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12 March 2000.

This statement is made by  
Dr. PAUL GRAHAM LUCKIN,  
of Suite 16,  
Peninsula Specialist Centre,  
George St.,  
Kippa Ring, Qld, 4020.

**QUALIFICATIONS.**

I am a Specialist Anaesthetist, in private practice.  
My qualifications are;  
Bachelor of Medicine and Bachelor of Surgery, 1980.  
Diploma in Anaesthesia, 1983.  
Master of Medicine in Anaesthesia, 1987.  
Fellow Faculty of Anaesthetists, 1988.

I have been practicing medicine for nineteen years, twelve of those years as a Specialist Anaesthetist.

**EXPERIENCE** which may be considered relevant to the preparation of this statement is contained in the *Appendix*.

**SOURCES OF INFORMATION;**

Mr Darren Senogles, crew member of Sword of Orion.  
Statements of 7 January 1999, 3 March 1999, 26 July 1999.

Mr. John Gibson, crew member of Winston Churchill.  
Statement of 27 January 1999.

New South Wales Police Service, Sydney Water Police.  
Background information.

Professor A C. Cross, School of Physics, University of Sydney.

Report regarding Sword of Orion; lanyards and harnesses.

LEUT A. McCrindell, Royal Australian Navy, Maritime HQ.  
Oceanographic charts for 23 and 30 December 1998.

Pambula Hospital;

Copies of Medical Records, Mr. John Gibson and Mr. John Stanley.

"Fatal Storm"; Rob Mundle, Harper Collins publishers, 1999.

**OPINION Re: MR GLYN CHARLES - SWORD OF ORION**

**1 Physical condition before the race:**

1.1 Mr Charles is reported to have been 33 years of age, 72 kg, of thin build and fit condition.

**2 Condition immediately prior to the rollover:**

2.1 Mr Charles is described by Mr Senogles as being "happy with what was going on, and we were quite comfortable" (7312-99/1111 Page 8) and "still quite fresh ... talking and kidding and joking and everything was normal" (7312-99/1111 Page 19). The implication was that Mr Charles at this stage had a normal body temperature, was not dehydrated, was fed, active and alert and had no injuries. He was well clothed, wearing yellow waterproofs, dinghy boots and a harness and lanyard (7312-99/1111 Page 22).

**3 Position immediately prior to the rollover:**

3.1 He was sitting on the port side, with one leg either side of the steering wheel. The lanyard from his harness was attached to a strong point on the port side of the boat. When the boat was pushed over onto its starboard side he would have remained on the port side supported by the wheel or fallen downwards towards the boom and the water. (7312-99/1111 page 9.)

**4 Probable mechanisms of injury:**

4.1 It seems most probable that Mr Charles either:

(a) fell directly downwards from the portside towards the boom and water and his fall was arrested by the harness or by hitting the boom or other part of the boat; or

(b) was hit by the boom swinging upwards; and/or

(c) was dragged through the water as the boat rolled through 360 degrees.

4.2 The possibility of being hit by the boom, or hitting the boat itself, and the fact that the lanyard was broken, suggest specific patterns of injury. The lanyard was attached to the chest harness, and was broken at this point. The forces required to do this, and the acceleration and/or deceleration of the thorax, (Prof.A.Cross, 5 Jan 1999,) while the rest of the body was in motion, make major thoracic and spinal injuries probable, even if Mr. Charles was not hit by the boom.

**5 Probable patterns of injury:**

(a) Thorax:

- rib fractures, with or without a flail chest. (A flail chest is a mobile section of chest wall, due to multiple fractures of multiple ribs, allowing the chest wall section to move in and out. This prevents normal breathing.)

- Pneumothorax (collapsed lung with air in the chest), haemothorax (blood inside the chest compressing the lung) or haemo-pneumothorax, or tension pneumothorax (air under pressure in the chest, collapsing the lung, displacing the heart and major vessels and impeding function of the lungs and heart)
- injury to the great vessels (aorta, superior vena cava, inferior vena cava, pulmonary artery, pulmonary veins). These injuries cause major bleeding into the chest.

**(b) Abdomen:**

- major intra-abdominal haemorrhage (bleeding from liver, spleen, mesenteric vessels)
- fractured pelvis, with massive blood loss into the pelvic cavity.

**(c) Spinal column:**

- fracture and/or dislocation, with possible spinal cord damage causing loss of sensation and paralysis in the upper and lower limbs (cervical cord damage), or lower limbs alone (lumbar cord damage.)

**(d) Limbs:**

- long bone fractures, especially of the femur, with extensive blood loss.

5.1 Mr Senogles statements support these as probable mechanisms of injury, with the exception of significant cervical spine and cord injury. He says (7312-99/1111 page 9) 'I think Glyns fallen... into the center of the boat, and the booms come across and picked Glyn up. He says (page 10) 'He did free style for all of 6 strokes and then, and then that was all he could do, I, I imagine he didn't realise he was hurt and then when he actually started to move his arms he realised he was hurt. And then from that time on, that was probably 15 metres away from us now ... he was just treading water ... Glyn was just treading water and just staying over, above the surface of the water, and at times starting to dunk underwater. After about a minute or two he was spending more time under water than on top of the water, and after 5, 5 or 6 minutes we were starting to lose sight of him ... and then I saw him go under and then we went, lost sight of him, cause we went down into a trough and we came back up and there was no Glyn, he, he'd gone down, he didn't come back up". Mr Senogles is quoted (*Fatal Storm page 197*) as saying "I screamed at Glyn t swim. I know he heard me, but he did all of 6 strokes and that was it. I guess he didn't realise at that stage that he was badly hurt, but when he moved his arms to swim you could see it on his face. I can only guess he had broken legs and ribs. He was in pain. After just a few strokes he realised that he couldn't swim any more ... you could see him and then you couldn't, he was just bobbing on the surface trying to keep his head above the waves. Then he just went face down and disappeared. He seemed to be gone less than 5 minutes after we rolled. Even if I had been able to get him back to the yacht I daresay he probably would have struggles to survive what I believe were terrible injuries.

**6 Relationship of likely injuries to description:**

6.1 This account is entirely consistent with the injury patterns described:

- fractured ribs, flailed chest, pneumothorax, haemothorax, pneumo-haemothorax or tension pneumothorax would progressively and rapidly diminish the ability to breath and prevent him from continuing to swim. Multiple fractures of the ribs would also cause considerable pain.

6.2

- massive blood loss into thorax, abdomen, pelvis, limbs or via external wounds would cause rapid and progressive shock also limiting the ability to swim.

6.3

- inability to use his legs due to spinal injuries, fractured pelvis or leg injuries would severely limit his ability to swim.

6.4 If Mr. Charles suffered any of these injuries it is probable that he became aware of them as soon as he tried to swim, and would be unable to continue swimming because of the effects of his injuries. This too is consistent with Mr. Senogles' statements.

## 7 OPINION

7.1 In my opinion it is most probable that Mr Charles suffered major injuries at the time of the rollover and breaking of the lanyard attached to his harness and that he died at or immediately after the last time Mr Senogles saw him. I do not believe that it was possible for him to survive these injuries under the prevailing conditions.

7.2 Considering the probable mechanisms of injury, I believe it highly improbable that Mr Charles was left alive and uninjured in the water following the rollover.

7.3 In the unlikely event that this was in fact the case, the discussion of the factors relevant in the case of Mr John Dean would apply.

P.G.Luckin.

Re: MR JOHN DEAN - WINSTON CHURCHILL

1 Physical condition before the race:

1.1 Mr John Dean is described as being 48 years old, 90 kg, of medium build and fit.

2 Physical condition when lost from the raft:

2.1 Mr Dean had been in the raft, wet and partially immersed for approximately 8-10 hours (from 16.30 hours on 27 December 1998 (*Mr Gibson's statement 7312-99/2225 page 46*) until 02.30 hours on 28 December (*7312-99/2225 page 31*).

2.2

(a) **hydration:** despite little or no fluid intake since leaving the Winston Churchill, Mr Dean would still have been well hydrated.

(b) **body temperature:** Upon admission to the Pambula Hospital, Mr John Gibson had a recorded body temperature of 34.3 degrees Celsius, and Mr John Stanley a temperature of 34.7 degrees. They had been in the water for approximately 30 hours, (*7312-99/2225 page 47*) been winched from the water, and flown by helicopter to hospital (Mr Gibson gives the time of entering the raft at 16.30 hours on 27 December (*7312-99/2225 page 46* and *Mundle (page 286)* gives the time of rescue from the water as 23.00 hours on 28 December). \*

2.3 One can assume that Mr Gibson and Mr Stanley had normal body temperatures of approximately 36.7 degrees Celsius at the time they abandoned Winston Churchill. Their mean body temperature on reaching hospital was 34.5 degrees Celsius. This is 2.2 degrees Celsius below their normal temperature. If one assumes their temperature drop to have been constant over the 30 hours they spent in the water and the period between rescue and reaching hospital, then they experienced a drop in temperature of about 0.7 degrees Celsius per 10 hours.

2.4 It is probable that Mr Gibson and Mr Stanley had body temperatures close to normal (probably about 36 degrees C) after 8-10 hours in the raft; at the time when Mr Dean was lost from the raft.

2.5 Mr Dean was lost from the raft at approximately 02.30 hours on 28 December, after the same 8-10 hours in the water.

2.6 If Mr Dean's clothing was similar to that of Mr Gibson and Mr Stanley, and if he had a similar fat layer, it is reasonable to assume that Mr Dean's temperature was about the same, ie, that it was close to normal at the time that he was lost from the raft.

2.7

(c) **Morale** seems to have been high (*Mundle page 278, Gibson 7312-99/2225*)

2.8

(d) **Clothing:** it is assumed that Mr Dean was wearing warm clothing under wet weather coat and overalls and sea boots. (*Information from Police*) Mr Dean was wearing a life jacket (*Gibson 7312-99/2225 pages 33 and 35*).

3

**Likely mechanisms of injury following loss from the raft;**

(a) **Dehydration:**

- lack of fluid intake
- seasickness, due to motion, or vomiting due to swallowing salt water
- diarrhoea due to swallowing salt water
- fluid loss via evaporation

It is unlikely that Mr Dean would have suffered significant dehydration from lack of fluid intake or evaporation. Dehydration would be hastened by vomiting or diarrhoea, but would probably not be a major problem in under 24 hours. I consider it unlikely that dehydration played a major role.

(b) **Hypothermia.**

From the time he was lost from the raft Mr Dean was largely immersed in water at close to 21 degrees C (LEUT A. McCrindle, Royal Australian Navy, sea surface isotherms 23 Dec 1998 and 30 Dec 1998.)

It is not possible to calculate with precision the rate at which his core temperature would have declined. It is however again reasonable to assume that his temperature would have declined at a rate similar to Mr. Gibson and Mr. Stanley, ie that he would have had a temperature of about 34.5 degrees C by 2300 hours on 28 Dec 1998.

At this temperature one would expect to see early effects of cooling of the brain, such as hallucinations, as described by Stanley and Gibson (*Fatal Storm*, page 286; Gibson 7312-99/2225 page 25), delusions, periods of memory loss, fatigue, and drowsiness.

It is also reasonable to assume that Mr. Dean continued thereafter to cool at the same rate, of roughly 0.7 degrees C per 10 hours.

It follows that by daylight on 29 December he would probably have had a temperature of between 33.5 and 34.0 degrees C. At this temperature hypothermia is a major threat to life, due to the decreasing level of consciousness, and increased risk of laryngospasm from inhalation of water.

By the end of the day (29 December) Mr. Dean's temperature would be expected to be in the region of 33.0 degrees C.

At this temperature unconsciousness is usual. Once a person floating or swimming in the water loses consciousness, drowning is inevitable within a short period.

(c) **Drowning.**

Drowning may occur by innaation of a significant quantity of water, which prevents gas exchange in the lungs, ("wet drowning"), or by a small quantity of water being

(c) **Drowning.**

Drowning may occur by inhalation of a significant quantity of water, which prevents gas exchange in the lungs, ("wet drowning"), or by a small quantity of water being inhaled, hitting the vocal cords, and causing involuntary spasm of the cords, known as laryngospasm. Laryngospasm closes the vocal cords, and prevents air ( or water) passing into or out of the lungs. As the oxygen in the lungs and blood is consumed, the concentration of oxygen in the brain falls, and the victim rapidly loses consciousness, and dies from lack of oxygen. ("Dry drowning"). An unconscious person in the water, under the wind and water conditions existing on the 27 December and 28 December stands no chance of survival. Death by drowning will follow immediately.

A victim floating in rough water is at high risk of laryngospasm occurring, from water splashing into the face and being inhaled. This risk is greatly increased by spray driven by high wind, as was present at the time of and following Mr. Dean's loss from the raft. The risk of laryngospasm is also increased by any fall in body temperature, and by fatigue. Both of these conditions existed in this case.

Absence of a life jacket also increases the risk of drowning, both because of the increased difficulty of keeping the airway up and away from the surface of the water, and from the more rapid fatigue caused by greater effort required to stay afloat. It is stated that Mr. Dean was wearing a life jacket when lost from the raft. How long he retained this life jacket is unknown; Mr. Gibson and Mr. Stanley both had theirs washed off by the wave which carried Mr. Dean away, ( Gibson, 7312-99/2225 page24 ) although Mr. Gibson did not lose his.

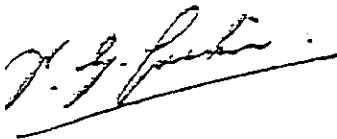
The bodies of the other two men lost from the same raft were located at 0652 hours and 0848 hours on 29 December. I do not know whether they were wearing life jackets when found. I do not know whether their bodies were examined soon after they were recovered, and if so whether their temperatures were measured as soon as possible. If this was done, the information may give some indication as to how long before retrieval death occurred, and this may provide information of value in estimating how long Mr. Dean may have survived.

4 **OPINION.**

4.1 I consider it probable that Mr. Dean died by drowning. Given the prevailing wind and water conditions, I think it likely that this occurred within a comparatively short period of time. I would think that survival beyond the middle of the day of the 28 December was unlikely. A drop in body temperature would have been a contributory factor, but not the major factor.

4.2 With respect to hypothermia, if Mr. Dean was still alive by daylight on 29 December, I believe he would have had little chance of surviving through the day. I consider it extremely unlikely that he could have survived the night of the 29 December 1998

P.G.Luckin





### Appendix:

#### EXPERIENCE WHICH MAY BE CONSIDERED RELEVANT TO THE PREPARATION OF THIS STATEMENT;

Before studying Medicine I trained as an Ambulance Officer in Tasmania, working in Ambulance Rescue, and Coronary Care Ambulances.

Officer in Charge, St. John Ambulance Divisions, Port Moresby, 1973.

Chairman and Co-founder,  
Port Moresby First Aid and Ambulance Service; 1973.

Ambulance Officer,  
Tasmanian Ambulance Service, and  
member, Ambulance Rescue Team, 1974 -76

Divisional Officer, Hobart Combined Division,  
St. John Ambulance Brigade,  
1974 - 1976

Doctor, Mountain Rescue Team,  
Mountain Club of South Africa, (Natal Section);  
and member Sub-Committee on Rescue, MCSA.  
1982-1989.

Honorary Consultant,  
Ambulance and Emergency Medical Services,  
Natal, South Africa, 1984-1989.

Alternative Director,  
Red Cross Air Mercy Flights,  
Natal. 1986-1989.

Co-Organiser and Lecturer,  
Course in Emergency and Disaster Medicine for Doctors;  
Natal Accident and Emergency Medical Services,  
1987-1989.

Examiner and Lecturer,  
Ambulance Training College,  
Natal. 1985-1989

Examiner and Lecturer,  
Primary Emergency Care Courses,  
Emergency Medical Assistants Courses,  
Red Cross Society, Natal Region. 1984-1989.

Member of National Examiners Committee,  
Red Cross Society of South Africa. 1987-1989.

Member,  
Natal Medical Rescue Co-ordinating Committee. 1988-1989.

Australian Resuscitation Council,  
Tasmania. 1993 - 1997

Chairman, "SARSYM 91";  
Tasmania State Search and Rescue Symposium,  
May 1991.

Lecturer and later Hon. Member Directing Staff,  
National Police Search and Rescue Coordinators Courses.  
1991 - present

President,  
Royal Life Saving Society - Australia,  
Tasmania Branch,  
1993 - 1997

Honorary Specialist Medical Officer;  
Member Medical Advisory Committee / Clinical Advisory Council; and  
Director, Advanced Airway Management Training Programme;  
Tasmanian Ambulance Service,  
1995 - 1997

Convenor,  
Symposium on Drowning in the 0 -5 years Age Group;  
Royal Life Saving Society, Tasmania Branch,  
Hobart, October 1995.

Chairman,  
Tasmania State Task Force for Prevention of Drowning in 0 -5 year Age Group,  
1995 - 1997

Medical Officers course in Underwater Medicine,  
Submarine and Underwater Medicine Unit,  
Royal Australian Navy,  
1995.

Lieutenant,  
Royal Australian Naval Reserve,  
1996 -

Australian Service Medal (Bougainville) 1999.

Deputy Chairman,  
State Training Committee (Queensland),  
St. John Ambulance Australia. 1999 -