: YOUR HONOR, I'LL DO IT THIS WAY.  
24 I'LL MAKE AN ASSUMPTION.

25 BY MR. DUBUC:

1 Q DOCTOR, ASSUME THAT, LET'S SAY, MS. LIEVERMANN,  
2 THAT WE DISCUSSED, MS. AUNE, DR. STARK, ANOTHER NURSE,  
3 MS. TATE, ANOTHER NURSE, MS. NEILL, WERE IN THE TROOP  
4 COMPARTMENT, DID NOT HAVE SEATBELTS, DID NOT HAVE SEATS,  
5 WERE HOLDING ON TO EITHER SEATS OR SEAT BOTTOMS OR BRACED.  
6 ALL RIGHT.

7 AND ASSUME THAT -- AND THEY'RE BRACED IN VARIOUS  
8 WAYS, EITHER BETWEEN SEATS OR IN AISLES OR WHEREVER THEY  
9 MAY BE LOCATED. BUT, NEVERTHELESS, UNRESTRAINED, AND  
10 DEPENDING UPON THEIR OWN STRENGTH AND BRACING TO REMAIN  
11 UPRIGHT OR REMAIN FROM BEING DISLODGED.

12 DO YOU HAVE AN OPINION AS TO THE ABILITY OF,  
13 SAY, THESE NURSES, ASSUMING WOMEN BETWEEN TWENTY-FIVE AND  
14 THIRTY YEARS OLD, TO HOLD AND MAINTAIN THEIR POSITION IF  
15 THE G-FORCES WERE IN FACT IN THE RANGE OF TWO HUNDRED AND  
16 TWENTY TO FOUR HUNDRED AND EIGHTY G'S?

17 DO YOU HAVE AN OPINION?

18 A YES.

19 Q WHAT IS IT?

20 A SIR, FIRST OF ALL, I NEVER HEARD OF AN ACCIDENT  
21 OCCURRING WHEN AN INDIVIDUAL EITHER STOOD IN THE AISLE OR  
22 EVEN SAT IN THE AISLE AND HELD ON TO A SEAT, AND EXPECTED  
23 TO SURVIVE.

24 AND THIS WAS THE CASE IN THIS CASE.

25 AS YOU KNOW, SOME PEOPLE WERE KILLED IN THE

1 TROOP COMPARTMENT.

2 PEOPLE WEDGED THEMSELVES BETWEEN THINGS,  
3 AROUND THINGS, TO DISSIPATE THE ENERGY.

4 THE TERMINAL ENERGY IN THIS CRASH WAS VERY,  
5 VERY HIGH, BUT IT WAS DISSIPATED OVER A VERY BRIEF  
6 PERIOD OF TIME.

7 CONSEQUENTLY, THE BODIES OF THESE INDIVIDUALS  
8 WOULD HAVE BEEN ABLE TO TOLERATE SUCH A HIGH IMPACT, JUST AS  
9 YOU WOULD IF YOU JUST SUDDENLY RAPPED YOUR HAND.

10 THE CONCERN FOR A SEATED INDIVIDUAL, IN TERMS  
11 OF ABSORBING THAT ENERGY, LET'S SAY, INTO A SFATBACK, AND  
12 WITH REBOUND, CONSEQUENTLY TAKING A PLUS, A FRONT-TO-BACK  
13 ACCELERATION -- OR DECELERATION, I SHOULD SAY -- AND  
14 CONVERTING IT OVER TO AN EYEBALL-UP SITUATION, AS IT IS  
15 WITH A CHILD IN A SEATBELT, GOING BACK OVER AND PUTTING  
16 THE G-FORCE RIGHT UP THROUGH THE TOP OF THE HEAD, IS  
17 QUITE DIFFERENT THAN, LET'S SAY, THESE INDIVIDUALS WHO  
18 ARE THE ADULTS.

19 CONSEQUENTLY, YOU'RE TALKING ABOUT A MOTION  
20 ENVIRONMENT THAT IS QUITE DIFFERENT BETWEEN THE ADULTS  
21 WHO ARE ON BOARD, MANY OF WHOM WERE SERIOUSLY INJURED --  
22 AND THERE WERE FATALITIES -- AS COMPARED TO THE CHILDREN,  
23 WHO WERE SITTING AFT-FACING AND YET SUBJECTED FROM SIMPLY  
24 AN ABRUPT STOPPING WITH A HIGH LOADING THROUGH THE FRONT  
25 TO BACK, AND THEN WHICH WAS CONVERTED FROM ONE G-FORCE

1 TO ANOTHER, WHICH IS VERY INTOLERABLE.

2 Q DOCTOR, HOW WAS MS. LIEVERMANN BRACED?

3 A I DO NOT KNOW.

4 Q HOW WAS MS. AUNE BRACED?

5 A I DO NOT KNOW.

6 Q WHO WAS DR. STARK BRACED?

7 A I DO NOT KNOW.

8 Q HOW WAS MS. TATE BRACED?

9 A I DO NOT KNOW.

10 Q HOW WAS MS. NEILL BRACED?

11 A I DO NOT KNOW.

12 Q I THOUGHT I HEARD IN YOUR ANSWER THAT THEY  
13 WERE -- THAT ALL OF THEM, I ASSUMED YOU WERE ASSUMING IN  
14 YOUR ANSWER -- WERE SOMEHOW BRACED SO THEY WEREN'T HOLDING  
15 ON; IS THAT THE INFERENCE FROM YOUR ANSWER?

16 A NO, IT'S NOT.

17 Q WELL, MY QUESTION --

18 A I'M SAYING THAT BY VIRTUE OF THEIR LOCATION -- AND  
19 THEY'RE BETWEEN SEATS, AS I SAW IT ON THE DIAGRAM -- THE  
20 ENERGY ABSORPTION FROM THEIR BODIES BEING FLUNG IN THE  
21 DIRECTION THAT THE TROOP COMPARTMENT WAS GOING WOULD  
22 HAVE BEEN QUITE DIFFERENT, AS COMPARED TO THE CHILDREN,  
23 AND AS A RESULT, WOULD HAVE PRODUCED AN ENTIRELY DIFFERENT  
24 INJURY PATTERN.

25 WE SAW THIS.

1 Q WAS MS. AUNE BETWEEN THE SEATS?

2 A I DON'T KNOW.

3 Q WELL, HOW DO YOU MAKE THE ASSUMPTION, IN ANSWER  
4 TO MY QUESTION, DOCTOR -- MY QUESTION, REMEMBER, WAS WHETHER  
5 THEY COULD HOLD ON WITH THIS G-FORCE.

6 HOW CAN YOU MAKE THAT ASSUMPTION WITHOUT  
7 CONSIDERING WHERE THEY WERE AND THE CONDITION AND  
8 CIRCUMSTANCES IN WHICH THEY WERE BRACED?

9 A YOU'RE ANSWERING THE QUESTION FOR ME.

10 ARE YOU SAYING THAT YOU --

11 Q YOU DON'T HAVE THE INFORMATION AS TO THE  
12 INDIVIDUALS; IS THAT CORRECT?

13 A THAT'S CORRECT.

14 Q ALL RIGHT.

15 MR. DUBUC: THANK YOU, DOCTOR.

16 I HAVE NO FURTHER QUESTIONS.

17 THE COURT: EXCUSE THE JURY FOR JUST A MOMENT,  
18 PLEASE.

19 (WHEREUPON, THE JURY RETIRES TO THE JURY ROOM.)

20 (PROCEEDINGS OUT OF THE PRESENCE OF THE JURY,  
21 SEPARATELY TRANSCRIBED.)

22 (WHEREUPON, THE JURY ENTERS THE COURTROOM AND  
23 TAKES THEIR SEATS IN THE JURY BOX.)

24 THE COURT: MR. MC MANUS.

25 MR. MC MANUS: CALL MR. KURTH, SIR.

Busby

1/22/82

KURTIT

(OUT OF THE PRESENCE OF THE JURY)

2

P R O C E E D I N G S

(EXCERPT)

WHEREUPON,

EARL BUSBY,

HAVING BEEN CALLED AS A WITNESS FOR AND ON BEHALF OF THE  
PLAINTIFF, AND HAVING BEEN FIRST DULY SWORN BY THE DEPUTY  
CLERK, WAS EXAMINED AND TESTIFIED, AS FOLLOWS:

\* \* \* \* \*

THE COURT: DOCTOR, WHAT I'M GOING TO ASK YOU  
HAS NOTHING TO DO WITH THIS CASE.

IF THE PARTIES WANT TO HAVE THIS PORTION OF THE  
TRANSCRIPT SEPARATED, THAT WILL BE FINE WITH ME.

YOU TESTIFIED IN THE SPRING OF 1980; DID YOU NOT?

THE WITNESS: YES, SIR.

THE COURT: REBUTTAL WITNESS?

THE WITNESS: YES, SIR.

THE COURT: AND YOU TESTIFIED AGAIN LAST SPRING;  
DID YOU NOT?

THE WITNESS: YES. I BELIEVE VERY BRIEFLY.

THE COURT: AND BETWEEN YOUR LAST TESTIMONY  
AND YOUR TESTIMONY TODAY I GATHER YOU'VE HAD AN OPPORTUNITY  
TO EXAMINE SOME MATERIALS THAT WEREN'T AVAILABLE BEFORE.

THE WITNESS: YES, SIR.

THE COURT: CAN YOU GIVE ME AN IMPRESSION -- JUST  
OFF YOUR -- WITHOUT MY BEING A LAWYER ABOUT IT -- YOUR

1 IMPRESSION OF THE EFFECT, IF ANY, OF THE ADDITIONAL MATERIAL  
2 ON YOUR ABILITY TO DO THE TASKS THAT YOU WERE ASKED TO DO?

3 THE WITNESS: YOUR HONOR, YOU RECALL THAT AFTER  
4 YOU RECESSED THE JURY IN A PRIOR CASE -- I BELIEVE IT WAS IN  
5 THE SCHNIEDER CASE -- AND PROCEEDED TO ASK ME SOME QUESTIONS  
6 RELATIVE TO WHY I DISAGREED WITH THE DEFENDANT ON THE  
7 AVERAGE G LEVEL, THE 1.6 G, WITH THERE BEING MINIMAL JOLT.  
8 I BELIEVE THE FIGURE WAS THREE TIMES THAT, WHICH WOULD  
9 BE 4.8 G PEAKS.

10 AND I POINTED OUT TO YOU THAT I FELT SOMEWHERE  
11 ALONG THE LINE THERE HAD TO BE A VERY SEVERE JOLT,  
12 PARTICULARLY, A JOLT ENOUGH TO TEAR THOSE SEATS OUT  
13 AND TO DISRUPT THE CABIN SO MUCH.

14 IN OTHER WORDS, IT JUST WASN'T A GRINDING  
15 AND SEPARATING PROCESS.

16 AND WHEN I HEARD OF THE PICTURES BECOMING  
17 AVAILABLE AND WAS INVITED TO COME TO WASHINGTON TO SEE  
18 THEM, AND TO BE BRIEFED -- OF COURSE, I WAS STILL QUITE  
19 SKEPTICAL -- I WAS RATHER SHOCKED -- THIS IS IN MY  
20 DEPOSITION -- THAT THE AREA THAT WAS BEING POINTED OUT TO  
21 ME IN A PREVIOUS TRIAL WAS NOT THE FLOOR OF THE CARGO  
22 COMPARTMENT, BUT WAS REALLY THE FLOOR OF THE FORWARD  
23 COMPARTMENT, THE FORWARDMOST COMPARTMENT, AND REALLY WAS  
24 NOT THE PART THAT WE'VE BEEN LOOKING AT, AND THAT IN ESSENCE  
25 THE CARGO COMPARTMENT HAD BEEN COMPLETELY DECIMATED.

1 I STILL HAD THE VIEW THAT THAT IMPACT THAT LED  
2 TO THE FINAL BREAK-UP WAS THE ONE THAT I HAD BEEN TALKING  
3 TO YOU ABOUT, RATHER THAN THAT WAS THE BIG JOLT.

4 I WENT BACK AND LOOKED, AFTER I WAS ADVISED  
5 OF THE AVAILABILITY OF THE PICTURES -- I WENT AND LOOKED  
6 AT SOME MATERIALS THAT I HAD ACCUMULATED, PARTICULARLY,  
7 THE SUMMARY THAT I MADE OF THE COLLATERAL INVESTIGATION  
8 AND COLLATERAL REPORT, AND I BEGAN TO STILL -- WELL,  
9 STILL BELIEVE THAT IT WAS THE IMPACT FORCE.

10 IT WASN'T UNTIL I GOT TO WASHINGTON AND  
11 LOOKED AT THE PICTURES -- AND I CAN RECALL SAYING, "HEY,  
12 FELLOWS, DON'T TELL ME TOO MUCH. I KNOW I'M GOING TO  
13 BE ASKED ABOUT THIS. I WANT TO PROVE IT TO MYSELF."

14 SO, IN ESSENCE, THERE APPEARS TO HAVE BEEN TWO  
15 JOLTS. THE LAST ONE, TO ME, NOW IS THE MOST SIGNIFICANT  
16 OF THE JOLTS, BUT IT WAS STILL ENOUGH TO RESULT IN WHAT  
17 IS NOW PRETTY WELL DEFINED AS POTENTIALLY SEVERE -- IN  
18 FACT, VERY INTOLERABLE G LEVELS.

19 THE COURT: WELL, YOU'RE TALKING ABOUT YOUR  
20 END RESULT.

21 THE WITNESS: YES. I DON'T BELIEVE IT CHANGED  
22 MY OPINIONS.

23 THE COURT: HOW ABOUT THE EXTENT OF -- WOULD IT  
24 HAVE BEEN EASIER FOR YOU TO DO YOUR WORK IF YOU HAD HAD  
25 THIS AT THE BEGINNING?



1 THE WITNESS: ABSOLUTELY.

2 THE COURT: AND CAN YOU TELL ME WHY YOU SAY THAT?

3 THE WITNESS: FROM MY PAST WORK, HAVING REASONABLE  
4 KNOWLEDGE OF G LEVELS IS VERY, VERY IMPORTANT, PARTICULARLY  
5 IF YOU CAN TRANSLATE THESE G LEVELS INTO THE DIRECTION  
6 TO WHICH THEY'RE APPLIED TO THE BODY.

7 AND UP TO THE POINT OF MY SEEING THE PICTURES  
8 I HAD A RATHER VAGUE IMPRESSION OF WHAT REALLY HAPPENED.

9 THE COURT: YOU DIDN'T GET A CLEAR IMPRESSION  
10 FROM THE COLLATERAL REPORT?

11 THE WITNESS: THE COLLATERAL REPORT -- NO.  
12 THE PICTURES ARE VERY CRITICAL, I FELT.

13 THE COURT: DOES EITHER COUNSEL WISH TO EXAMINE  
14 DR. BUSBY ON THIS?

15 MR. MC MANUS: NO, SIR.

16 MR. LEWIS: NO, SIR.

17 MR. DUBUC: YOUR HONOR, WE ARE REALLY NOT  
18 PREPARED TO GO INTO THAT.

19 THE COURT: WELL, I'M NOT PREPARED EITHER. HE'S  
20 HERE AND I THOUGHT I WOULD ASK HIM.

21 MR. DUBUC: HOWEVER, TO THE EXTENT IT MIGHT  
22 BE NECESSARY TO CLARIFY THE RECORD, I RECOGNIZE THE  
23 THRUST OF YOUR HONOR'S QUESTIONS -- THE WAY YOUR HONOR'S  
24 QUESTIONS ARE GOING.-- WE WOULD, IF YOU WERE GOING TO USE  
25 HIS TESTIMONY, WOULD WANT AN OPPORTUNITY TO EXAMINE HIM,

1 IF IT BECOMES RELEVANT TO YOUR HONOR. BUT WE'RE REALLY

2 NOT PREPARED TO DO IT.

3 I DON'T HAVE THE RESOURCES TO GO INTO THAT ISSUE

4 HERE AT THE TRIAL, NO.

5 THE COURT: THANK YOU, DOCTOR.

6 THE WITNESS: YES, SIR.

7 THE COURT: BRING BACK THE JURY AND CALL YOUR

8 NEXT WITNESS.

9 IF YOU ALL WANT TO GET WITH THE REPORTER

10 AND TAKE THIS LITTLE SEGMENT OUT, AT LEAST INTO A SEPARATE

11 VOLUME, ALL RIGHT, SO THAT IT DOESN'T GET MIXED UP WITH

12 WHAT -- .

13 \* \* \* \* \*

14 (WHEREUPON, AT APPROXIMATELY 2:45, P. M., THE

15 PROCEEDINGS WERE ADJOURNED FOR THE DAY, TO COMMENCE AT

16 9:30, A. M., MONDAY, JANUARY 25, 1982.)