

15 Empirical evidence: Christmas Island's unknown sailor

15.1 On 6 February 1942 a Carley float containing a body was seen off Christmas Island. The float was recovered, and the body was subsequently buried. In 2006 the site where the body had been buried was identified, and the body and other contents of the grave were exhumed and examined. The body was re-interred on 19 November 2008 at Geraldton as an unknown sailor, representative of those lost in HMAS SYDNEY.

15.2 Since 1942 there has been controversy associated with three questions:

- Were the Carley float and the body in it from SYDNEY? If so, who was the crew member in the Carley float?

This controversy has centred on the fact that from the date of finding the float and the body until the release of the Parliamentary Inquiry's report in 1999 the Navy maintained that the Carley float was not from SYDNEY. Necessarily, that meant the body was not that of a SYDNEY crew member. The Parliamentary Inquiry ridiculed that contention. Since 2000 the Navy has contended that the Carley float and thus the body were from SYDNEY. Indeed, as noted, on 19 November 2008 the body was buried with full military honours at Geraldton.

- If the Carley float and body were from SYDNEY, how did the crew member come to be in the float and part from SYDNEY when there were no other survivors?

This controversy centres on an assertion that the body was found in a deteriorated state, sitting upright in the Carley float but with a wound to the head caused by a metal object, asserted by some to be a bullet and by others to be shrapnel.

- Are the injuries to the body—in particular the metal object found in the skull—consistent with the account German survivors gave of the battle between SYDNEY and KORMORAN? Alternatively, do the injuries support the allegation that SYDNEY survivors in the water were machine-gunned either by KORMORAN crew or by crew on board a Japanese submarine?

History

- 15.3 On 6 February 1942 human remains were discovered in a Carley float drifting off Flying Fish Cove, Christmas Island. At that time Christmas Island was largely occupied by employees of the Christmas Island Phosphate Co. Ltd; the company was engaged in phosphate mining under the terms of a concession granted by the British Government in 1897. The island was under threat of Japanese invasion, so most of the company's staff were evacuated on 17 February 1942. The remains found in the Carley float had been buried before that time:

According to an unofficial statement by one of the evacuees, an inquest on the human remains was currently underway, with a full report to be forwarded to Australia when completed (it should be noted that this statement was subsequently contradicted by the same informant in a newspaper account published in 1949).¹

This quote is from a report dated 25 October 2000 and prepared by Mr D Watson of the National Archives of Australia; he had searched the Christmas Island Phosphate Commission² records entitled 're Coronial Inquiry into unidentified corpse found off Christmas Island'.³

Christmas Island was occupied by Japanese forces on 23 March 1942.

- 15.4 On 23 February 1942 Mr JC Baker and his wife were evacuated from Christmas Island on MV HERMION. CAPT R Hannevig, her master, filed a shipping intelligence report. It contained the following:

Mr Baker, for the last six years, has been in charge of the Radio Station at Christmas Island. It is his desire that all information given be treated as unofficial, as he has given same entirely from memory, and suggests that, when opportunity offers, accuracy of detail should be checked.

His story is as follows:-

On or about 6/2/42 an object was seen drifting past the island, and, on investigation, this proved to be a Carley float. This float was grey in colour, the usual oval shape, and had rope beackets on the outside. Inside the float was a wooden decking held in place by a form of net roping.

On this decking was a corpse and a canvas shoe. On investigation ashore, the following was ascertained:-

¹ NAA.060.0031 at 0032

² The Australian and New Zealand governments acquired the Phosphate Company's assets and interests in 1948 and established the Christmas Island Phosphate Commission.

³ NAA.060.0031

(a) The corpse was clothed in a white boiler suite, the pockets were empty and there was nothing to establish identity. The shore doctor established that the body was that of a white man. All the flesh was gone from the right arm, also the eyes and nose were missing. Otherwise, the corpse was decomposed in parts.

(b) The shoe was not on the foot of the corpse, but was found beside the body. It was probably branded "CROWN BRAND PTY 4", but Baker was not quite certain regarding "CROWN" or "4".

(c) The Carley float had been damaged in places, apparently by shrapnel or machine gun fire. One piece of metal, obviously not a bullet, was found embedded in the kapok filling. Another piece of metal, strongly resembling a machine gun bullet, was found in the kapok, the outer covering of the float being perforated by a small round hole.

The float was marked No. 2 on the outside covering, and, when the covering and kapok were stripped from the inner metal framework, the following brand was found in two places, "MADE IN N.S.W. ANNEALED ZINC INSIDE".

The pilot at Christmas Island stated to Baker that the barnacles on the float were 6 inches long, but it is suggested that he may have referred to ordinary marine growth.

When Baker left Christmas Island on 17/2/42, an inquest, which had been delayed owing to illness of an official, was in progress. A full report is to be forwarded to Australia as soon as this inquest is concluded.⁴

15.5 Two days later, on 25 February, SS ISLANDER called at Christmas Island to evacuate 48 people. CAPT GHA Denne, her master, was apparently aware of the shipping intelligence report of 23 February 1942. He too filed a shipping intelligence report, and it contained the following:

From Captain J.R. SMITH, Harbour Master from the Island, the following information, which throws further light on the report made by J.C. BAKER (Reference "HERMION" in this report), was gathered.

In Captain Smith's opinion, the Carley float in question was undoubtedly of Naval pattern. The wooden decking was branded with the word "PATENT" and one hole, apparently caused by a bullet was found in this decking.

The outer covering of the float was damaged in several places, a few pieces of metal being found embedded in the kapok filling. One of

⁴ NAA.018.0230, SPC.004.0297

these pieces, in the opinion of the gun's crew on the island, was what remained of a bullet.

The inside framework, also the divisions between the buoyancy tanks, were branded as follows:-

'LYSAGHT DUA-ANNEAL ZINC. MADE IN AUSTRALIA INSIDE.'

All the roping attached to the float had a red yarn running through the strands.

The barnacles found on the float were up to one inch in length.

The canvas shoe found on the float was branded either 'McCOWAN' or 'McEWAN' also 'PTY' followed by a crown and/or a broad arrow.

The corpse was clothed in a boiler suit which had originally been blue, but was bleached white by exposure. There were four plain press buttons from neck to waist.

All other statements made tallied reasonably with those made by BAKER, and, without any suggestion of discrediting Baker's statements, which were given in good faith, it is suggested that those made by Captain Smith should prove the more reliable. The fact that a red yarn was found in the strands of the roping appears important, and would be one of the first things to attract the notice of a practical man such as Captain Smith.⁵

15.6 The following is to be noted in relation to these two reports:

- Neither records the position of the body in the Carley float.
- Each account recorded that there was 'a canvas shoe', although they differed in relation to the branding on that shoe.
- Recollections differed as to the markings shown on the metal tubing of the Carley float, Mr Baker recalling they said 'Made in NSW annealed zinc inside' and CAPT Smith recalling 'Lysaght dua-anneal zinc. Made in Australia inside'.
- Mr Baker recalled the corpse being clothed 'in a white boiler suit, the pockets ... empty', whilst CAPT Smith recalled the corpse being clothed 'in a boiler suit which had originally been blue but was bleached white by exposure. There were four plain press buttons from neck to waist'.
- Each observed damage to the Carley float. Mr Baker thought it had been caused by 'shrapnel or machine-gun fire'; CAPT Smith

⁵ NAA.018.0228

thought it had been caused by a bullet—as, apparently, did the gun crew on Christmas Island.

- Mr Baker noted that the float was ‘marked Number 2 on the outside covering’. There was no reference to this in CAPT Smith’s account.
- CAPT Smith noted that the roping on the Carley float had red yarn within its strands. Mr Baker made no reference to this.

15.7 If the doctor on Christmas Island performed an autopsy, no report of that autopsy has been located. If such a report had been prepared it might have been destroyed during the Japanese occupation, or it might, perhaps, have been forwarded to authorities in Australia.

15.8 On 23 April 1949 the Director of Naval Intelligence, CAPT GC Oldham, wrote to the Director of Victualling and Director of Naval Stores a minute headed ‘Identification of a Carley float supposed to have been ex-cruiser Sydney’. It stated:

The attached memorandum from N.O.I.C. Fremantle resuscitates a matter which was brought under notice during the War and which is believed to have been investigated at the time, although no records can be found.

2. Would D. Of V. please remark on paras. 3 (a) and (b) of W.A. Shipping Intelligence Report No 137/1942 herewith on para 3 (c) thereof, in order to determine whether or not the Carley float and corpse which fetched up at Christmas Island were ex the Cruiser “Sydney” which was sunk by gunfire from the German raider “Cormoran” off the Western Australian Coast on 19th November, 1941.⁶

The ‘attached memorandum’ from the Naval Officer-in-Charge Fremantle is not attached and has not been located.

The Director of Naval Victualling responded by handwritten note:

Regarding par 3(a), the boiler suit does not coincide with ratings-type stock in R.A.N. as pressed studs have never been adopted. A naval rating may have worn the type described although not strictly uniform. R.A.N. officers purchase their own or have them made-up privately. White & brown in colour and with press studs. The machining on the shoes described by Captain J.R. Smith as underlined in blue pencil definitely corresponds with supplies from our stock, provided they were leather not canvas shoes. I should think they had been issued to an officer or rating.⁷

⁶ NAA.018.0224

⁷ NAA.018.0224

15.9 On or shortly before 4 May 1949 an article appeared in the *West Australian* newspaper in relation to the finding of the Christmas Island body in the Carley float. It was apparently written by a Mr JW Brown, who said he was the 'Sergeant of the Christmas Island Platoon of the Singapore Volunteers'. The article stated:

Jap submarines were cruising round the Island, one ship, the Norwegian freighter "Eidsvold" had already been torpedoed not a hundred yards from the shore. Our prospects were indeed gloomy. Our chances of getting away very remote. Those of resisting a landing even more remote. The only thing we could do was to keep watch and wait and for this purpose look out posts were chosen and manned, by our Chinese and Indonesian coolies. They had reported submarines at various times and one evening reported what they thought was another. Examination through the binoculars proved it to be a raft with apparently someone on board. The pilot boat put off and towed it to the jetty. It was a Carley raft with one body on board, the body of an Engine room rating in blue overalls very much decomposed. Seabirds from above and fish from below had done their share to make identification impossible. A pair of boots was also on the raft which our medical officer said could not have been worn by the dead man, this led us to believe that there may have been others on the raft. Their fate? Who knows, the raft was riddled with shrapnel. Distinguished markings on the boots were a broad arrow and the letters Pty which seemed to confirm our opinion that the dead man was an Australian Naval rating. We took the body ashore and buried it with full military Honours. And there he rests on that Island in the Indian Ocean in the little cemetery on the hillside under the Towering cliffs. Who he was we shall never know, he rests in honour.⁸

It is of note that this account had the body wearing 'blue overalls' and that there was a 'pair of boots'—as distinct from a single shoe, as the two previous accounts had noted—that the Christmas Island medical officer said could not have been worn by the dead man. The identification marks on the boots were a broad arrow and the letters 'Pty', which accords to some extent with the identifying marks observed by CAPT Smith. Mr Brown, however, had the raft 'riddled with shrapnel', as distinct from the penetrations being made by bullets.

15.10 The Naval Officer-in-Charge referred the article to the Director of Naval Intelligence, writing:

The attached copy of a press item has been submitted to this office by Mr. J. K. Atkinson of the staff of the "West Australian" Newspaper. The information given was supplied by Mr. J. W. Brown, present address, Carlton Hotel, Perth. As no previous details are available in this office, it would be appreciated if the statement could be confirmed

⁸ NAA.018.0227

from records held and any information added which would be of value.

In the temporary absence of their originator, Mr. J. W. Brown, his wife was interviewed at their Perth address and materially substantiated that they were residents of Christmas Island at the time of the incident now reported. Further advice will be furnished in amplification, on the return of Mr Brown in about ten days time.⁹

- 15.11 On 2 August 1949 CAPT GC Oldham, the Director of Naval Intelligence, responded to the Naval Officer-in-Charge:

With reference to your memorandum W.A.264-1-14 of 4th May, I have carried out detailed investigations for the purpose of assessing the possibility whether the Carley Float, with the corpse on board, sighted off Christmas Island, could have been ex the Cruiser "SYDNEY".

2. Identification particulars set out in the some detail in Shipping Intelligence Report No. 137/1942 forwarded by S.O.(I) Fremantle on 23rd February, 1942, assisted these investigations. While these show that the clothing found on the corpse could possibly have been that of an R.A.N. rating, it seems reasonably certain from the particulars given of the covering of the Carley Float that the Float did not belong to an H.M.A. Ship.

3. My conclusion, therefore, is that the Carley Float sighted (on or about 6th February, 1942) off Christmas Island was *not* ex H.M.A.S. "SYDNEY".¹⁰

It is not clear what was 'the covering of the Carley float' to which CAPT Oldham referred. Mr Baker did not describe the covering other than to say it was 'grey in colour, marked Number 2 and had within it kapok'. CAPT Smith did not describe the covering at all, but he did refer to kapok.

Whatever the basis for CAPT Oldham's view, this seems to be the first occasion on which a Naval officer asserted that the Carley float 'did not belong to an HMA ship'. This appears to be the origin of the position adopted by the Navy for the next 50 years. If the Carley float was not from SYDNEY, the body was not from SYDNEY.

- 15.12 On 2 June 1981 CAPT E Craig, who apparently had been the assistant harbour master at Christmas Island in 1941¹¹, either wrote to or gave a statement to Mr Michael Montgomery, author of *Who Sank the Sydney?* The statement was in the following terms:

⁹ NAA.018.0226

¹⁰ NAA.018.0223

¹¹ NHQ.001.0092_R

... about the Carley float that was found off Rocky Point, Xmas Island on 6th Feb. 1942. I have no written record of the occurrence & some of the details are somewhat hazy after the passage of nearly 40 years. However, a report was made at the time, along with a Post Mortem examination by our Medical Officer, Dr. Scott, and these were given to the District Officer - Mr. Cromwell - who presumably forwarded them on to Fremantle. I think I'm correct in saying that, by this time, we had no sea connection to Singapore and only a one way connection to Fremantle. I, personally, with the assistance of two of our Malay marine staff took our small motor boat out & towed the Carley float into the jetty where it was lifted ashore by crane. There was only one body lying in the float with legs doubled under at the knee., rigidly (Rigor Mortis?). The exposed parts of the body seemed well preserved, presumably by the salt from the drying of the sea spray, but the underside, where it had been in contact with the grating floor of the Carley float & partially immersed in water, had been attacked by marine life. After landing, the body was removed to the hospital for the P.M. & I never saw it again.

The Carley float was typical of those in service with the RN and RAN but not with the Allied Merchant Services, oblong in shape, with rounded corners, consisting of a hollow metal tube (air chamber) covered with slab cork and then covered with canvas. The central space had a wooden grating to act as a floorboard. There were no identification marks on the float but there were a couple of minor gashes in the canvas & cork which might have been caused by shrapnel - or jagged metal at the time of launching - but nothing conclusive. On removing part of the canvas & cork it was found that the inner metal tube was stamped LYSAGHT PTY. (at this distance in time I cannot recollect whether there was a LTD after PTY, but this is not significant ... To me, unless the Australian authorities can produce evidence of another RAN ship that was lost in such a position that a Carley float could drift to Xmas Island, then the only possible explanation is HMAS SYDNEY. The West Australian Current & variable winds at that time of year could - and I feel sure - did bring that float to our Island.¹²

- 15.13 It is of note that CAPT Craig reported that the body was lying in the float 'with legs doubled under at the knee, rigidly'. As will emerge, when the body was exhumed the legs were in a similar position. Another important difference compared with the accounts given by Mr Baker and CAPT Smith is that the metal air chamber was covered with 'slab cork', rather than kapok. CAPT Craig also recalled seeing the word 'Lysaght' on the metal tube, as did CAPT Smith.

¹² NHQ.001.0093

The Parliamentary Inquiry

15.14 At the time of the Parliamentary Inquiry—by the Joint Standing Committee on Foreign Affairs, Defence and Trade—the body buried on Christmas Island had not been located. As a result, there was a focus on the descriptions to which I refer of the Carley float and the clothing on the body. There was also much evidence relating to oceanographic factors, with a view to determining whether it was likely that the Carley float could have drifted from the battle scene, then unknown, to Christmas Island. The Department of Defence’s position was that the float could have come from four other possible points of origin—the Java Sea, the Banda Sea, the Timor Sea – Northwest Shelf, or north-west of Christmas Island. The department therefore contended that ‘the source area of the float could not be determined with certainty’.¹³ The Parliamentary Inquiry was not, however, persuaded by that approach. It considered whether the float could have come from another ship. It also considered the nature of the float as described. Its conclusion was:

The committee believes that there is insufficient evidence to prove conclusively that the Carley float recovered off Christmas Island in 1942 was from *Sydney*. However, the Committee has concluded that based on the oceanographic studies, the physical description of the float and an investigation of other possible sources for the float, there is a strong probability that the float originated from *Sydney*. While it is not possible to prove the origin of the float beyond any doubt, it is equally impossible to prove the alternative, that the float, and its unfortunate occupant, were not from that ship.¹⁴

In relation to the body in the float the committee concluded:

On the basis of the descriptions of the body and clothing, the evidence again is inconclusive. However, there is nothing in the description of the body and clothing to suggest that it was from a non-RAN source, and the shoe in fact points to the opposite conclusion. The Committee therefore believes, on the balance of probability, that the body and Carley float found off the shore of Christmas Island in February 1942 were most likely from HMAS SYDNEY.¹⁵

The committee recommended that ‘an attempt to locate the grave of the unknown sailor on Christmas Island’ be made and if the attempt was successful that there be an exhumation of the remains for the purpose of identification.¹⁶ The recommendation was accepted.

¹³ PINQ.SUBS.008.0066 at 0075 and PINQ.REP.001.0001 at 0069

¹⁴ PINQ.REP.001.0001 at 0073

¹⁵ PINQ.REP.001.0001 at 0075

¹⁶ PINQ.REP.001.0001 at 0078

Finding the body

- 15.15 Following the Parliamentary Committee's recommendation, between 24 August and 7 September 2001 a Naval team excavated a site, seeking the body from the Carley float. The search was unsuccessful.

In 2006 a Naval team conducted a further search for the grave site, based on a photograph taken by a Mr Brian O'Shannassy, who had been a clerk on the island. He had been taken to the grave site in 1950 and had taken a photograph of the location. The location he suggested was supported by Mr Say Kit Foo, who had been born on the island and had lived there throughout his childhood. The team investigating the grave site comprised a team leader, a physical anthropologist, an archaeologist, and two forensic odontologists. On 30 September 2006 the grave was found. The report of the finding was as follows:

Subsequent excavation of the grave exposed a male skeleton, flexed at the knees, and buried face down. The skeleton's arms were separated at the elbow joint, with the forearms and hands underneath the body, while the upper arms were splayed out. Five metal eyelets lying adjacent to the western end of the coffin gave the impression that the body might have been wrapped in a Hessian or canvas sheet. Four large press stud buttons as well as several smaller press stud buttons were recovered from the upper body area.¹⁷

- 15.16 It is noteworthy that the positioning of the skeleton's legs accords with the recollection of CAPT Craig, given in 1981, that there was 'one body lying in the float with legs doubled under at the knee, rigidly'.¹⁸
- 15.17 Figure 15.1 shows the position of the skeleton as found in an unusually sized rectangular timber coffin, measuring 150 x 80 centimetres, and the location of the eyelets and press studs. The location of the press studs is important.

¹⁷ NHQ.001.0055 at 0061

¹⁸ NHQ.001.0093

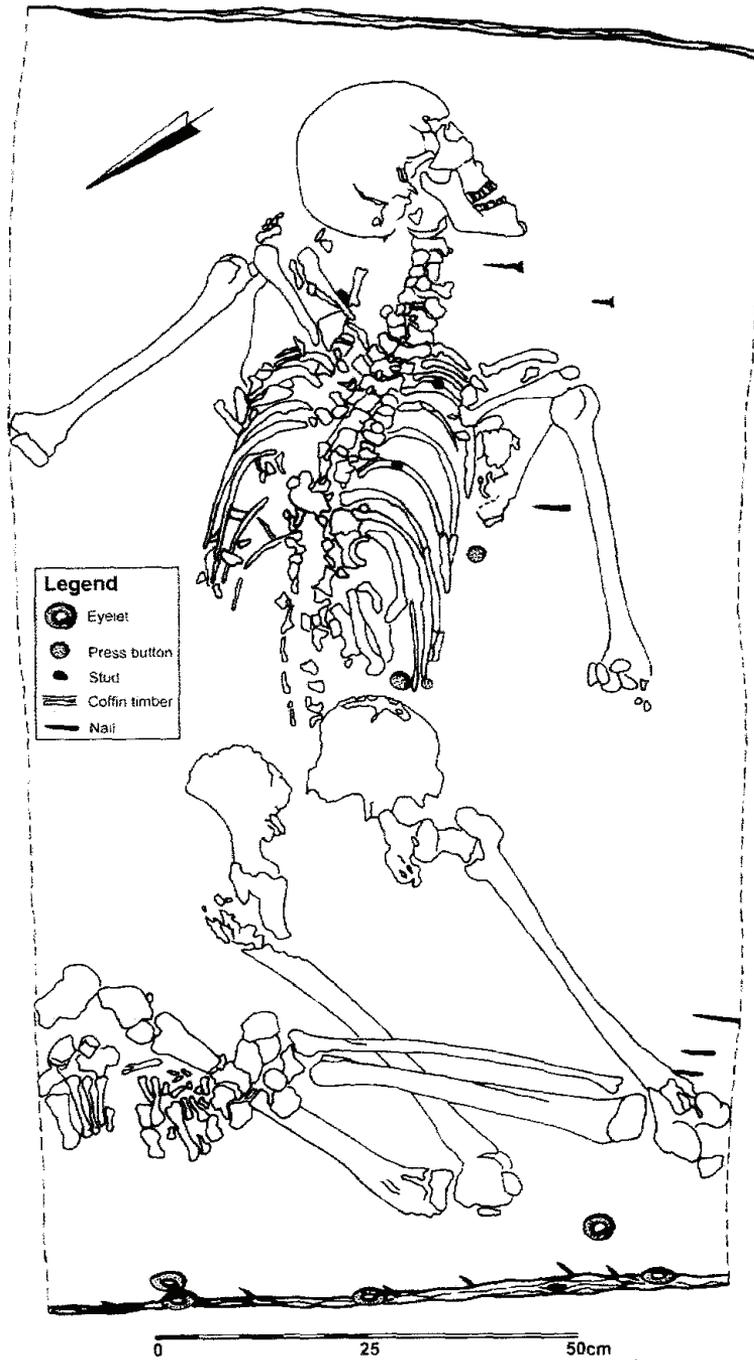


Figure 15.1 The Christmas Island body in its original burial position¹⁹

¹⁹ NHQ.001.0055 at 0074

An anthropological report on the skeletal remains

15.18 Dr Denise Donlon, senior lecturer in anatomy and forensic osteology at the University of Sydney, performed an anthropological examination of the skeletal remains. For the past 15 years Dr Donlon has been doing most of the skeletal identifications for the Department of Forensic Medicine, for the police and for the Defence Forces.²⁰ Dr Donlon provided to the Inquiry a copy of her report²¹ and gave evidence.

15.19 Having examined the skeletal remains, Dr Donlon concluded, 'It is my opinion that these bones belonged to a male of Caucasoid ancestry between 22 and 31 years of age and between 168.2 cm and 187.8 cm, or 5'6" and 6'2" in stature'.²² She noted further:

A metal object was embedded in the left side of the frontal bone. Associated with the fracture made by the metal object were a number of fine fractures. There was also staining around the metal object and lower down on the frontal bone near the top of the left eye socket. The left side of the cranium, specifically, the area around the temporal bone and sphenoid bone was broken away and somewhat warped.²³

15.20 An examination of the dentition of the skull revealed the following:

All teeth were present with the exception of the maxillary right lateral incisor and the mandibular left first molar. Both teeth had been lost antemortem. Numerous restorations in both amalgam and gold were present. The anterior teeth were somewhat misaligned and maloccluded. Slight shovelling (state 2 in C. Turner's dental morphology classification. Turner et al 1991) was present on the maxillary central incisors ... A small pit, possibly enamel hypoplasia was present on the labial surface of the right maxillary central incisor and either enamel hypoplasia or an old chip was present on the maxillary left central incisor ...²⁴

15.21 Dr Donlon noted unusual ankle joints:

This man had lateral squatting facets on the anterior borders of the distal ends of both tibiae ... Such facets are an extension of the articular surfaces for the tibio-talar joints and it is generally accepted that they are the result of a lifetime of squatting. Squatting involves hyperflexion of the hip and knee joints and hyper dorsiflexion of the ankle and subtalar joints. It is a comfortable position for people who are accustomed to it, as it is a position of rest which uses very little muscle activity. The squatting position was common in Australian

²⁰ TRAN.024.0001 at 0102 at Line 6

²¹ CORR.012.0233 at 0239 to 0240

²² CORR.012.0233 at 0242

²³ CORR.012.0233 at 0234

²⁴ CORR.012.0233 at 0236

Aborigines, Indians, Mediaeval London and African farmers and generally in people who are hunter-gatherers or those who did not have access to chairs (Dlamini and Morris 2005). It is unusual for a person of European ancestry to have such squatting facets. Thus this man may have grown up in an area where it was normal to squat due to lack of chairs or in a country where it was a cultural activity for people to squat and so he followed their example.²⁵

15.22 A bowing of the fibulae was also observed:

Both fibulae show pronounced antero-posterior bowing ... Possible reasons for this bowing are congenital defects, trauma, rickets, scurvy, postmortem damage or the result of acute plastic bowing deformity due to occupational stress (Stuart-Macadam et al 1998). The fact that the tibiae are not bowed suggests that the fibula bowing may not be congenital or due to rickets or scurvy. Postmortem bowing of bones tends to occur in poorly drained acid soils which cause decalcification of bone. It is unlikely in this case as the soil was well drained and the pH of the soil was 7 – that is neutral. Also it would be expected that other bones would also be similarly affected and they were not. There may have been a bilateral trauma involving both fibulae but I think that more likely is that the bowing is the result of occupational stress due to repetitive movements or possibly to carrying heavy weights. It may be that the bowing is related to the presence of lateral squatting facets on both tibiae as well as an extension of the inferior facet on the lateral distal surface of the right tibia (the left side is damaged in the area but there does not appear to be a similar facet). The inferior articular surface of the left fibula is somewhat rough and may be the result of some trauma. A possible scenario is that the left ankle joint was traumatised and so preference was given to the right ankle in the dorsiflexion of the foot (a bending of the foot towards the front of the knee). The presence of these facets suggests great mobility (and possibly instability) around the ankle joints.²⁶

15.23 Dr Donlon found that the condition of the skeleton was consistent with a body that had been buried for 64 years.²⁷ Commenting on the position of the body, she wrote:

The exact condition of the body when found in the carley float is not known. The position of the skeleton in the grave however does show that, except for the elbow region, the body must have been relatively intact as all the other bones are in correct anatomical position ... The bones of the upper limbs were disarticulated at the elbows, with the humeri pointing away from the body and the radii, ulnae and hands lying more or less vertically under the body ... This position of the skeleton in the grave suggests that, at the time of burial, the body was relatively intact but decomposed and disarticulated at the elbows. The

²⁵ CORR.012.0233 at 0239 to 0240

²⁶ CORR.012.0233 at 0240

²⁷ CORR.012.0233 at 0241

lower limbs were flexed at the knees. It is not known whether this was because the body was placed in a box/coffin which was too small for it or because the body was mummified and fixed in this position.

It is possible that the body was mummified as a result of the protection of clothing, the lack of insects, scavengers (except birds) and plants in the raft, and a hot (December to February) salty environment (Rhine and Dawson 1998). The bones were examined for the presence of marks caused by birds. There is a small circular defect (2 mm) on the right side of the frontal bone which may be a puncture mark from a bird's beak (Rodriguez 1997).²⁸

Dr Donlon was correct in her suspicion that the body might have been placed in the coffin with the lower limbs flexed at the knees because of mummification: this corresponds with CAPT Craig's statement in 1981 that the body was 'lying in the float with legs doubled under at the knee, rigidly'.²⁹

The metal object

15.24 A metal object was found embedded in the body's skull. Figure 15.2 shows the location of the object.

The metal object had not passed through the front surface of the forehead. As Dr Donlon explained in evidence, the object was protruding both internally and externally in the skull.³⁰ It 'actually came from the front into the skull, not the other way around'.³¹ This means that the velocity of the metal object was sufficient to lodge the object in the skull but not to completely penetrate the skull. Dr Donlon's opinion that the metal object penetrated from the front of the skull towards the rear was supported by the evidence of Professor Duflo³² and Detective Sergeant Snow (see following sections).³³

15.25 The skull also had a small round hole in it, which Dr Donlon thought might have been caused by the beak of a scavenging bird. The hole was very small – 2 millimetres in diameter.³⁴ It was obviously not caused by a bullet.

²⁸ CORR.012.0233 at 0241 to 0242

²⁹ NHQ.001.0093

³⁰ TRAN.024.0001 at 0113 at line 39

³¹ TRAN.024.0001 at 0114 at line 8

³² COI.001.0091 at 0093

³³ NAA.018.0228 or SPC.001.0035; TRAN.032.0001_R at 0047_R; COI.006.0130 at 0132

³⁴ TRAN.024.0001 at 0125 to 0126 at line 42

CHRISTMAS ISLAND SKULL (C106)

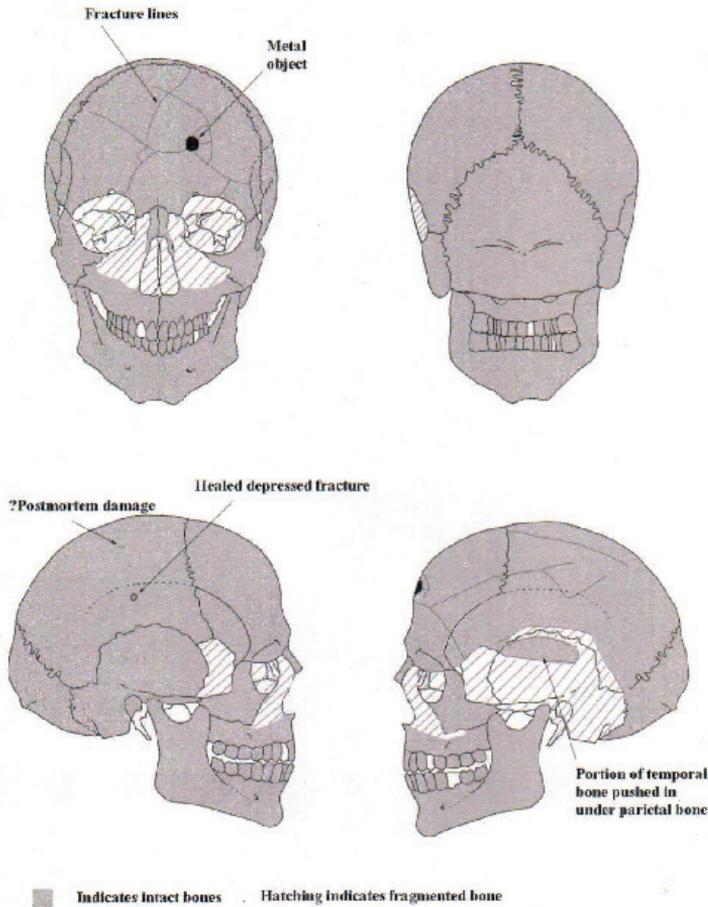


Figure 15.2 The Christmas Island body's skull, showing the embedded metal object³⁵

The forensic pathology examination

15.26 The skeletal remains, in particular the skull, were also examined by Professor Johan Duflou, chief forensic pathologist in the Department of Forensic Medicine at Glebe, New South Wales, conjoint associate professor in the School of Medical Sciences and the National Drug and Alcohol Research Centre at the University of New South Wales, and clinical senior lecturer in the Department of Pathology at the University of Sydney. Professor Duflou concluded:

³⁵ CORR.012.0233 at 0249

- The only definite antemortem/perimortem injuries in this case were found on the skull, although I cannot exclude the possibility of injuries to the ribs of the deceased.
- The projectile injury to the left frontal bone has physical characteristics indicating a direction of the projectile from anterior to posterior without passage through the cranial vault, i.e. the fragment of metal lodged in front of the skull on impacting with the head of the deceased. The lack of radiating fracture lines and the physical nature of the projectile are consistent with a fragment of shrapnel impacting with the front of the head with a moderate degree of force.
- The presence of the sagittally aligned fracture is consistent with having been caused at the time of impact by the piece of shrapnel or may have been caused by impact with a second, probably larger, object.
- If the damage to the left squamous temporal bone of the skull is a fracture, then either a separate blow to the left side of the head caused this injury or it was sustained when the deceased fell over with significant force on being struck to the front of the head – I am unable to determine which of these scenarios is more likely.
- Assuming the only cranial injuries are as described, then these injuries need not have been immediately fatal. It is not possible to indicate, however, how long the deceased would have survived such injuries. It is entirely possible that associated brain damage would have resulted in a very rapid death, but it is also possible that the deceased may have survived a number of days if there was no significant brain damage.³⁶

15.27 The view expressed by Professor Duflou leaves open the possibility that the wound to the head caused by the metal object might not have been immediately fatal. The deceased might have been able to get into the Carley float—assuming the deceased and the Carley float were on board the same vessel. At some indeterminate time the deceased also suffered a further fracture to the skull: this might have been caused by a blow to the head when the deceased fell as a result of being struck by the metal object or as a result of being struck by some other object.

15.28 Professor Duflou said that in the absence of medical treatment the trauma to the brain caused by the metal object’s lodging in the skull would have killed the person, although the time at which death occurred could not be determined. The object could have caused initial unconsciousness, immediate death or a later death.³⁷

³⁶ COI.001.0091 at 0093 to 0094

³⁷ COI.001.0091 at 0094

Forensic examination of the metal object

15.29 The metal object in the deceased's skull was removed (see Figure 15.3) and was examined by Detective Sergeant Snow, an Army Reserve officer who holds a Bachelor of Science degree and is an accredited forensic ballistics investigator. He completed the firearms and explosives component of the Diploma of Applied Science in Forensic Investigation at Canberra Institute of Technology and has had extensive experience in relation to firearms, having undergone proficiency testing in the identification of firearms, ammunition and weapons components at the National Institute of Forensic Science in Australia and at Collaborative Testing Services in the United States.

15.30 Detective Sergeant Snow's examination of the metal object led him to conclude:

... the object is a ferrous based fragment that impacted the skull with the trajectory determined as being from front to back. Further, the object does not appear to possess any of the physical characteristics of a fired bullet or any other component of small arms ammunition. It is more consistent with being a shell fragment from a larger shell or projectile.³⁸

15.31 The objects recovered from the grave on Christmas Island, including the metal fragment that had lodged in the skull, were subject to further forensic examination. In relation to the metal fragment, Mr George Bailey, Senior Objects Conservator at the Australian War Memorial, concluded:

- The fragment is definitely not a small arms projectile since there is no trace of lead.
- It is unlikely that the fragment is a piece of German small arms ammunition (20 mm, 37 mm) because the elemental analyses are substantially different.
- The absence of either Nickel or Copper indicates that the fragment is unlikely to have come from a Japanese large calibre armour piercing projectile.

³⁸ COI.006.0130 at 0132

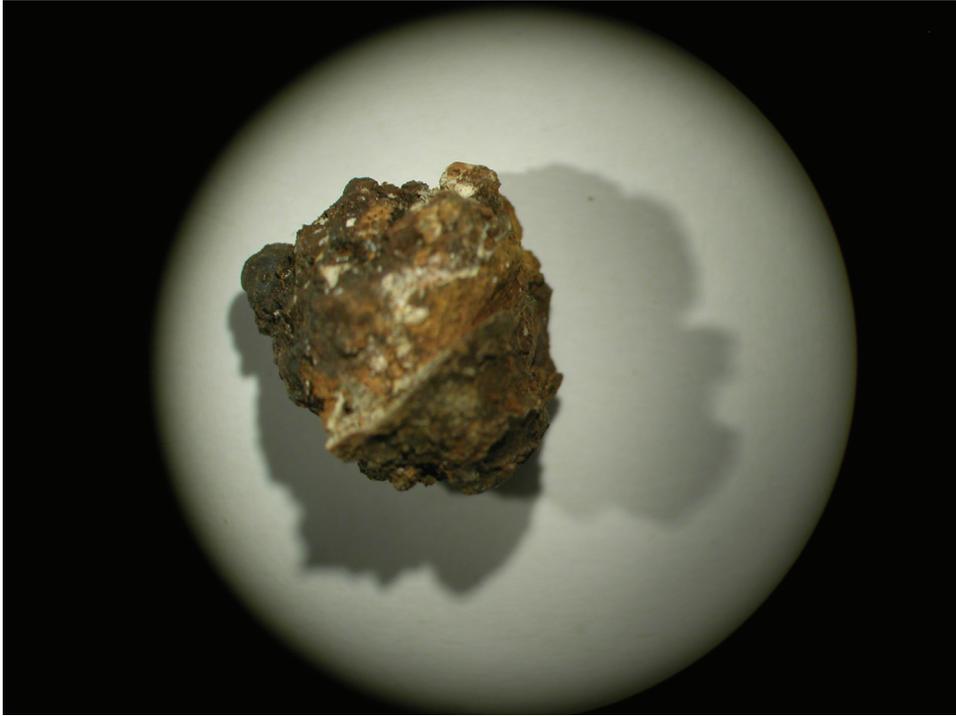


Figure15.3 The metal fragment removed from the head of the Christmas Island body³⁹

- It is probable that the fragment is a piece of shrapnel from a German large calibre, armour piercing projectile, given that the elemental analysis is consistent with documented hardenable steels and the composition of German artillery shells of the period, and that the fragment is harder than untreated mild steel.⁴⁰

15.32 Mr Bailey described the fragment in the following terms:

The fragment is roughly spherical in shape, approximately 15mm in diameter. It consists of basically two parts; one part being a flat sided piece of corroded metal, and the other part being non-metal with the appearance of bone and other organic matter when viewed through a microscope (See figure 1). The fragment weighed 4.19 grams upon receipt in the Objects Conservation Laboratory.

The corroded metal appears to be an iron alloy. It is attracted to a magnet. The corrosion is dark brown/black, probably a mixture of magnetite and haematite. The corrosion products are very hard and cohesive. The flat side of the metal/corrosion is attached to the non-metal part of the fragment.

³⁹ NHQ.001.0137

⁴⁰ NHQ.001.0023_R at 0025_R to 0026_R

The non-metal side consists of a dark grey outer edge, and a layer of hard white material, which, given the origin of the fragment, may be bone, that has some rust staining. There are some small white fragments between the white material and dark grey material. Again, given the origin of the fragment, these may be bone fragments. There is some flexible white silicone rubber on the outer edge. This is residue from a cast taken by others before receipt at the AWM.⁴¹

- 15.33 The metal fragment was tested for the presence of lead and to determine the fragment's composition. As Mr Bailey noted, the absence of lead means the fragment is not part of a bullet. He reported:

Test for lead

A test for lead was carried out to determine if the fragment was part of a bullet. A Merckoquant Lead Test kit was used to detect lead. Small samples of the corrosion products, white particles and dark grey material were removed from the fragment and dissolved in acetic acid. A Merckoquant Lead Test Strip saturated with the dissolved samples for two minutes, as per the kit instructions, revealed no lead was present. A known lead sample was similarly tested to provide confirmation that the detection system was reliable.

Determination of Alloy Composition

The removal of a small sample of metal was necessary to analyse the composition of the metal. The corrosion products were ground off by using a dental drill with a diamond encrusted burr. A small amount of remaining metal, approximately 5mm x 2mm x 4mm was revealed. A sample of approximately 2mm x 2mm x 2mm was cut off for analysis. The cutting process was very difficult and time consuming because the metal is very hard, much harder than mild steel.

The sample was taken to Dr Ulrike Troizsch, Department of Earth and Marine Sciences, Australian National University (ANU), Canberra for analysis. The sample was embedded in epoxy resin, and then polished with diamond paste to reveal a flat, uncontaminated surface to analyse.

Quantitative analyses were obtained with a JEOL JSM-6400 scanning electron microscope with attached Si(Li) detector, Link ISIS EDS, at 15kV and 1nA, located at the Electron Microscopy Unit (EMU) at the ANU. Spot analyses were carried out in four random locations. The results are shown in Table 1.

⁴¹ NHQ.001.0023_R at 0027_R to 0028_R

Table 1 Analysis of Metal Sample

	GB1	GB2	GB3	GB4
Elem% Si	0.52	0.47	0.43	0.51
Elem%Mn	0.58	0.74	0.65	0.56
Elem%P				0.12
Elem%Cr				0.12*
Elem%Fe	99.02	94.93	96.54	99.05
Total	100.12	96.14	97.62	100.36
Atomic%Si	1.03	0.97	0.88	1.00
Atomic%Mn	0.58	0.78	0.67	0.57
Atomic%P				0.21
Atomic%Cr				0.13*
Atomic%Fe	98.39	98.25	98.45	98.09
Total	100.00	100.00	100.00	100.00

*This figure is on the lower limit for detection by this apparatus and therefore its accuracy is questionable.⁴²

- 15.34 Metal samples were recovered from the Carley float retrieved by HEROS and have been examined by the Australian War Memorial. The results of the analysis of the metal fragment removed from the Christmas Island body were compared with those for metal removed from the HEROS Carley float. Mr Bailey reported:

The composition of the metal does not match any of the German ammunition analysed by Ashton *et al* in 1993. Nor does it closely match any of the samples recovered from the [HEROS] Carley float and subsequently analysed. The nearest match is sample 1, which contained a number of trace elements not detected in the latest analysis. (see Appendix 1).

The lack of trace elements and the predominance of silicon and manganese are significant. Whether the hardness of the metal is a deliberate result of manufacture or from rapid heating and cooling during an explosion cannot be determined for certain. However, according to Ross (1980), "steels with 1-2% silicon have excellent hardenability."

It is also known that, during the Second World War, Germany was using silicon-manganese-chromium steel alloys for armour piercing shells, due to the scarcity of other exotic metals normally used to make high alloy, hardened steels (Hahn, 1986).

While it is also known that Japan imported substantial stocks of munitions from Germany prior to the Second World War, these munitions contained nickel and silicon. However, during the Second World War when strategic metals became scarce, the Japanese

⁴² NHQ.001.0023_R at 0028_R to 0029_R

manufactured armour piercing projectiles used copper as part of the alloy.⁴³

- 15.35 Professor Creagh, who until early 2008 was Professor and Director of Cultural Heritage Research at the University of Canberra and worked with the Australian War Memorial group, had not examined the metal object found in the skull of the Christmas Island body.⁴⁴ When shown the results of the elemental analysis in the witness box, he said he thought the sample was a piece of 'low-carbon steel'.⁴⁵ He did not dispute the others' conclusion that it was not from a small-arms projectile:

It's more likely to have come from something of a larger calibre. But this is speculation. You couldn't draw any conclusions, apart from that this is a lump of steel that killed the man. My opinion, looking at this, is that it's a fairly standard steel such as you might find in the hull of a boat or something like that.⁴⁶

When it was put to Professor Creagh that passages from experts' reports noted that the presence of silicon and manganese was significant because these were hardening agents used in steel manufacture and were known to have been used by Germany during World War 2 in the manufacture of armour-piercing shells, he responded, 'There's nothing in what they've said that you could take exception to. On the other hand, you would have to say that if you gave a probability to it, you mightn't give it a 100 per cent probability'.⁴⁷

- 15.36 Professor Creagh used the concepts of 'probability' and 'correlation' in the scientific sense, where precise relationships are required to establish a 'correlation' such as a 100 per cent probability. As he and others made clear, such a correlation is unlikely in a metallurgical analysis if the metals being tested have been through the extreme heating process of being fired from a gun and striking another metal object, causing fragmentation.⁴⁸
- 15.37 Nevertheless, whether the metal object that lodged in the skull of the Christmas Island body is a fragment of one of the munitions fired from KORMORAN, as Mr Bailey suggests, or a piece of a milder steel dislodged as a result of the spallation effect of such a munition striking SYDNEY, as Professor Creagh seemed to prefer, is of no importance.

⁴³ NHQ.001.0023_R at 0029_R to 0030_R

⁴⁴ TRAN.031.0001_R at 0028_R at Line 18

⁴⁵ TRAN.031.0001_R at 0030_R at Line 11

⁴⁶ TRAN.031.0001_R at 0030_R at Line 24

⁴⁷ TRAN.031.0001_R at 0031_R

⁴⁸ TRAN.031.0001_R at 0027_R at Line 28

15.38 What is important is that the metal object is not from a machine gun or any small armament. The sailor from SYDNEY therefore suffered that injury during the battle with KORMORAN, when SYDNEY was subjected to heavy fire from 15-centimetre, 3.7-centimetre and 20-millimetre guns. The injury was not suffered as a result of the sailor, having left SYDNEY, being subsequently shot with light arms while in the Carley float.

Eyelets and press studs

Eyelets

15.39 Eyelets were found at one end of the coffin, near the feet, as shown in Figure 15.1. Ms Catherine Challenor, Senior Textiles Conservator at the Australian War Memorial, noted, 'The location in which they were found in the grave, the dense, plain weave cloth, and the size of the eyelets, 32-34mm in diameter, indicate that they are not likely to be from items of clothing'.⁴⁹ Rather, they are likely to have come from 'a heavy duty cloth such as a tarpaulin'.⁵⁰

Five eyelets were recovered. When examined microscopically, each was found to have attached to it two layers of cloth between the two metal pieces making up the eyelet. The fibre was identified as cotton, and each thread was about 0.7–0.8 millimetres wide. In each instance the cloth was 'a dense plain weave similar in appearance to a canvas'. The fibres appeared undyed.⁵¹ Ms Jane Peek, Curator of Heraldry at the Australian War Memorial, concluded:

The eyelets provided proved to be attached to a heavy canvas. This may have been cut from a piece of tarpaulin and used to lift the badly decomposed body into its coffin with a minimum amount of handling, though the actual method of handling the remains at the time of burial is not verifiable from the currently available information. The eyelets are also not considered to be relevant to the identification of the clothing.⁵²

15.40 This explains the presence of the eyelets and attached pieces of canvas and is likely to be correct.

15.41 The researchers at the Australian War Memorial also concluded:

- The fabric associated with the eyelets is consistent with heavy canvas such as that used for tarpaulins.

⁴⁹ NHQ.001.0023_R at 0044_R

⁵⁰ NHQ.001.0023_R at 0047_R

⁵¹ NHQ.001.0023_R at 0034_R; NHQ.001.0023_R at 0037_R

⁵² NHQ.001.0023_R at 0049_R

- The eyelets are consistent with those used on heavy tarpaulins, and not clothing.⁵³

Press studs

15.42 Two complete press studs and four half press studs were recovered, in the locations shown in Figure 15.1. The recovery positions, being from the waist to the neck of the skeletal remains, point to the likelihood that the press studs were fasteners used on clothing worn by the deceased.

The press studs were examined microscopically and found to have attached to them small fragments of cloth, which appeared to be two layers of fabric. The fibres were identified as cotton; the threads were about 3–4 millimetres wide, some being as fine as 1 millimetre. The weave was a close, even plain weave.⁵⁴ In one sample, analysis showed that the plain weave was made up of two plied Z-twisted yarns that had been plied in an S-twist, with a width of about 0.4 centimetres.⁵⁵ The threads in the other direction of the weave appeared to be a single Z-twist yarn. The fabric had a thread count of 16–17 ends, or picks, per centimetre. Miss Challenor concluded that the fabric was ‘a medium-weight fabric such as a large canvas or cotton duck’.⁵⁶ Her observation was that the fabric appeared to be undyed. She explained:

This may be indicative of a number of things. It may indicate an unbleached or neutral coloured cloth or it could indicate that if the cloth was coloured, it may either have been dyed, or had surface colour applied, after being woven into cloth. It may also indicate a fugitive dye removed either through laundering processes or through general wear and environmental exposure.⁵⁷

15.43 Since the quoted report was written, however, further microscopic tests on the press studs and associated cloth had been performed. Ms Challenor stated:

However, since writing that report two years ago, we have broken open another stud to take more layers of fabric out, and those fragments actually revealed a definite blue colouration. At this stage, it is too early to say that it is definitely a dye, but it is definitely a blue colour. Obviously we’ve taken images, and the AFP are now following on from that to see if they can identify dye from that.⁵⁸

⁵³ NHQ.001.0023_R at 0026_R

⁵⁴ NHQ.001.0023_R at 0035_R

⁵⁵ NHQ.001.0023 at 0039

⁵⁶ NHQ.001.0023_R at 0043_R

⁵⁷ NHQ.001.0023_R at 0043_R

⁵⁸ TRAN.032.0001_R at 0027_R at Line 32

The finding of two layers of fabric between the two metal sections of the press studs suggested to her that 'the cloth was folded either once or twice before the stud or eyelets were inserted. When used on clothing this indicates that the studs or eyelets were attached close to the edge of the fabric'.⁵⁹

15.44 In relation to the press studs, the researchers at the Australian War Memorial concluded:

- The press studs are consistent with those used on clothing, and are likely to have been from an item or items of clothing.
- The weave of the fabric attached to the press studs is not consistent with that of 1941 RAN issue sailors overalls of the period.
- The press stud fastenings are not consistent with the fastenings used on 1941 RAN issue sailors overalls of the period.
- The original colour of the materials could not be ascertained, however, those fragments associated with the press studs had a neutral or undyed appearance, and there was no trace of blue colouration.⁶⁰

15.45 I thought a further microscopic examination of the press studs was warranted because it was known that press studs manufactured in the 1930s and 1940s usually had stamped on them the maker's name. The forensic branch of the Australian Federal Police examined the press studs. A report from the Australian War Memorial, dated 16 March 2009, detailed the results of the further testing:

SUMMARY

(i) Elemental analysis of stud and cap parts of two of the press-studs found in the grave of the unknown sailor strongly suggest they were originally a brass which has since undergone de-zincification. The top surface of the cap of the press-studs was patinated to produce a black surface and the male halves were likely to have been nickel plated.

(ii) The discovery of the inscribed letters "CA" and "AU" found on the one of the recovered press studs corresponds to an inscription commonly used by Carr Australia; namely 'CARR AUSTRALIA'. In particular, the combination, spacing and orientation of the letters "CA" and "AU" matched a stud of the same vintage made by Carr Australia. This observation strongly suggests that the recovered press stud was manufactured by Carr Australia.

⁵⁹ NHQ.001.0023_R at 0044_R

⁶⁰ NHQ.001.0023_R at 0026_R

(iii) A blue colourant has been found on some areas of the fabric from within two of the press-studs but has not yet been identified. Comparative Raman analysis with available known ADF WWII clothing samples has not yet produced a match. Investigation into the identification of this dye is continuing.

(iv) Attempts to source comparison samples for characterisation of the metal object recovered from the sailor's skull have been so far unsuccessful and so no progress has been made. This investigation will continue.⁶¹

It is known that press studs were made in the 1930s and 1940s by Carr Australia Pty Ltd and that the Carr Australia name was stamped on the press studs manufactured.⁶² It follows that the clothing worn by the deceased was Australian made.

Eyewitness descriptions

15.46 It will be recalled that on 23 February 1942 Mr JC Baker informed the captain of MV HERMION, 'The corpse was clothed in a white boiler suit, the pockets were empty and there was nothing to establish identity'.⁶³ On 21 February 1942 CAPT Smith had noted that 'the corpse was clothed in a boiler suit which had originally been blue, but was bleached white by exposure. There were four plain press buttons from neck to waist'.⁶⁴

These descriptions are consistent with the finding of press studs from waist to neck beside the body in the coffin. It is plain from the contemporary descriptions of the clothing worn by the body that the deceased had been dressed in a boiler suit that either was white or had originally been blue but had been bleached white by exposure.

Naval clothing in 1941

15.47 Ms Jane Peek of the Australian War Memorial examined the evidence regarding the eyelets, the fabric remnants and the canvas shoe said to have been found in the Carley float from the standpoint of clothing possibly worn by the ship's company of SYDNEY and KORMORAN.⁶⁵ The recovered objects were considered in terms of:

- Royal Navy dress regulations
- Working dress worn by RAN/RN officers

⁶¹ EXH.251.0001 at 0007

⁶² TRAN.032.0001_R at 0024_R at Line 43, and also at 0025_R at Line 12

⁶³ NAA.018.0230 or SPC.004.0297

⁶⁴ NAA.018.0228

⁶⁵ NHQ.001.0023_R at 0049_R

- Working dress worn by RAN sailors
- Uniforms likely to have been worn by the six embarked members of the RAAF on HMAS Sydney
- Clothing worn by embarked Canteen staff
- Working dress worn by the crew of the Kormoran⁶⁶

Dress regulations

15.48 Dress regulations published in the Royal Navy List in 1940 provided little information about the appearance of working dress for sailors and made no mention of working dress for officers. The regulations gave the official version of what should be worn, but photographs establish that in fact elements of working dress diverged from the regulations. In the early 1940s officers were expected to provide their own uniforms.

Ms Peek stated:

The Dress Regulations published in the *Navy List* of December 1940 give few instructions about working dress, its use, or appearance and omit altogether the white overalls known to have been worn by officers as part of working dress or when at action stations.⁶⁷

Working dress worn by RAN and RN officers

15.49 Despite the limitations of the dress regulations, the Navy List did state that 'White canvas shoes may be worn with undress and on ordinary working occasions on ship'. Ms Peek wrote:

Officers, commissioned warrant officers and warrant officers did have working dress that was also meant to be worn in action, but they also wore as an alternative working dress white overalls (also called 'boiler suits' or 'combination suits'). Engineer officers wore such overalls all the time when on duty and only changed into more formal clothing for meals in the wardroom. Other officers wore them as required. For example, a gunnery officer would pull them on over his uniform if he was inspecting the turrets or magazines.

With no formal description for the white officers overalls available, two former RAN naval officers were contacted for assistance: R I Peek, a gunnery officer (RAN entry 1928) and M P Reed, an engineer officer (RAN entry 1936). Both agreed independently that they wore white overalls, were issued with two pairs a year from 'slops'⁶⁸, and both offered the following description of the fastenings – four or five press

⁶⁶ NHQ.001.0023_R at 0050_R

⁶⁷ NHQ.001.0023_R at 0051_R

⁶⁸ 'Slops' was the term used for a contract clothing supplier who sold through the victualling yards, as distinct from clothing purchased privately from external suppliers.

studs from neck to waist and white plastic buttons below the waist. Some overalls were supplied with a stud fastening at the wrist and others were not. The overalls were loose enough to pull on over other clothing if necessary. They had no belt.

...

Neither informant could recall the exact type of fabric from which their white overalls were made. Peek stated that the fabric was a 'different kind' to that used to make up sailor's blue overalls. Reed thought his might have been made up from white drill or perhaps something like 'No 6 canvas'. The latter was the lightest weight of canvas used in the navy for sails, in this case used for Whalers only. The fabric remnants recovered from the press studs in the Christmas Island grave were of a plain weave that could not have come from a twilled cotton drill fabric, but could have come from a lightweight canvas type fabric. Although the remnants had been stained by contact with the corroding press studs and the contents of the grave they appeared to never have been dyed and may originally have come from white fabric.

After stating categorically that they were never issued with, or wore, white canvas shoes, both informants recalled having a pair of white buckskin shoes and a pair of other white shoes for informal and working occasions that were kept white by the application of blanco. They thought that these might have been the canvas shoes referred to in the dress regulations and both received them from 'slops'. Both types of white shoe had a brown leather sole with manufacturer's markings stamped under the instep directly in front of the heel. Reed stated that engine room officers always wore boots with working dress for safety reasons and that they and stokers generally received a special allowance for protective footwear.⁶⁹

Working dress worn by RAN sailors

15.50 RAN sailors wore a variety of working dress in a variety of combinations, ranging from one-piece dark blue overalls to two-piece 'combination suits' (loose fitting jackets and trousers) in the same fabric and shirts with shorts. Contemporary photographs also show them wearing square-necked flannels with shorts and working in shorts only. In the case of overalls, sailors, like officers, were issued two pairs a year.⁷⁰

During World War 2 the working overalls worn by sailors were manufactured from an 8-ounce dark blue cotton twill fabric called 'bluette'. They had a stand collar; long sleeves with a slit at the bottom but no button, so that they could be easily rolled up the arm if required; a patch pocket without a flap on the left breast; a pocket set into each

⁶⁹ NHQ.001.0023_R at 0051_R to 0052_R

⁷⁰ NHQ.001.0023_R at 0052_R

side seam at the hip; and no belt. The tight twill of the fabric was considered to have protective properties in the event of fire or flash. The overalls fastened from neck to crutch with pressed-metal black-painted buttons.

Both stokers and torpedo men invariably wore blue overalls as a protective measure.⁷¹ Other members of the crew would wear the blue overalls as required.

The bluette fabric for sailors' overalls was dyed before it was manufactured into clothing. It was not, however, colourfast. Exposure to salt water, as well as the laundering methods of the time, which involved prolonged boiling, resulted in a wide range of colours. Photographic evidence shows sailors wearing overalls in a variety of shades, from dark blue to blue-grey to grey-white.⁷² The photographs also show sailors wearing white canvas shoes.

The dress regulations for December 1940 state that sailors could be issued two pairs of leather-soled canvas shoes if required. One type, in brown canvas, could be issued in place of slippers; the other, in white canvas, and probably the same as the canvas shoes issued to officers, was to be worn 'on foreign stations' (that is, in tropical conditions) but only with the permission of the commander-in-chief. It is thought that this regulation was not applied in the Royal Australian Navy. Former Naval officers VADM Sir Richard Peek KBE OBE CB DSC RAN Rtd and RADM MP Reed AO RAN Rtd said they had never seen a sailor in white shoes and that they wore only black shoes or boots. Photographs show their recollection to be inaccurate.⁷³

Uniforms of the RAAF personnel in SYDNEY

15.51 SYDNEY carried a Walrus aircraft that was flown and operated by members of the Royal Australian Air Force No. 9 Squadron. There was an officer pilot and a sergeant wireless operator, plus four ground crew mechanics and fitters. Survivors from KORMORAN said the aircraft was being readied for take-off and had its engine running when the action with SYDNEY began, so it is assumed that the pilot and his wireless operator would have been wearing some form of flying clothing. It is difficult to know what this might have been, though, since air crew were encouraged to wear what was most comfortable for each individual. (Crew photographs rarely show men dressed alike.) The Walrus crew might have been wearing shirts and shorts with a leather flying helmet and boots or they might have been in summer-weight

⁷¹ WIT.007.0001_R at 0007_R; WIT.001.0001_R at 0006_R

⁷² AWM.009.0012 to 0025; AWM.009.0001 to 0011

⁷³ CORR.022.0129_R to 0130_R

Sidcot one-piece flying suits. The latter were made from khaki cotton drill and had a variety of fastenings, including a heavy brass off-set zip extending from shoulder to hip. No evidence of a zip was found with the Christmas Island body.⁷⁴

Ground crew wore dark blue cotton drill overalls similar in fastening and general appearance to sailors' overalls; the buttons were concealed by a placket, and there was no belt. The rank insignia was sometimes sewn to the right sleeve. Black shoes or boots were worn with overalls for safety reasons.

Clothing of the canteen staff aboard SYDNEY

15.52 SYDNEY carried a number of canteen staff supplied to the Navy by a civilian contractor, who also provided their clothing. These people are thought to have worn a pale-coloured, possibly white, shirt and dark trousers for work in the canteen itself.⁷⁵

Working dress worn by the crew of KORMORAN

15.53 The German Navy had as many as 20 forms and combinations of working dress, in cotton, wool and leather. Working dress, in whatever material, took the form of trousers and a loose-fitting jacket fastened with buttons. Significantly, the buttons on the jackets were designed to be removed each time the garment was laundered (or cleaned in the case of leather). The buttons had a long shank and were held in place on the jacket by a split ring to facilitate removal. No evidence of split rings or this type of button was found with the Christmas Island body.⁷⁶

Naval clothing: a summary

15.54 From the foregoing analysis, the Australian War Memorial's experts concluded:

- The press studs and plain weave material are consistent with the fastenings and material used for overalls available to ship's officers, commissioned warrant officers and warrant officers senior enough to have a watch keeping certificate.
- The description of the shoe found in the Australian manufactured Carley float with the body in 1942 is consistent with shoes issued to ship's officers, commissioned warrant officers and warrant officers senior enough to have a watch keeping certificate.

⁷⁴ NHQ.001.0023_R at 0053_R

⁷⁵ NHQ.001.0023_R at 0053_R

⁷⁶ NHQ.001.0023_R at 0053_R

- The fastenings and plain weave material are not consistent with fastenings and materials used for clothing normally available to other participants of the HMAS Sydney-Kormoran action.
- It is therefore likely that the fragments of press studs and cloth recovered from Christmas Island are clothing likely to have been worn by an RAN ship's officer, commissioned warrant officer or warrant officer who was senior enough to hold a watch keeping certificate.⁷⁷

15.55 This summary requires some amendment. The photographs tendered to the Inquiry as Exhibits 215 and 216 make it clear that both officers and sailors wore overalls that were initially of white or blue colouring, that colouring varying probably according to the overalls' age and their 'washing by boiling' history. The overalls were not of a uniform pattern. Service-issue overalls for officers, sailors and airmen did not use press studs for fasteners.⁷⁸ Accordingly, the press studs recovered from the grave establish that the overalls were not service issue but had been made up or purchased from a non-service source. Further, the 'CA' and 'AU' on the press studs establish that the overalls were not service issue but had been made up or purchased from a non-service source. The 'CA' and 'AU' also establish that the overalls were not of German origin. It is known that a press stud manufacturer in Australia in the 1930s and 1940s was a firm called 'Carr' and that its press studs were stamped 'CARR AUSTRALIA'.⁷⁹ The cloth attached to the press studs appears to have originally been blue. Blue overalls were worn by both officers and ratings, as the photographs establish. The cloth attached to the press studs was not Naval-issue cloth.⁸⁰ This reinforces the contention that the overalls worn by the body had been obtained externally.

15.56 The circumstances in which that external sourcing is likely to have occurred were explained in a 20 March 2009 email to the Inquiry from Ms Peek and Ms Challenor:

Early in 1941 *Commonwealth Navy Orders* stated that ratings who wished to purchase made to measure uniforms could do so for Class I, II and III uniforms only (i.e. not working dress) from an agreed supplier at an agreed purchase price, which had been negotiated in advance by the RAN. The resulting uniforms were to conform to the service requirements and specifications as set down by the RAN. There were only two agreed suppliers for ratings' custom made uniforms – David Luck in Melbourne, and David Jones in Sydney. Later in 1941 ratings were given more latitude to obtain uniforms from private

⁷⁷ NHQ.001.0023_R at 0026_R

⁷⁸ TRAN.032.0001_R at 0041_R

⁷⁹ TRAN.032.0001_R at 0024_R to 0025_R

⁸⁰ TRAN.032.0001_R at 0030_R at Line 26

suppliers. **Order 221/41** states 'There is no objection to a rating obtaining uniform from other than service sources, but it must be distinctly understood that such uniform must be strictly in accordance with uniform regulations'. In 1942 it was noted that uniforms and the approved style of fabric were in such short supply that issue of uniform was to be kept to a minimum until the matter was resolved. Orders throughout the war insisting that sailors be correctly dressed to conform with regulations, as a result of observations that this was not the case, suggest that enough men were supplying or modifying their own uniforms to warrant a formal Order being made on the subject.

If we now assume that the overalls worn by the Christmas Island sailor were blue, and as we definitely know they had press stud fastenings, I would suggest that they were either privately purchased or were part of a batch of overalls that did not conform to regulation issue but were needed in a hurry to fill an urgent supply need.⁸¹

Conclusion

15.57 The Carley float and the body found in it are inextricably linked. Common sense suggests that if either can be shown to have come from SYDNEY so did the other.

15.58 In relation to the Carley float, the following is known:

- The float was undoubtedly of Naval pattern.⁸²
- The float had been damaged by metal penetrations.⁸³
- The float was marked 'No. 2' on the outside covering. It is known that warships numbered their Carley floats.⁸⁴
- The metal flotation ring in the float was marked either 'MADE In NSW. ANNEALED ZINC INSIDE'⁸⁵ or 'LYSAGHT DUA-ANNEAL ZINC. Made in Australia inside'.⁸⁶ Whichever recollection of the marking is correct, it is plain that the Carley float was made in Australia.
- Roping attached to the float had red yarn running through its strands.⁸⁷ This was typical of Naval rope.

⁸¹ CORR.020.0214_R at 0215_R

⁸² NAA.018.0228

⁸³ NAA.018.0228

⁸⁴ CORR.022.0129_R; CORR.022.0131_R

⁸⁵ NAA.018.0230 or SPC.004.0297

⁸⁶ NAA.018.0228

⁸⁷ NAA.018.0228; PUB.003.0001 at 0341

- 15.59 There was in the area no other Naval engagement between 19 November 1941 and 6 February 1942 in which an Australian-made Carley float was likely to be subjected to damage by metal pieces, be they shrapnel or bullets.
- 15.60 These factors establish beyond argument that the Carley float came from SYDNEY.
- 15.61 In relation to the body found in the Carley float, the following is known:
- The body suffered a shrapnel wound to the skull. The shrapnel fragment was of a metallurgical composition not dissimilar to munitions manufactured by Germany in 1940.⁸⁸ The metal fragment was not from a bullet⁸⁹, nor was it the product of small-arms or machine-gun fire.
 - The body had been dressed in a boiler suit that had four press stud closures between waist and neck. The press studs were recovered from the coffin. On examination after removal of corrosion, the press studs revealed the letters 'CA' and 'AU'. This establishes that the body had been dressed in Australian-made clothing.
 - Accompanying the body in the Carley float was a canvas shoe bearing the brand 'Crown Brand Pty 4'⁹⁰ or 'McCowan' or 'McEwan' and 'Pty', followed by a crown or a broad arrow, or both.⁹¹ It is known that stamping a shoe with an 'arrow' was the standard acceptance mark for clothing and equipment officially issued to the British and Australian armed forces.⁹² It is known that between 1938 and 1941 Jas McKeown & Sons Pty Limited was a supplier of canvas shoes to the Navy. The Parliamentary Inquiry noted, 'In regard to the shoe, Defence has indicated that the broad arrow mark was "a general indication of Government issue"⁹³. Defence went on to say, however:

Based on the descriptions given the DNV [Director of Naval Victualling] stated that the markings on the shoe definitely correspond to RAN supplies, provided the shoes were of leather, not canvas. A check of Commonwealth Gazettes for the period 1938 to 1941 showed that Jas McKeown & Sons Pty Ltd were

⁸⁸ NHQ.001.0023_R at 0030_R

⁸⁹ TRAN.032.0001_R at 0044_R to 0050_R

⁹⁰ NAA.018.0230 or SPC.004.0297

⁹¹ NAA.018.0228

⁹² NHQ.001.0023_R at 0051_R

⁹³ PINQ.SUBS.008.0066 at 0076

suppliers of both light boots and canvas shoes to the RAN during this period.⁹⁴

Pictures of sailors wearing white canvas shoes were tendered to the Inquiry.⁹⁵ The canvas shoe was plainly regulation Navy issue.⁹⁶

- In 1941 press studs were not used in Navy overalls issued to either officers or sailors. Evidence tendered made it clear, however, that members of the Navy often bought and wore clothing that was not regulation issue. Photographs show that officers and crew wore a variety of styles of overalls.⁹⁷ That the Christmas Island body had been clothed in such a set of overalls is established because of the presence of the press studs and because the cloth attached to the press studs was not Navy-issue cloth.

The shoe, the type of overalls and the press studs make it clear that the body was that of an Australian serviceman.

15.62 The only engagement that occurred in the region between November 1941 and February 1942 and between Naval vessels in which a Naval member could possibly have been injured by a piece of hardened metal shrapnel consistent with that used in German armaments is the engagement between SYDNEY and KORMORAN. It necessarily follows that the body in the Carley float was that of an Australian or British serviceman serving in SYDNEY who was struck by a piece of shrapnel from KORMORAN's heavy armaments or metal spallation resulting from munitions impacts. Independently of the material referred to in relation to the Carley float, the evidence establishes that the body was that of a crew member from SYDNEY.

Together, the evidence in relation to the Carley float and to the body leave no doubt at all that both the Carley float and the body found in it came from SYDNEY.

Who was the unknown sailor?

15.63 Forensic analysis of the skeletal remains has allowed it to be determined that the person whose body was found in the Carley float recovered at Christmas Island:

- was between 5 feet 6 inches and 6 feet 2 inches (168.2 and 187.8 centimetres) tall

⁹⁴ PINQ.SUBS.008.0066 at 0076

⁹⁵ AWM.009.0012 to AWM.009.0025

⁹⁶ CORR.022.0129_R to 0130_R

⁹⁷ AWM.009.0012 to AWM.009.0025

- had a dental history that showed at least nine gold fillings and the extraction of two teeth
- was aged between 22 and 31 years
- had squatting facets on the anterior borders of the distal ends of both tibiae, an indication of a 'lifetime of squatting'
- had bowing of both fibulae, probably caused by occupational stress due to repetitive movements, possibly carrying heavy weights
- had slight 'shovelling' in the maxillary central incisors, a condition usually present in 90 to 100 per cent of Asians and about 5 to 10 per cent of Caucasians or Europeans
- had Caucasoid features.

DNA was recovered from the remains: this has enabled and will in future enable DNA testing for identification purposes.

- 15.64 The dental history, height and age as well as DNA tests have been used to reduce from 645 to 87 the number of candidates from the list of SYDNEY's officers and crew. Exhibit 213 lists the 87⁹⁸ people who had not been eliminated by 19 March 2009 – see Appendix M.⁹⁹
- 15.65 The Navy announced in December 2008 it would test DNA from relatives if asked to do so. In response, 67 people came forward: all but 16 were eliminated on dental, height, age or DNA grounds. It is not known when the Navy will arrange for the testing of the 16 volunteers who are descendants of people in the remaining group.
- 15.66 At this time it is not possible to determine whose remains were interred initially on Christmas Island and more recently, on 19 November 2008, re-interred at Geraldton.

⁹⁸ Exhibit 213 refers to 89 people in total. This is an error: it should read 87.

⁹⁹ At the time of this report the Navy maintains a short list of 100 people: it includes those who were less than 5 feet 6 inches on the basis that there was a time gap between height recorded on joining and the date of death (usually two to four years) and individuals had the potential to grow during that time.