Berry Deposition Exhibits

Marked on October, 1, 1981

re: General

Berry Ex. #1-2

Extra

Berry Ex# 1
10/1/81
JTM

Documents Reviewed for C-5A accident:

1. Statement or testimony of
   - Mr. Lievermann
   - Aune
   - Tate
   - Stark
   - Neill
   - Gibbons
   - Busby
   - Parker
   - Harper
   - Timm
   - Edwards
   - Traynor
   - Harp
   - Wise
   - Lt DeBolt
   - Malone
2. Accident Narrative Summary - USAF.
3. Oyler ltr + Fraser data.
4. Lewis ltr to Dr Brook.
   Brook response
5. Brook ltr to Schuelein + resp.
6. Gibbons ltr to Dabue
7. Chamber exposures USAF.
8. Kurth trial exhibits D-4,(2) D-8, D-9 (wreckage diagram etc).
   ~~9.~~ D-1210-1219, D-1222-32, D1245-54, D1266, D 1307 + 08.
9. Expert reports of Gibbons
   - Davis-Drume
   - Iverslaw
   - Bourne
   - Edwards
10. McMeekin chamber runs.
12. Time vs alt. chart.
13. Kurth child documents including Faelers deposition.
14. Article file on infants + children - anoxia, hypoxia, ear-burning.
15. Last Aerospace articles.
16. Affidavit of Patricia Quinn.
17. Letter FAC to adopting parents

Berg Ex #1
10/1/81
S 1111

HARRY L. GIBBONS, M.D.
12601 South 1565 East
Draper, Utah 84020

February 02, 1980

Haight, Gardner, Poor & Havens
Federal Bar Building
1819 H Street, N.W.
Washington, D.C. 20006

ATT: Carroll E. Dubuc

Dear Mr. Dubuc:

RE: Aeromedical Report Pertaining to Aircraft Accident of April 4, 1975 near Saigon, South Viet Nam involving a C-5A

Although nothing has been conveyed to me establishing that the three persons in question, Michael Schneider, James Zimmerly and Melissa Marchetti were in the C-5A that crashed, I will nevertheless discuss each individual and their alleged injuries or illnesses as they relate to the various parameters associated with the flight environment, the deceleration associated with the flight and accident, with decompression and ground impact. The flight environment will be discussed in relationship to hypoxia, trapped gas expansion, decompression sickness and ground impact deceleration.

It is claimed in various documents that Michael Schneider suffered chronic otitis media. It is stated in the letter to you, dated December 26, 1979, from John E. Fricker, that Michael Schneider had a pre-existing otitis media, but there is no statement if that was a chronic or acute condition.

As a result of rapid, or any other decompression, air escapes from the middle ear through the eustachian tube. This is a painless occurance. The accepted procedure is to descend, usually rapidly, to a lower altitude. As the barometric pressure increases, unless the middle ear is ventilated through swallowing, the Valsalva or Frenzel maneuvers, the pressure on the outside of the eardrum becomes greater than inside. This comparatively lower pressure in the middle ear may cause the middle ear to fill with fluid. This is known as aerotitis media. If there was an existing otitis media, this could give existing bacteria an ideal growth media. With treatment, such as decongestants, systemic and/or topical, the aerotitis media is easy to resolve. The otitis media, which in this case was pre-existing, must be treated with antibiotics. It should be mentioned that a large number of children in the USA may develop chronic ear problems and may require the insertion of tubes through the tympanic membrane, or eardrum to relieve this condition. This occurs in the complete absence of any aerotitis media.

Acute Pneumonia. The letter of December 26, 1979 does not state what caused the pneumonia, however, pneumonia is usually considered an acute inflammatory condition of the lung and is a result, usually of bacterial invasion or viral invasion. There are other causes of lesser frequency. The letter does not state which type, but it does infer that the existing otitis media caused the pneumonia. During a rapid decompression, as the surrounding atmospheric pressure drops, air is involuntarily expressed from the lungs. The air goes out the nose and mouth, but there is no scientific reason to attribute pneumonia to the sudden expiration of air. It is also claimed that conjunctivitis of a purulent nature occurred in both eyes. During a rapid decompression, again, air is forced out of the body, but just how decompression could cause infection of the conjunctiva is not apparent, and I do not think it would take place. If bacteria were to go from the middle ear to the lacrimal duct, the duct could become infected, but that is not conjunctivitis. There has not been any claims of lacrimal duct obstruction or infection.

Severe pain in and to various parts of his body including his head, ears, eyes and bones ... This is allegedly due to lack of oxygen. Reduced partial pressure of oxygen is known as hypoxia. The symptoms vary from individual to individual, but depend on the severity of hypoxia and can include dizziness, euphoria, agitation, numbness, tingling, and many more. The signs include cyanosis, trembling, increased breathing and many others such as confusion. One thing they do not include is pain. Unconsiousness may occur depending on the altitude and the duration at altitude. I would expect children to tolerate hypoxia as a general rule, as well or better than adults. Respiration is a function of getting oxygen from the ambient air to the alveoli of the lung then circulating red blood cells to the cells of the body. The human body has remarkable tolerance to hypoxia and with the physiological adjustments that the body makes, including increased rate of respiration and increased depth of respiration, the body can withstand exposures to prolonged periods of mild to moderate hypoxia and short periods of extreme hypoxia with no untoward effects.

Most evaluations of the effects of hypoxia relate to time of useful consiousness or the ability of one to pass comprehension and writing tests. The time of useful consiousness is, of course, shorter than actual consiousness usually by a significant degree, also until one is at approximately 33,000 feet, the body is still taking up oxygen from the atmosphere.

The ability of the body to withstand hypoxia is dependent on the lack of obstruction between the air and the cells of the body. The aging process is associated with increased barriers which include decreased lung compliance, airway obstruction as a result of cigarette smoking, the process of atherosclerosis and arteriosclerosis in the arteries and the presence of blocks to adequate transmission of oxygen to cells such as carbon monoxide from cigarette smoking.

The Air Force routinely subjects flight personnel to altitudes of 25,000 feet without any problems. Also, I was responsible for initiating a program in which civilians, ages 16 to no limit were also placed

in the flight environment in USAF altitude chambers. They were exposed to either 29,000 ft. or 25,000 ft. to experience hypoxia. The students are limited to 5 minutes at 25,000 ft., without oxygen, after they remove their masks, and I have never seen, in the hundreds I have observed, any problems with complete recovery. The oldest I have observed in the chamber was a physician, who I recall was 82 years of age. The flight environment of up to 25,000 ft. is simply well tolerated.

Also, I have reviewed two series of decompression in commercial airliners. It should be pointed out that in the evaluation of an airlines' ability to perform emergency evacuation in any one aircraft configuration, they are required to have at least 5% but not more than 10% of a passenger load under 12 years of age. They are also required to have three life size dolls carried by passengers, simulating infants under two years of age.

In one series of 50 incidents from 1975 through 1978, only two mention any injuries, but there are no details. I also obtained an earlier series with more complete listings of injuries. This included 14 depressurizations in 1973, 14 in 1974 and 10 in 1975. There were a total of 2,707 passengers. This does not include crew. Two of these flights had cabin altitudes reach 25,000 ft. or above. Five persons were unconscious after the cabin altitude reached 34,000 ft. in one flight. Ten cases of barotruama were reported. I saw two of these passengers. On this flight there were at least three children reported to me by passengers I saw. They were three to four years old and younger with no problems in the decompression to 31,000 ft. cabin altitude or in the evacuation. There were no medical problems reported in another decompression to 19,000 ft. In many of the cases, there were no reports of cabin altitude. In one flight the altitude of the depressurization was 33,000 ft. The aircraft descended until a cabin altitude of 12,000 ft. was reached and the flight continued. Only one passenger lost consciousness. Recovery from reasonably short periods of hypoxia (a few minutes) in which the hypoxia has not resulted in unconsiousness, is ordinarily very rapid with most, if not all, signs and symptoms disappearing in 15-30 seconds or less. The USAF chamber flights are to 43,000 ft. followed by exposure to hypoxia at 25,000 ft. Exposure to 25,000 ft. for short periods of time is considered an innocuous exposure.

The "severe pain in various parts of the body" is also attributed to "explosive decompression". If the air pressure around the body decreases, any gas in the body tends to expand, and gasses dissolved in the body tend to come out of solution. The gas expansion may be referred to as trapped gass decompression sickness. The gasses in the lungs, both air and carbon dioxide are forced out through the nose and mouth. Air in the middle ear and eustachian tube expand and escape through the eustachian tube. If there is gas in the gastrointestinal tract, it tends to expand. This is a painless process, unless there is so much gas in the GI tract that it causes pain. This would be expected at 25,000 ft. It usually occurs above 30,000 ft. There is no basis for pain in the eyes and bones, and the only mechanism of pain in the head would be if complete sinus block were present. That could cause pain on just a routine flight with cabin altitude of only 5,000 to 8,000 ft. The descent would relieve that pain. since pressure

would be equalized. The descent, however, may cause pain in the ear if the middle ear fails to have pressure equalized on the eardrum through the eustachian tube. In the mentioned case of the airliner, with cabin altitude decompression to 34,000 ft., only ten persons experienced barotrauma out of a passenger load of 116 and 12 crew. The descent relieves abdominal barotrauma and barosinusitis from ascent.

In the training courses which I initiated for civilians, of 3,034 students exposed to 29,000 feet with oxygen masks removed at 29,000 ft., 345 students experienced minor reactions. Of 1,725 students with masks removed at 25,000 ft., 133 experienced minor reactions. Of the total of 487 reactions, all were minor. There were 354 with aerotitis media and 100 with aerosinusitis. The others were hyperventilation and aerodontalgia.

In my opinion and in my experience, children are less likely to have aerotitis or barotitis media, and they clear their ears easier than adults since their eustachian tubes are more horizontial than those of adults. In my observation, sucking on a bottle or swallowing will equalize pressures. Crying also tends to do this. It was previously mentioned that descent relieves the abdominal gas distension problem. Also, many individuals will pass flatus or burp and obtain relief of gas destension.

The other type of decompression sickness alleged to have occurred is the evolved gas syndrome. If gasses come out of solution, oxygen and carbon dioxide are readily absorbed with the oxygen being utilized in metabolism, and the carbon dioxide being expelled through the respiratory process. However, nitrogen is not readily reabsorbed. If the ambient pressure is reduced to a sufficient degree, nitrogen may come out of solution in the body. If high enough altitudes are obtained, decompression sickness can occur. The critical altitude for severe decompresion sickness such as bends or other forms of decompressio sickness, such as the chokes, CNS or skin manifestations, is usually considered to be 30,000 ft. Any decompression sickness below 20,000 ft. is rare, and decompression sickness between those altitudes almost always requires prolonged exposure.

Parameters associated with increased likelihood of decompression sickness include physiologic factors such as exercise, age, obesity and repeated exposure to altitude. These all increase the likelihood of decompression sickness. Physical factors that increase the likelihood include rate of ascent, but there is not a distinct relationship between rate of ascent and the incidence of symptoms. Also, the altitude obtained is a factor, and as previously mentioned, bends or decompression sickness rarely occurs below 20,000 ft. Duration of exposure plays a significant role and there is some association with temperature. Regarding age, there is even an observed difference in the susceptibility to decompression sickness when ages 18-19, 20-23, 24-25 and 26-27 were compared. There was a steady increase in the number of chamber flights requiring descent in the older groups with a three fold increase from ages 18-19 to 26-27 age groups. This research involved over 5,000 subjects. Based on the clear cut age relatioship in this study and others, it is my opinion that children would be even less affected.

Exercise is an important factor in producing bends. In one series of 16,951 tests without exercise, there was 1.5% bends in 65 tests at 26,000 ft. which was the beginning altitude of symptoms. With exercise the altitude is decreased to below 20,000 ft. In some documuments pertaining to the C-5A crash, it was alleged that bubbles in the body, as a result of the rapid decompression were responsible for some of the symptoms. Most cases of bubble formation have occurred only at extreme altitudes above 50,000 ft. Studies on animals indicate that decompression from 35,000 ft. to 130,000 ft. could be survived with surprisingly rapid recovery and usually without major patholgical changes. Also, in a series of 150 human subjects undergoing 500 explosive decompressions, it was concluded that explosive decompression, within the rates and ranges used, 45,000 ft. does not constitute a serious hazard. No evidence of bubble formation following explosive decompression was noted. These subjects were ages 15 to 56. Also, in this research, audiograms were taken on 33 subjects before and after explosive decompression. There were no significant changes in the hearing of any of the subjects. Regarding the cases I mentioned in the FAA training courses I initiated; of the total 4,759 subjects on which data is recorded, there was not one single case of evolved gas reaction, supporting the belief that 30,000 ft. is the critical altitude for significant decompression sickness.

"The resulting temperature drop in the plane" is also alleged to have caused severe pain. It was extremely warm on the ground, so much so that some observers reported that the children were crying for that reason. Under standard conditions the aircraft would have passed through 32 degrees F° at about 10,000 ft., and it was on the ground a short time after. It was probably very cold near the cargo doors following the decompression but as the aircraft descended, I question if there was ever any extensive cooling throughout the aircraft. None of the statements of those involved in this accident, that I read, commented on it being cold.

In subsequent documents, it is inferred or alleged that the infants or children and others in the aircraft were subject to deceleration forces sufficient to cause serious injury. Since the aircraft did touch down at much faster than usual speeds, it is fortunate that the deceleration took place over some distance. Also, the wings, control cabin and other parts of the aircraft were torn off, provid ing energy absorption which is the basis of a higher speed surviv al crash landing. If some of the adults were able to brace themselves in the isle, just by holding on, the G forces were limited to 2.5 - 3 G's. With forces of only a few G's, if one encounters sharp edges or protruding objects, fatalities can result, or if one is completely unrestrained, low G forces or flailing can cause serious injuries or fatalities.

Regarding infants or children. They were in the ideal situation for crash survival, namely rearward facing seats, designed for adults, with excellent restraint. The fact that there were two infants in each seat with padding, was, in my opinion nearly ideal. I do not believe that the children suffered any coup, contrcoup or coup contra coup injury or forces. The fuselage, in the process of energy absorption,

came apart, and some seats were torn loose and turned upside down. These children were removed by Christine Leivermann and except for "ruffled appearance", the children were in "apparently good health."

In summary, I think this was a low G force deceleration as described by one occupant, "I was bounced around a bit."

It is also alleged that James Zimmerly suffered pneumonia, resulting in recurrent upper respiratory infections, direct head trauma, resulting in an occipital scar less than one inch long, resulting in macrocephaly and an arrested hydrocephalus, minimum brain injury, etc. as a result of the decompression, loss of oxygen and direct trauma. I have already stated that there is no basis for a decompression to cause an inflamatory process in the lungs. If James Zimmerly had received head trauma sufficient to cause the purported injuries, I would expect some overt sign and I would seriously question that he would have been put on airplane the next day. I maintain that if he was in that aircraft and in a rearward facing seat, it is unlikely that he experienced trauma or head injury. The allegation that there was severe pain to head, ears and bones has already been discussed.

It is alleged that Melissa Marchetti was exposed to the same problems discussed above with respect to the Zimmerly and Schneider children and this exposure resulted in the formation of gas bubbles. The possibility of bubble formation at this altitude is quite remote, as has been discussed.

It is my opinion that in all medical probability none of the three children in question suffered any permanent damage as a result of the decompression, the hypoxia, the subsequent descent or the deceleration.

Sincerely,

Harry L. Gibbons, M.D., M.P.H.

HLG:kw

CV.
add speeches - papers -
add aerospace courses meetings - experience - pts -
Consults.

DEBS - what injuries?
Rec'd Trump?

10 days ∓ birth - hypoxia causes sustained hyperventilation

9 mos. - 18 mos.:

Symptoms: adult 4 min ≤ resp = death.
Pg 993-994 Newborn 15 min but 7-10 ≤ mental impairment
due to adaptation - cells undergoing ATP to ↓ hypoxia longer
* ∓ 1-2 wks leads the adjustment.

Casey KURTH - DOB 6-25-74
DOE 9-17-80

pulmonary
surg - Tulsa

0 → 23.4 — no damage area.

- USAF 1940-55 — 8-22 m' 0.53 or 0.67 sec.
1955-1981 8-22 m' 1.0 sec

Dogs 8 m' → 150,000' 1 sec.

Ambient -47 (H2O) × 21%. -40 CO_2 adult or -34 CO_2 infant

23,400 = 303 - 47 = 251 × .21 = 53.7 O_2 - 40 = 13.7
-34 = 19.7

+ ↑ ventilation = ↓ CO_2.

Dogs - 150 K. - 3 min. (avg.)
Chimps to vacuum

1973 Natl - 37 m' (34 cabin) 2 min to 24,000

19,000 — TUC in 30 min.

USAF 35 m' — TUC
25 m' "
18 m' - 15 min
23 m' - TUC = 5-10 min.

animal studies 25-30 min severe hypoxia = damage.

#1 +Gz Vert 510'/min - 1.7 g. normal through landing c̄ bounce
+Gx 2.02 g. bad neck.

#2 +Gx 1.5-2.0 g - rolling over 1.6 g +Gx
30-38 g - Rockets
Apollo 3 - 13+ -(?)
10 +Gx 200 sec -

Ribbons -

Rusty - 4 min - most say 5 min Children more.

% Hgb sat 97%

↓ No % 20 (Lt) 14 (V)

pO_2 more common in aviation

Has 45 mostly rather than 47 temp, [illegible]

$760 - 45 = 715 \times .2095 = 149.8$ -40 -34

$303 - 45 = 258 \times .2095 = 76$ -70 -34 -

Chem stim [illegible] = ↑ [illegible] +20 mm O_2

↑ C output [illegible] +5 mm O_2

23 - [illegible] !

Gauene -

1.6+g x - Rotor 2.89 g. Vet. 3-6 g.

[illegible]

4.5 g Catapult [illegible] 5.5 g.

31 [illegible] 2700' 60% [illegible]

↑ [illegible] 1400'

[illegible] 1200' [illegible] + 812' Trop. (2012)

or (5.6 [illegible]) (2.3 g) 9.5 g [illegible]

Roller coaster 2.5 3 g ∪ ∩ most 3 g/sec

Refinder 2.89 g 60 sec.

30 [illegible]

Cerebral vasodilation [illegible]

Eduardo: 1.6 g. + G x   o ·↓+G z
Park 3.91

Dietersen Infancy - Ho -

Sandi A/C & Give. - C.O? — didn't open doors on garage

Rapid decompression — depressurization

Vol. Troop compartment - 6,300 ft^3

$\Delta P = 6.2$ psi → 0 psi in 0.6 sec.

Troop compartment P = 12.02 psia.

Ambient P = 5.82 psia

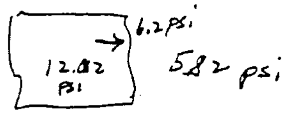
$\Delta P = 6.2$ psi.

12.02
5.82
6.20

P. cabin = no O_2
No decomp sick
Trapped gas expansion
Ears sinuses -
Temp control
movement.

diagram -

Cabins 10K OK 8 K better.



usual design to 8-9 psi ΔP.

14.7 psi 760 mm Hg

10.91 psi 565 " = 8,000 ft.

2.72 psi ~~272~~ 40,000 ft

5K' = 12.23 psi Pg 340 Bioastro

Pg. 344 air cannot be supersonic due to thermodynamics so rapid not explosive

Factors influencing decomp severity

1) Vol of cabin - lg cabin decomp more slowly.

2) Size of opening - larger = faster.

3) Time dep on Ratio Pcabin/Pambient - > Ratio => decomp time

4) ~~Flt~~ alt. - higher the alt, the longer the decomp time (because P ratio)

Hitchcock & [illegible] → noise, ↓ temp, fog. then [illegible] [illegible]

73 - 14
74 - 14
75 - 10
1975-78 · 50

Effects of

A. Decomp itself - out window or flying objects

B. then ambient alt hypoxia

ears & sinuses OK here as escaping air

'48-'64 decomp.
all landed OK.
Faster than 0.1 sec s̄ injury

Human experiments -

8 - 35 K' - 7.5 psi diff 0.09 sec open airways

1020 - 35 K - 6.55 - 0.07 sec

Pg 360
Fig 140
orifice area
cabin volume

Soyuz crew loss c̄ decomp. Impt of sealed cabin in space.

3C

Decomp. Sickness + Trapped Gas

Dysbarism = bstl.

> 25 Ks' more likely

< 23 Ks' unlikely

< 30 Ks' low incidence.

gas forms when > 25 Ks:

Ceiling to 10K or last 8K better.

30K' critical alt. decomp sickness.

No evidence in decomp sick of rapid decomp.

Cranial sutures do not ossify completely until early adulthood

Fontanels.

6 fontanels - ant. post., 2 sphenoid, 2 mastoid - are usually present at birth

Anterior normally closes between 10-14 months but may be closed by 3 month or remain open until 18 months.

Posterior fontanelle usually closes by 2 month but in some may not be palpable at birth

Medical Physiol Mountcastle Vol 2 Lumberton[?]
Text of Physiol - Gillis[?]

Ly DeBolt - 14.
Cargo - passed out?
Head injury - eye.

WISE

KURTH: 9 mos. - mother's operation c̄ del.
1 mo. in hosp.
Fr Olivera - hell hole
Foster family - Bluckel family - [illegible] 2x
Hi IQ 133 - doing well
Speech problem - graham - speech therapy.
gone away - [illegible]

(? malnutrition
stay away)
(what [illegible])

No Dx -
Only look generally -

Stark (58)

DEAD Tray.
1 child - [illegible]
2 adults - [illegible]

CARGO -
DeBolt - 13 c̄ injuries
Wright - 9
Wise -
[illegible]
16
10
2
1
145 7
102 47

330 175 185
5 10
2 lower lived.

145 ↑
130 ↓
78 died

LOCATION IN A/C
EACH AREA - DEAD - INJURED.

Marasmus -
Kwashiorkor -

3 T

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Preventive Medicine Consultant Aerospace Medicine

St 4
Berry Ex #14
10/1/81
DLG

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1819 H Street, N.W.

WASHINGTON, D.C. 20006

Reference : C-5A aircraft accident on April 4, 1975near Saigon, Vietnam

Dear Mr. Dubuc,

In accordance with your request, I have reviewed a large number of documents relating to the above accident. These have included the USAF accident report testimony from several individuals involved in the accident, various experts and numerous supporting documents, diagrams, photos and references. In the following statements, I will address my comments to the aerospacemedical issues which are alleged in certain testimony to have produced effects or injury to occupants of the troop compartment of the C-5A aircraft.

The aerospace medical factors which I will discuss are :

- rapid decompression, decompression sickness and trapped gas effects, hypoxia and deceleration forces.

RAPID DECOMPRESSION

The data indicate the occupied areas of the C-5A were pressurized to 12.02 psia at the time of the decompression while the outside pressure (ambient) was 5.82 psia creating a pressure differential or Δ P of 6.2 psi. The troop compartment would have been at an altitude equivalent just below 5,000 ft. and the ambient altitude of 23,400 ft. was reached in the troop compartment in 0.6 seconds.

The troop compartment volume was 6,300 cu.ft. contributing to the slower decompression time in spite of the large opening created by the loss of the cargo compartment door. The tipycla fogging due to pressure change occurred but no injuries occurred in the troop compartment as a result of air movement. The gas expansion in the middle ears, sinuses and gut is usually relieved by escape through the normal openings.Numerous human experiments with decompression from 8 or 10,000 ft. to 35,000 ft. have demonstrated no injury or disability in the subjects with open airways. In addition, numerous airliner decompressions have been reported from 1948 through 1978, usually to higher altitude than in this case and there have been very few reports of any difficulty including loss of consciousness.

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In the USAF aircrews routinely experience rapid decompressions from 8 to 22,000 ft. and thousands have been so exposed in training operations without undue difficulty. I have personally done nearly 100 such rapid decompressions, many to 25,000 ft. as an instructor in physiologic training for aircrews and without any difficulty whatsoever.

DECOMPRESSION SICKNESS AND TRAPPED GAS EFFECTS

Contrary to expectations of some researchers, there is no evidence of an increased incidence of decompression sickness after a rapid decompression.Dysbarism is a term encompassing both trapped gas syndromes (middle ear, sinus, gut, teeth) and the evolved gas syndromes (bends, chokes etc.) more commonly called decompression sickness. The latter are extremely rare below altitudes of 25,000 ft. and the rare one seen is obese with more stored nitrogen to evolve or older. The environment of this accident should not produce any effects of decompression sickness. I have done a great deal of research in this area including documenting and evaluating all the altitude chamber and inflight cases in the USAF to the early 1960s and my thesis at Harvard was on the subject of dysbarism.

HYPOXIA

The important factors to consider in this area are the partial pressure of oxygen available at the individual cell after transport by the blood, thus the time spent in an atmosphere with reduced oxygen levels (the altitude) and the presence and duration of unconsciousness. The altitude time history of the C-5A in this accident shows a maximum altitude of 23,400 ft. In 2 min. it was 19,000 ft., 3 min 16,000 ft., slightly above 16,000 ft. at 4 min. due to a life saving maneuver of adding speed to lift the aircraft nose, 15,500 ft. at 5 min., 12,400 at 6 min., nearly 10,000 ft. at 7.5 min., 10,000 at 8 min., another nose up-maneuver to 11,000 ft. at 8.5 min., back at 10,000 at 9 min. and progressively down from there. Even the time of useful consciousness (time in which an aircrewman could do purposeful action after exposure to reduced oxygen levels) becomes asymptotic at minutes of time on decompression to 25,000 ft. breathing air. Here we are concerned with passengers where the concern is the time of safe unconsciousness.According to the witnesses no one in the troop compartment even lost consciousness and this is certainly consistent with exposures of many persons at such altitudes. The body has a superb set of compensatory mechanism to keep the partial pressure of oxygen at the highest level possible demonstrated by increasing oxygen saturation over time exposed to hypoxic atmosphere. In addition children are more resistant to hypoxic effects. Thus I would not invision any effects of hypoxia on occupaants of the troop compartment.

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DECELERATION

The injuries produced by deceleration are dependent not only on the level of g force but the axis of the body on which it acts (X - Y - Z), the duration of the force and the body area absorbing the force. In this case, the nose high aircraft attitude on striking the ground, the force attenuation by loss of the landing gear and the long slide across the ground in separating the aircraft at its assembly joints all acted to reduce g forces. That they were less than 2 g is attested to by the fact the adults who were unrestrained could hold onto seats from a position in the aisle and were not injured. In addition the children were in rear facing seats well strapped in and supported by pillows further reducing effects of even the calculated low g in - X axis. Review of a great deal of data here convinces me no injury should have been sustained by restrained or "holding on" passengers.

As a result of my review of the voluminous materials and my own references I am convinced to a reasonable medical certainty that none of the above discussed factors (decompression, decompression sickness and trapped gas syndromes, hypoxia or decelerative forces) were sufficient to produce the alleged permanent effects in occupants of the troop compartment.

I am willing to amplify this opinion in direct testimony as you feel necessary. I deeply apologize for the delay in forwarding this opinion which is being written during my attendance at the 29th International Congress of Aviation and Space Medicine in Nancy, France, sponsored by the International Academy of Aviation and Space Medicine. I am a past president of the Academy and have had a long standing committment to present a paper on "Risk factors in pilots" and then to chair the session on acceleration.

I hope this arrives in a timely fashion through the multiple methods I am using to get it to you in Washington from me in Nancy, France.

Sincerely yours,

Charles A. Berry M.D.

Charles A. BERRY M.D., M.P.H.


Dr. Schuelein File
re: Stadheim, Tai
ORIGINALS