



1 A. I have published in that area, yes, amongst others.

2

3 Q. Have you also done practical work in relation to it  
4 for the Coroner of New South Wales, for example, and the  
5 Police Department of New South Wales?

6 A. Yes. For the past 15 years I have been doing most of  
7 the skeletal identifications for the Department of Forensic  
8 Medicine in Glebe, and also I have done quite a lot for  
9 Westmead Mortuary, which has just now closed, and I also do  
10 recoveries of skeletal remains for the Police and for the  
11 Defence Forces.

12

13 Q. Dr Donlon, have you had involvement in relation to the  
14 search and recovery of remains of an unidentified person at  
15 Christmas Island?

16 A. Yes, I have.

17

18 Q. Did your contact with that start as a consequence of a  
19 search conducted at Christmas Island, I think in September  
20 of 2001?

21 A. Yes, that's right.

22

23 Q. Did you attend for the search in 2001?

24 A. Yes, I did.

25

26 Q. At Christmas Island?

27 A. Yes.

28

29 Q. Did you return to Christmas Island for the purposes of  
30 a further search in September of 2006?

31 A. Yes, that's right.

32

33 Q. In relation to the eventual recovery of remains in  
34 2006, are you aware of a report that was prepared in July  
35 2007 in relation to the archaeological excavation?

36 A. Yes, I'm aware of it.

37

38 Q. I wonder if we could bring up, sir, COI.003.0060.

39

40 THE PRESIDENT: I will mark the report of July 2007 of  
41 Messrs Casey & Lowe Pty Limited headed "Locating the grave  
42 of the unknown sailor Christmas Island, 2006" as exhibit  
43 152.

44

45 **EXHIBIT #152 REPORT OF JULY 2007 OF MESSRS CASEY & LOWE PTY**  
46 **LIMITED, HEADED "LOCATING THE GRAVE OF THE UNKNOWN SAILOR**  
47 **CHRISTMAS ISLAND, 2006 BARCODED COI.003.0060**

1  
2 CMDR RUSH: Q. Could I ask you to turn into that  
3 report at page 0062. There, Dr Donlon, an outline of  
4 previous searches is given. Could I ask you briefly, in  
5 September of 2001 was an excavation undertaken in the  
6 Christmas Island cemetery based on the recollections of  
7 Mr Kevin Lourey, who had worked at Christmas Island 20  
8 years previous to that time?

9 A. Yes, that's correct.

10

11 Q. What was done there?

12 A. First of all there was a very short reconnaissance  
13 trip to the Island to determine if Mr Lourey could pinpoint  
14 the position of the grave, and so he attended with myself  
15 and Cartier from the Navy. Mr Lourey had some difficulty  
16 pinpointing the area, because the cemetery had been  
17 overgrown, but he felt that he could indicate a general  
18 area where the grave was. So we returned to the mainland  
19 and then I think maybe - I'm not sure exactly how long  
20 after, but we went back and we spent a few weeks excavating  
21 the area.

22

23 Q. Without success?

24 A. Without success, yes.

25

26 Q. Then the report refers to a further attempt by  
27 ground-penetrating radar, which was undertaken by Mr Ted  
28 McGowan, who organised it, who had lost a brother on  
29 Sydney?

30 A. Yes.

31

32 Q. Again, as I understand from the report, that didn't  
33 show anything of any significance?

34 A. No. Actually, there was a ground-penetrating radar  
35 search before that search, and that was actually done just  
36 before we did our first excavation, and it indicated some  
37 anomaly in the area where we did excavate, but there was  
38 nothing there. That's not at all unusual with  
39 ground-penetrating radar, and particularly in the sort of  
40 soil we were digging in, which had very large nodules of  
41 phosphate, and of course we found large nodules of  
42 phosphate. So it really meant nothing.

43

44 I saw the area which had been excavated by Mr McGowan,  
45 but I really don't know anything about it. I didn't see  
46 any report or anything like that on it. I don't know if  
47 there was any.

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Q. In 2006 a further expedition, as it was called, went back to Christmas Island, this time relying on accounts and photography of Mr O'Shannassy?

A. Yes. Mr O'Shannassy and also Mr Say Kit Foo.

Q. Mr O'Shannassy had worked at the Island in the 1950s as a clerk?

A. Yes.

Q. And Mr Say Kit Foo was the son of a Chinese person who worked on the Island who used to play in the cemetery?

A. Yes, that's right.

Q. I think you relied on a photograph that had been taken by Mr O'Shannassy, which is at page 0065?

A. Yes. I can't see the photo in front of me, but I think I know the photograph that you mean. Yes, that's it.

Q. What was it about Mr O'Shannassy's recollection, Mr Say Kit Foo and the photograph which provided new information to justify the cost of a further expedition?

A. Well, after the first expedition, I actually recommended in my report that there be more historical research done in terms of locating the grave, and that was done and that's why Mr Say Kit Foo and Mr O'Shannassy were located and independently described a very similar area for the grave.

Mr O'Shannassy, apparently, in 1950 had been taken up to the old cemetery specifically to be shown the grave, and he took a single photograph, and this is the photograph.

Q. Is the site of the grave as excavated shown in that photograph?

A. Yes, it is, but it is actually quite difficult to see, really, because the grave which you can see in the far distance there would not have been there when the unidentified skeleton was buried.

Q. On this extra information, you commenced to search. Can you detail to the Commissioner the nature of the search and how long it took to find what you were looking for?

A. Yes. We spent two weeks searching - sorry, not two weeks. We spent a week searching, really, and we found the remains on the seventh day, and then we spent the next week

1 excavating the grave.  
2

3 We initially actually excavated to the right of those  
4 graves that you can see there, because Mr O'Shannassy said  
5 that looking at the photograph again he remembered that the  
6 grave was down to the right-hand side of those graves that  
7 you can see there, and so that's where we commenced  
8 digging. So for six days we dug along that right-hand side  
9 of the graves.  
10

11 It was only on the seventh day that CAPT Parsons  
12 looked at the photograph, I guess, more intently, and  
13 positioned himself as Mr O'Shannassy would have when he  
14 took the photograph and said that he believed that the  
15 grave must be in the middle of the photograph, because when  
16 somebody takes a photograph they always put the object in  
17 the centre, usually, and so he suggested that we actually  
18 excavate really at the end of the second grave that you can  
19 see there, even though there was actually only a small  
20 space between there and the next grave. It seemed perhaps  
21 an unlikely spot, but, in fact, that is where we found the  
22 remains.  
23

24 Q. So if we are to look at that photograph, we see an  
25 elongated grave, if you like, and then a further elongated  
26 grave, and it is between those two, is it?

27 A. No, it is between the second and the third headstones.  
28

29 Q. To ascertain that there may be a grave, what depth do  
30 you go to and what are the signs that you are looking for  
31 that would mean you dig deeper?

32 A. Grave fill, the actual soil that has been placed back  
33 in the grave, is usually different to the surrounding soil;  
34 it is extremely difficult to replace - in fact, it is  
35 impossible to replace - the soil in the same manner that it  
36 came out, and so you would expect it to be a little bit  
37 different.  
38

39 The archeologist, Mr Tony Lowe, who was running the  
40 archaeological part of the dig, recognised that - he  
41 thought the soil was slightly different in that area, and  
42 so it was suggested that we just continue digging until we  
43 reached the depth of, I suppose, a normal grave, and then  
44 we found human remains.  
45

46 Q. As you started to dig, did you find material  
47 consistent with a coffin?

1 A. At about 2 metres, actually after we found the first  
2 bone, we did find rotting timber, yes.

3

4 Q. Perhaps I could ask you to go to just above the  
5 photograph that is there to the text. You say that work  
6 commenced on trench 7 on the 29th:

7

8 *Working to a depth of 50cm in the*  
9 *afternoon, the strata appeared to be mixed*  
10 *and without stratification.*

11

12 A. Mmm-hmm.

13

14 Q. Is that what you have referred to?

15 A. Yes, that's right, the disturbed soil.

16

17 Q. Then it is stated:

18

19 *It appeared that the area had been*  
20 *disturbed previously. Several "edges" were*  
21 *noticed, indicating a possible grave cut or*  
22 *previous trenches looking for a grave in*  
23 *this area ... Work continued the following*  
24 *day and in the late afternoon several*  
25 *corroded nails and fragments of what*  
26 *appeared to be decayed timber was found,*  
27 *before a foot bone was recovered.*

28

29 A. Yes. Actually, I take that back, then. There were  
30 actually some objects found, nails and fragments of timber.

31

32 Q. So once that was recovered, what was the nature of the  
33 work that was undertaken?

34 A. Once the bone was recovered, we excavated very  
35 carefully, of course, to expose all the bones before we  
36 removed any bones at all, because we wanted to see the  
37 position of the skeleton. That is normal practice, to  
38 expose everything before it is removed.

39

40 Q. Perhaps if we could turn to page 0066 and the second  
41 paragraph. It states:

42

43 *The excavation of the grave revealed a*  
44 *rectangular timber coffin (150cm by 80cm)*  
45 *at a depth of approximately 2m.*

46

47 Can you perhaps indicate whether what you did was dig to

1 that depth?

2 A. Yes, we did, yes.

3

4 Q. If I can ask you to turn page 0074, figure 14. We've  
5 referred to a nail before.

6 A. Yes. Roughly just to the right of the centre there is  
7 a nail, and there are a number of nails, actually, I think  
8 in there.

9

10 Q. And looking at figure 15, what are we looking at  
11 there?

12 A. Okay. In the centre you can see the two scales. They  
13 are really sort of outlining the end of the coffin or the  
14 box. You can see it is slightly darker. That's the  
15 timber. Then the arrow is actually pointing to what we  
16 call the grave cut, where the shovels actually cut through  
17 the undisturbed soil. So that was followed down. Just to  
18 the left of the arrow, you can see that we've actually cut  
19 into the undisturbed soil in order to make a little  
20 platform along the side of the grave so that we could  
21 actually access the grave without treading on the remains  
22 themselves.

23

24 Q. If we can go over the page to figure 16. So that's  
25 after further excavation.

26 A. Yes.

27

28 Q. When we think of excavation, we think of heavy  
29 equipment. How was this done?

30 A. No, everything was done by hand. Initially using  
31 shovels to get down to the level where we thought we  
32 actually saw nails and timber, and then we used trowels and  
33 then, when we actually started removing soil from the  
34 skeleton, we just used little wooden implements - actually,  
35 little wooden sculpturing instruments and satay sticks and  
36 plastic. No metal. Just to make sure that we didn't leave  
37 any impressions or marks on the bones that could be  
38 misinterpreted.

39

40 Q. I think we earlier described the coffin as a  
41 rectangular timber coffin 150cm by 80cm?

42 A. Yes.

43

44 Q. Is that what we would understand as the normal size  
45 for a coffin?

46 A. No. A coffin is usually narrower than that and  
47 longer. So this was an unusual shape for a coffin. Would

1 you like me to go further?

2

3 Q. Yes.

4 A. You can also see that the position of his body is also  
5 not what you would expect in a normal coffin, in that his  
6 legs are flexed at the knees and ankles and hips. So in  
7 that position he fitted into this coffin or box.

8

9 Now, I don't know whether he was placed in a box that  
10 was that size and so his legs were flexed to fit into the  
11 box. The other possibility is that he may have been partly  
12 mummified and it may have been impossible to straighten his  
13 legs and so a box may have been made to actually fit him.

14

15 Q. Figure 17 relates to other material that was found in  
16 the grave - there were some press stud buttons as shown  
17 there in the lower left quadrant of the photograph, amongst  
18 other places?

19 A. Yes. That's right. You can see the press studs -  
20 they must have had some copper component, because you can  
21 see the copper oxide, the greenish-blue copper oxide which  
22 has formed on the lower press stud there.

23

24 THE PRESIDENT: Q. Would those press studs be in a  
25 position of the body wearing trousers or not?

26 A. No. They were actually scattered from the neck down  
27 to the pelvis, mainly across the ribcage.

28

29 CMDR RUSH: Q. Could we then look at figure 18, over the  
30 page at page 0076.

31 A. These are what we thought at the time were eyelets.  
32 They were much bigger than the press studs and they were  
33 lying along the lower part of the coffin or box, pressed up  
34 right hard against the coffin.

35

36 Q. Was there any determination made as to where they came  
37 from?

38 A. Well, I think the War Memorial examined these and I'm  
39 not sure exactly - I know there was discussion about them  
40 possibly being eyelets from a piece of hessian which  
41 possibly the body had been wrapped in.

42

43 Q. Looking at figure 19, which is the next figure down,  
44 is that a photograph of the excavated coffin?

45 A. Yes. That's right. So I think that slide shows after  
46 the body has been removed and then it would have been the  
47 coffin and underneath, we excavated underneath as well.

1  
2 Q. How deep did you have to go for the removal of the  
3 body, approximately?

4 A. I think the base of the coffin was approximately  
5 2 metres, and then we excavated a little bit further  
6 underneath that, you know, in case something had been  
7 thrown into the grave before the coffin had been placed in.

8  
9 CMDR RUSH: Q. Figure 20 shows the grave with grave fill  
10 removed.

11 A. Yes.

12  
13 Q. Figure 21 shows the press studs, I take it, that were  
14 recovered?

15 A. Yes, that's right. And you can see a little of fabric  
16 still attached to some of those.

17  
18 THE PRESIDENT: Q. Is that the protrusion to the left,  
19 on the left-hand side --

20 A. Yes, on that far left one, I think that's a little bit  
21 of fabric there around it, which is preserved,  
22 I understand, from the sort of effect of the copper which  
23 acts like a bactericide or fungicide.

24  
25 CMDR RUSH: Q. How was the skeleton removed? Was it  
26 removed piece by piece or as a whole? How was it done?

27 A. It was removed, yes, bone by bone. Actually I wrapped  
28 every bone in aluminium foil, in Alfoil. That is usually a  
29 very good way to wrap fragile bone, because it sort of  
30 prevents it from moving around and falling apart. So every  
31 single bone was wrapped in Alfoil, sometimes with soil  
32 attached because it was thought better to do that, just a  
33 little bit of soil, and to clean them up back in the  
34 laboratory rather than doing the cleaning there.

35  
36 Q. If we go to the figures on pages 0080 and 0081,  
37 firstly, is this a depiction of where the various items  
38 were found in the grave site?

39 A. Yes. You can see the press studs there and also you  
40 can see nails. The other thing that I might point out  
41 there, which we haven't talked about, is the position of  
42 the forearms and the hands, which are in black on that  
43 diagram. You will notice that they are lying sort of  
44 directly over the chest. Really, the elbows should be  
45 articulated with the lower end of the upper arms or the  
46 humerus, which they are not.

47

1           Now, I haven't seen anything like this before, so it  
2 suggests to me that when the man was buried, there must  
3 have been some decomposition around the elbows and so the  
4 forearms had been completely separated from the elbows.  
5 Perhaps they were still in clothing, but they would have  
6 decomposed.

7  
8 THE PRESIDENT: Q. If one goes back to page 0075 and the  
9 top figure, the forearms below the elbow don't appear to be  
10 there?

11 A. That's right. Because they are actually under the  
12 chest, under the ribs. The man is actually lying with his  
13 chest down and his forearms are underneath there.

14  
15 Q. So we're looking at his backbone?

16 A. Yes, that's right.

17  
18 CMDR RUSH: Q. So the forearms are tucked across his  
19 body and he is lying on them?

20 A. That's right.

21  
22 Q. You said, obviously, they are not articulated at the  
23 elbow joint.

24 A. No. You can get some movement of bone in the soil,  
25 but that's too much movement, really, for it to have  
26 happened, I would say, after burial.

27  
28 Q. I think you said that you would put that down to the  
29 way he was placed in the coffin, because of decomposition  
30 of the body?

31 A. Well, I think that his forearms must have actually  
32 been placed over his chest.

33  
34 THE PRESIDENT: Q. Is it normal for a body to be lain  
35 face-down at a burial?

36 A. No, it is not. I wondered about this, too. I don't  
37 know the reason, but I sort of hypothesised that perhaps if  
38 he was in a box rather than a coffin, that perhaps they may  
39 have lost track of which was the top and the bottom of the  
40 box and placed it in upside-down.

41  
42 Q. Going back to page 0081, the black forearms are in  
43 fact underneath?

44 A. Yes, that's right.

45  
46 CMDR RUSH: Q. So once the skeleton had been removed,  
47 from what I understand of your evidence thus far, bone by

1 bone, it was placed in aluminium foil for the purposes of  
2 bringing it back to Australia?

3 A. Yes. With the exception of one of the thigh bones,  
4 one of the femurs, which we immediately placed in a  
5 vacuum-sealed plastic bag and then we removed the air. The  
6 reason for that is that we thought it may be used for DNA  
7 analysis or chemical analysis at a later period.

8  
9 Q. Where was the body brought when it came back to  
10 Australia?

11 A. It was brought to the Shellshear Museum of Physical  
12 Anthropology at the Department of Anatomy and Histology at  
13 the University of Sydney. That's a museum that I curate as  
14 part of my position.

15  
16 Q. Then from your perspective, what work was undertaken?

17 A. Well, the first work undertaken was unwrapping and  
18 cleaning the skeleton. Then I proceeded to try to draw up  
19 a biological profile, which is what I would normally do in  
20 a forensic case, and that means determining the ancestry of  
21 the person, their age, their sex and their height.

22  
23 Q. Is the biological profile done by examination of the  
24 skeleton itself?

25 A. Yes. It is just visual observation as well as  
26 measurements.

27  
28 THE PRESIDENT: Q. Could we look at page 0068, please.  
29 This is a diagram which shows where the 2001 excavation  
30 took place and where the McGowan trench occurred in 2002.  
31 Those numbers, 1, 2, 3, 4, 5, are they the preceding days  
32 of the excavations which you did?

33 A. No, they are just the numbers that were given to the  
34 pit, the test pits which we dug in 2006. You can see that  
35 the seventh is the last one, and that's actually where we  
36 found --

37  
38 Q. What is the red dot? Is that a datum point of some  
39 sort?

40 A. I think the red dot is actually - possibly, actually,  
41 this isn't my drawing, but it may be where Mr O'Shannassy  
42 stood to take the photograph, I think.

43  
44 THE PRESIDENT: Thank you.

45  
46 CMDR RUSH: Q. At the University, were you responsible  
47 for removal of soil and other debris from the skeleton?

1 A. Yes, that's right.

2

3 Q. Then you mentioned that you go about various  
4 examinations to determine sex and height and other features  
5 in relation to the body?

6 A. Yes.

7

8 Q. If I could ask you to go to CORR.012.0233, which is a  
9 report on our Summation system that you prepared, being an  
10 Anthropological Report on the Examination of Unknown  
11 Skeletal Remains from Christmas Island 2006, what we have  
12 there - and I hope you have in front of you - is a copy of  
13 your report?

14 A. Yes.

15

16 THE PRESIDENT: I will mark that exhibit 153.

17

18 **EXHIBIT #153 REPORT OF DR DONLON ENTITLED "ANTHROPOLOGICAL**  
19 **REPORT ON THE EXAMINATION OF UNKNOWN SKELETAL REMAINS FROM**  
20 **CHRISTMAS ISLAND 2006**

21

22 CMDR RUSH: Q. In the second paragraph of your report,  
23 doctor, you indicate that brittle or fragile bones and  
24 teeth were stabilised. What happens there?

25 A. I used what is like a liquid superglue painted over  
26 the bone which actually prevents it from falling apart and  
27 decomposing.

28

29 Q. Then the skull and long bones were radiographed.

30 A. Yes.

31

32 Q. What was the purpose of that?

33 A. To look for fractures which may have occurred around  
34 the time of death or to look for any objects which were not  
35 part of the skeleton.

36

37 Q. You indicate that the cranium of the skull was  
38 photographed, including a metal object that was in the  
39 skull, and then a cast was prepared both inside and out?

40 A. Yes.

41

42 Q. What is the purpose of that and do you have the cast  
43 with you?

44 A. Yes, I do have it with me. The purpose was really  
45 just to make a physical record of it, because it is  
46 sometimes difficult from a photograph to actually see.

47

1 Q. Perhaps by reference to the cast, could you tell us  
2 how it is done and perhaps if you could produce the cast so  
3 that we can have a look at it?

4 A. Yes. Okay. So this is a cast just of the very top of  
5 the skull. We didn't do the whole skull, because that's a  
6 much more complicated process. (Indicating) The object was  
7 actually just to look at the metal object. The way it was  
8 done, if you imagine that this was the original, then a  
9 silicone rubber mould is made over the top of the skull and  
10 that's allowed to, I guess, set, if you like, and that's  
11 removed and then a type of resin is actually poured into  
12 the mould and that actually picks up the features which the  
13 mould had formed and, again, a matter of time passes and  
14 various chemical processes occur, and then the cast is  
15 produced. So this is the resin cast. Then it was actually  
16 painted to look the same colour. So this is from the  
17 outside, here. As you can see, the metal object is here  
18 (indicating) and there is some staining around that. We  
19 also cast the inside of the skull which shows the other  
20 side of the metal object embedded.

21  
22 Q. So from the point of view of the cranium that you hold  
23 in your left hand, which is the front and which is the back  
24 of the skull?

25 A. This is the front, this is the back (indicating).  
26 This would be inside, like that (indicating).

27  
28 Q. So where we see what is shown as the metal object on  
29 the cast, on the outside, if you like, of the skull, the  
30 other part that you have in your right hand represents what  
31 it looked like inside the skull?

32 A. That's correct, yes.

33  
34 CMDR RUSH: I was wondering, sir, if you would like to  
35 examine that before we move on?

36  
37 THE PRESIDENT: Yes. (Casts shown to the Commissioner)

38  
39 Q. So does this mean that the metal object was protruding  
40 both internally and externally?

41 A. Yes, that's correct.

42  
43 Q. But had not passed through the skull, at least from  
44 the forehead?

45 A. That's right, yes.

46  
47 CMDR RUSH: Q. Whilst the Commissioner has it,

1 Dr Donlon, is there an area of staining around the metal  
2 object?

3 A. Yes, there is, yes, and that is staining from the  
4 object.

5  
6 THE PRESIDENT: Q. So whatever it was, it penetrated the  
7 skull but not much further.

8 A. That's correct, and it actually came from the front  
9 into the skull, not the other way around.

10  
11 CMDR RUSH: Q. Perhaps if I can ask, while you are  
12 examining that, if we can go to page 0249. There is a  
13 depiction of the skull, if you like - a drawing?

14 A. Mmm.

15  
16 Q. The metal object is pointed to and, as I understand  
17 your evidence, Dr Donlon, what you are saying is that that  
18 is, if you like, the area at the front of the skull where  
19 the metal object entered?

20 A. Yes, that's right.

21  
22 Q. Whilst we're looking at this diagram, were there any  
23 areas of fracture lines around the area of entry of the  
24 metal object?

25 A. Yes. I have actually drawn those on the diagram.  
26 There are a couple of fractures coming from the metal  
27 object, but there are other fracture lines as well on the  
28 frontal bone.

29  
30 Q. Is it you or are there other people who are going to  
31 give evidence that should tell us from the fracture lines  
32 that are depicted there what is caused by the metal object  
33 and what isn't?

34 A. Yes, Associate Professor Dufrou, a forensic  
35 pathologist, examined the metal object, and this is really  
36 his area of expertise.

37  
38 Q. While we're looking at it, was there a healed  
39 depressed fracture of the skull?

40 A. Yes, there was, a very small one, if I can perhaps  
41 point to it on my own skull (indicating).

42  
43 Q. Could you tell us where you are pointing to?

44 A. I am pointing to the rear on the right. It was back  
45 here (indicating).

46  
47 Q. How can we determine that that's a healed depressed

1 fracture?

2 A. Because there are no sharp edges and the bone has what  
3 we call remodelled, which means that it has really grown  
4 over any sharp fractures and it just presents a very smooth  
5 area. It is not actually on the cast there. It would have  
6 been further down.

7  
8 CMDR RUSH: Sir, with your leave, depending on the view  
9 you take, we can have some photographs taken of the cast at  
10 the conclusion of Dr Donlon's evidence, both internally and  
11 externally, and return the cast to Dr Donlon.

12  
13 THE PRESIDENT: I will mark them as an exhibit, then we  
14 will return them to Dr Donlon. So I will mark the two  
15 casts as exhibit 154 and 154A.

16  
17 **EXHIBIT #154 EXTERNAL CAST OF CRANIUM OF SKELETON FOUND ON**  
18 **CHRISTMAS ISLAND**

19  
20 **EXHIBIT #154 A INTERNAL CAST OF CRANIUM OF SKELETON FOUND**  
21 **ON CHRISTMAS ISLAND**

22  
23 CMDR RUSH: Q. Doctor, going back to pages 0234 and 0235  
24 of your report, I want to ask you a general question,  
25 because I am going to come to particular matters later.  
26 Did you undertake an examination of the skeleton, apart  
27 from the skull, with a view to ascertaining whether damage  
28 to the bones was post-mortem or peri-mortem?

29 A. Yes, I did.

30  
31 Q. You set out there substantial damage to the bones -  
32 the ribs, the arms, et cetera. You have indicated that it  
33 is all post-mortem?

34 A. Yes. I think that my impression was that the damage  
35 to the skeleton below the skull was probably post-mortem.  
36 They were very sharp fractures. They were in positions  
37 where you often find fractures, possibly from the collapse  
38 of the coffin on top of the skeleton. The skeleton was  
39 very fragile. Actually, as we picked up the bones, pieces  
40 would break off. I saw no good reason to think that any of  
41 the fractures in the post-cranial skeleton were anything  
42 but post-mortem. It is possible, though, that some of them  
43 could have been, but they didn't really appear to be to me.

44  
45 Q. In relation to the teeth of the body, was there any  
46 particular feature in relation to the dentition, as you  
47 have referred to it at page 0236 of your report?

1 A. Yes. One of the first things I noticed - of course,  
2 the dentists would probably have a more detailed  
3 description, was that he was missing one of his anterior  
4 teeth, in fact, it was the lateral incisor of the upper  
5 jaw, the right lateral incisor. Perhaps if we could look  
6 at a photograph, that might be useful.

7  
8 Q. I am just looking for one. If we go back to  
9 page 0252.

10 A. Yes. If I point to it, this is the central right  
11 incisor and this is the canine (indicating) and there  
12 should be a tooth in between here, a lateral incisor. You  
13 can see one on this side. Now, with this one, you can see  
14 there is very little space between those two teeth, which  
15 means that this was lost at a much younger age and  
16 certainly, probably, before he enlisted in the Navy.

17  
18 Q. Doctor, could you keep your voice up a little bit.

19 A. I am sorry. Again the dentists would probably be able  
20 to say when it was most likely lost, but it has been some  
21 years since he lost that tooth, because the space has been  
22 filled up and the central incisor there has moved across to  
23 sort of fill that space. That's an unusual thing to see,  
24 actually, in a dentition. He also was missing a first  
25 molar, also during life, and the bone had healed over that.  
26 That had probably been extracted. That's not so unusual,  
27 I think, to have a molar extracted, but perhaps a little  
28 bit more unusual to lose a front tooth like that.

29  
30 Q. It is perhaps difficult to pick it up from figure 11  
31 but would it be readily picked up in a photograph or  
32 something like that, that the person was missing that  
33 incisor?

34 A. If you had a good, open, smiling photograph of  
35 someone, you should be able to pick that up. It would have  
36 to be a big smile, though, to be able to see it.

37  
38 THE PRESIDENT: Q. And a close-up?

39 A. Yes.

40  
41 CMDR RUSH: Q. Was there much dental work? We will get  
42 other evidence on this, but I just ask you in general  
43 terms. Was there much dental work that had been carried  
44 out on the teeth?

45 A. Yes, there was a lot of dental work, both amalgam  
46 fillings and gold fillings.

1 Q. One of the matters that you mentioned that you look at  
2 in your particular area is to determine the race of the  
3 skeleton.

4 A. Yes.

5

6 Q. What do you look for and what conclusion did you come  
7 to? Perhaps if we can bring up page 0236, further down the  
8 page. It sets out there that the features were caucasoid.  
9 What were you looking for?

10 A. Perhaps I might just first of all mention what  
11 "caucasoid" is. It is a term often used by anthropologists  
12 to describe people who originated from Europe and right  
13 across through Eastern Europe to Russia, down through the  
14 Middle East, parts of North Africa and India. So people in  
15 those regions share a similar morphology or shape of the  
16 bones, particularly in the skull. So these features which  
17 I have listed here the skeleton had and are typical of  
18 people of caucasoid ancestry. I brought along a plastic  
19 skull, if that would help.

20

21 Q. Yes.

22 A. This is actually a caucasoid plastic skull. The  
23 features which show that he was caucasoid are the lower  
24 border of the nasal aperture, which is very sharp. That's  
25 a particularly good feature for identifying caucasoids, and  
26 he had that. Round or oval eye sockets. These sockets are  
27 actually a little bit more rectangular.

28

29 This is actually a replica of an Indian skull, and  
30 while I said Indians are caucasoids, their features are a  
31 little bit different to Europeans.

32

33 A moderate or prominent glabella, which is the area  
34 here between the eyebrows; a narrow nasal aperture or  
35 narrow nose; the narrow and prominent nasal bones - they  
36 are the two little bones just above here, so they give the  
37 nose its projection; the prominent nasal spine down here,  
38 which again indicates, gives us some idea of a long  
39 prominent nose, which is typical of Europeans; a long face;  
40 a narrow rami of the mandible. The ramus is this part of  
41 the mandible, and it is usually quite narrow on caucasoids.  
42 A prominent mental eminence. The mental eminence is just  
43 another word for a chin, so, again, caucasoids have  
44 prominent chins. And then an obtuse inside angle of the  
45 mandible, which is this angle here. The unknown skeleton  
46 had a very obtuse, very long mandible.

47

1 Q. Were there any features inconsistent with that  
2 determination of race?

3 A. No, there was nothing that indicated another racial  
4 group.

5  
6 Q. As the next step, did you go about determining sex?

7 A. Yes.

8  
9 Q. In relation to that, could you explain to the  
10 Commissioner what you did to determine the sex of the body  
11 which you have already in your evidence referred to as  
12 "he"?

13 A. Well, the best part of the skeleton to use to identify  
14 sex or gender is the pelvis. He showed some male features,  
15 which I have listed here. Sorry, I don't have a pelvis to  
16 show you, but there is actually a photograph, I think, of  
17 the sulcus area. It is just part of the pelvis there.

18  
19 Q. If we go to 0252?

20 A. Yes, that's it. It might be a bit difficult to  
21 perhaps imagine exactly where this is on the pelvis, but it  
22 is to the side of the pelvis, and that notch there is  
23 called the greater sciatic notch. Just in front of where  
24 the arrow is pointing (indicating) is a very, very slight  
25 groove. In males, that tends to be either absent or very  
26 slight. In females, it is much deeper and pitted. In this  
27 skeleton, it was very, very slight. That's usually a  
28 feature that I would give a lot of weight to in determining  
29 sex.

30  
31 The other feature was the subpubic angle, and I am  
32 sorry, I don't have a photograph of that.

33  
34 Q. I think that's page 0253?

35 A. Oh, yes, sorry, there is. These are the two pubis  
36 bones right at the front of the pelvis. The angle here is  
37 quite narrow, which is typical of a male. Females tend to  
38 have relatively much broader pelvises, and he showed those  
39 two features, and they are ones that I would give most  
40 weight to in determining sex.

41  
42 He did, however, have a couple of features which were  
43 more female-like. One was a broad greater sciatic notch,  
44 but I still am sure that he was male, even though he had  
45 that. That's not a feature that I would give so much  
46 weight to.

47

1 Q. Were there any parts of the skull that demonstrated or  
2 were of assistance in relation to determining male from  
3 female?

4 A. Yes. He had a deep, bony palate, so in here  
5 (indicating). He had large mastoid processes, which are  
6 the bony processes behind the ear. There is a very large  
7 muscle attached to that. Males having larger muscles  
8 generally, their muscle attachment areas on the bones will  
9 almost always be larger. He had, as I mentioned before, a  
10 moderately prominent glabella, which is used for  
11 determining both ancestry and sex, and that is generally  
12 larger in males. He had well developed malar tuberosities  
13 or cheek bones here, for attachment of muscles, and he had  
14 a square chin, which again is a male characteristic, with  
15 females tending to have a pointed chin.

16  
17 Q. You made the comment at page 0237, after detailing the  
18 matters that you just referred to, that the skull does not  
19 have a very strongly male appearance; that most of the  
20 muscle attachments are not particularly well developed; and  
21 in your opinion the remains are those of a male.

22 A. Yes. There are others areas where muscles are  
23 attached, particularly at the back of the skull for the  
24 neck muscles. They weren't all that well developed. Also  
25 the muscles along the side here, the temporalis muscle,  
26 wasn't all that well developed. But, again, I would put  
27 more weight on the pelvis, and I have no doubt that it is a  
28 male skeleton. It is not unusual to find some features  
29 which you might classify as female in a male skeleton and  
30 vice versa.

31  
32 Q. Then from the position of determining his age, what  
33 would you look for there?

34 A. With age, I would look at as many features as I could,  
35 really, on the skeleton. So I looked at what I call  
36 epiphyseal fusion, which is the fusion of the caps of the  
37 bones as the bones grow, and so, for example, in a child,  
38 the thigh bone, or femur, will have a shaft and then it  
39 will have epiphyses or caps at either end, which will  
40 eventually fuse with the shaft. They fuse at regular ages.  
41 There is a bit of variation, usually plus or minus four  
42 years, and we have tables which we compare with.

43  
44 The epiphyses were fused on all of his bones, with the  
45 expectation of the end of the clavicles, or collar bones,  
46 here (indicating). At this end, what we call the sternal  
47 end of the clavicle was not completely fused, and this is

1 actually the last epiphysis to fuse in the human skeleton.  
2 So his were still on the point of fusing. That indicated  
3 an age of between 23 and 31 years. I used other methods  
4 as well, the pubic synthesis, which we have a photograph  
5 of.  
6

7 Q. That's at figure 15 on page 0254.

8 A. These two pubis bones come together and change  
9 throughout life. They change in their appearance. I have  
10 brought along a series of casts to show those changes,  
11 which we use to give a score. These are just casts of  
12 people of known age. This is the pubic symphysis  
13 representing a particular age group. These are actually  
14 based on some hundreds of, in this case, European skeletons  
15 of known age, in an attempt to come up with a method to age  
16 people on this basis. This end (indicating) represents  
17 young individuals, and this end (indicating) represents  
18 older individuals.  
19

20 The face of the symphysis starts off as being very  
21 ridged, deeply ridged, and flattens out as the person  
22 becomes older and then becomes, in the end, sort of almost  
23 arthritic and the surface degenerates. This is considered  
24 quite a good method for ageing skeletons once growth has  
25 stopped. In this man's case, growth had stopped and the  
26 last epiphysis was in the process of fusing.  
27

28 I used this method and this indicated an age range of  
29 24 to 30 years. He fell into this second stage  
30 (indicating).  
31

32 I used another method of pubic symphysis, which was  
33 based on drawings. I used the end of a rib, which  
34 undergoes similar changes to the pubic symphysis, and  
35 I used an articular surface, the auricular surface of one  
36 of the hip bones or the innominates. Again, there have  
37 been many studies done on the ageing of people based on  
38 these bones, and there are tables to compare. So I came up  
39 with a whole series of age ranges and I used the extremes  
40 of those age ranges, with the exception, actually, of the  
41 sternal end of the rib, which gave an age of 20 to 29  
42 years, but I felt that because all the epiphyses of the  
43 long bones had fused, and they fuse by 22, we could take it  
44 up to 22.  
45

46 THE PRESIDENT: Q. 22 to 31?

47 A. So in the end I came up with a range of 22 to 31

1 years.

2

3 CMDR RUSH: Q. Then you looked at trying to ascertain  
4 height. That estimation is undertaken by examining the  
5 femur?

6 A. Yes, the femur is the bone most highly correlated with  
7 a person's height or stature. The left femur is normally  
8 used. You can see, actually, three sets of formulae -  
9 well, actually, it is the one formula, but this is based,  
10 again, on caucasoids - in this case American caucasoids,  
11 American Europeans - and I substituted the length of the  
12 femur, 49 centimetres, into the formula. I have given  
13 three results there depending on how many standard  
14 deviations are used, which is like an error.

15

16 If one standard deviation is used, it means that there  
17 is a 68 per cent probability that that height range is  
18 correct for this person. If two standard deviations are  
19 used there is a 95 per cent probability it is correct that  
20 the person falls into that range. If we use three standard  
21 deviations, 99.7 per cent probability. So I have actually  
22 given the height there with three standard deviations.

23

24 Q. So with the three standard deviations, the height, in  
25 old terms, is between 5 feet 6 inches and 6 feet 2 inches?

26

27

28 THE PRESIDENT: Q. With two standard deviations, the  
29 height is between 5 feet 7.5 inches and 6 feet 7.5 inches?

30

31

32

33

34 CMDR RUSH: Q. In relation to other aspects of the  
35 skeleton, were there areas of degeneration of the bony  
36 structures which were inconsistent with the age range that  
37 you have worked out as a consequence of the investigations  
38 that you have just spoken to us about?

39

40

41

42

43

44

45

46

47

Q. You have referred at page 0239 to the thoracic  
vertebrae and the lumbar vertebrae showing Schmorl's nodes.  
What was the significance of that? I think it is shown in  
figure 16 ?  
A. It is the figure above that one. This is the  
vertebral body, and there is a dip in the centre. That's a  
compression of the body of the vertebra. It is thought to

1 result from constant compression of the vertebra. It is  
2 found today, for example, in trail bike riders. So it is  
3 found in younger individuals these days, but generally, in  
4 the past, it was more commonly occurring in older people as  
5 a result of perhaps carrying weights or something over a  
6 longer period of their lives.

7  
8 Q. Is it consistent with people doing a very heavy type  
9 of lifting and carrying, physical work?

10 A. It is thought to be, yes.

11  
12 Q. For it to develop, can it be congenital or is it a  
13 matter of developing as a consequence of the sort of heavy  
14 loads associated with the lifting and carrying and the  
15 like?

16 A. I think it is thought to occur during the life rather  
17 than being congenital. But, of course, I suppose if  
18 somebody may have these and not have had them x-rayed or  
19 scanned and so may not know - it may be possible.

20  
21 Q. Just on that view, just so that we understand it,  
22 we're looking down, if you like, on a vertebra of the back?

23 A. Yes.

24  
25 Q. You make the comment that this is a common ageing  
26 process in older men over 45 years?

27 A. Yes.

28  
29 Q. You also refer at page 0239 to unusual ankle joints?

30 A. So these are the lower ends of the tibiae or shin  
31 bones. The arrows point to what are called squatting  
32 facets. If you imagine underneath those tibiae or shin  
33 bones there is a very smooth articular surface. These are  
34 really an extension of that articular surface on to the  
35 front of the bone, and they result from what we call  
36 dorsiflexing, or flexing the foot back against the shin  
37 bone. So I suppose if that was my foot (indicating) then  
38 it would be flexing it back like that against the shin bone  
39 constantly.

40  
41 Q. From your position and expertise, lateral squatting  
42 facets are normally associated with what type of people or  
43 race or what type of position?

44 A. They are very commonly found in people who live a  
45 hunter-gatherer lifestyle and who have no chairs and who  
46 squat. So, for example, in Australian Aboriginal  
47 prehistoric remains, which I'm quite familiar with, I would

1 say that, you know, 100 per cent of those people have  
2 squatting facets.  
3

4 It is not really a racial characteristic so much as  
5 the result of a cultural alteration, and so people who  
6 squat, whether they are hunter-gatherers - a lot of Asian  
7 people squat', even rural people, farmers, may squat. So  
8 these people you might assume would get squatting facets.  
9 I guess there is not a direct causal relationship, we don't  
10 know for sure, because it is very rare to have a skeleton  
11 where you actually knew the person's medical history and  
12 their lifetime activities, so there is an assumption there,  
13 but I think it is a good assumption that these would be  
14 caused by an activity like squatting or pressing of the  
15 foot back against the shin.  
16

17 Q. Just so we understand it without me demonstrating, it  
18 is sitting right down on your haunches?

19 A. Yes, that's right.  
20

21 Q. And for prolonged periods of time?

22 A. Yes.  
23

24 Q. And for that to develop in a person of the age that  
25 you have determined, the frequency of that activity, having  
26 regard to the findings that you have told us about, can you  
27 measure that as to --

28 A. No, I can't say, you know, how many years, but I think  
29 it is certainly something that would take years rather than  
30 months to form.  
31

32 Q. You make the comment at page 0240 that it is an  
33 unusual finding, I take it from your point of view, in  
34 people of European ancestry?

35 A. It is unusual, but you do see it sometimes, yes. I do  
36 see it sometimes, for example, in forensic cases, but  
37 I don't know the reason for them having them.  
38

39 THE PRESIDENT: Q. Is there any other cause apart from  
40 squatting?

41 A. Well, I would think that anything which involved that  
42 action of the foot back against the shin, you know in a  
43 very repetitive way.  
44

45 Q. Cycling?

46 A. Possibly, but I don't know for sure, because we don't  
47 actually have a skeleton of cyclist to know that. I

1 imagine there could be activities that could cause that.

2

3 CMDR RUSH: Q. Is there somewhere a suggestion of horse  
4 riding?

5 A. Possibly --

6

7 THE PRESIDENT: No, that's the bad backs.

8

9 Q. A highly-trained sprinter would normally run on their  
10 toes and there would be great flexibility in the ankle  
11 joint, I would have thought. They wouldn't do that all  
12 day, but they might train five days a week. Would that  
13 sort of thing be sufficient to cause this, or not?

14 A. I'm not sure that running on your toes would cause  
15 squatting facets. However, he did actually show that there  
16 would be a lot of mobility around those ankle joints, and  
17 there was actually some degeneration of those ankle joints  
18 as well. So I think he was doing something which involved  
19 a lot of movement of the ankle joints.

20

21 CMDR RUSH: Q. You refer, Dr Donlon, at page 0240 also  
22 to bowing of the fibulae. Could we look at figure 1 on  
23 page 0245. If we scroll down, we're looking, if you like,  
24 at the outside bones of both legs.

25 A. So these (indicating).

26

27 Q. There is bowing, if you like, of what is the left leg  
28 as we look at it but I think it is the right leg of the  
29 skeleton. Is that what you are referring to?

30 A. Yes, that's right.

31

32 Q. What is the significance of that bowing?

33 A. Well, normally that bone is quite straight. Bowing  
34 can occur, and one of the most common causes of bowing in  
35 limb bones is rickets, where the bones do not have enough  
36 calcium and so on, and so the weight of the body causes  
37 them to actually bow. The fact that the tibiae are not  
38 bowed would suggest that this is not the result of rickets.  
39 So it may be that it is the result of some kind of  
40 activity, again causing bowing. To give you an example,  
41 I have seen in a forensic case the upper arm bones or the  
42 humeri of a man who was an archer who had very bowed upper  
43 arm bones, and so certain activities can cause bowing. I'm  
44 really not sure what could cause this, but I suspect it may  
45 be related to the mobility around the ankle joint and the  
46 degeneration of the ankle joints.

47

1 Q. Looking at the commentary, you say the bowing can be  
2 as a result of occupational stress due to repetitive  
3 movements or possibly due to carrying heavy weights?

4 A. Yes.

5

6 Q. You mentioned that there was a depressed healed  
7 fracture of the skull, at page 0241. You also commented  
8 that there was an old healed fracture of the right toe?

9 A. Yes.

10

11 Q. Is that something he would know about necessarily?

12 A. Not necessarily. I think it is not that uncommon to  
13 fracture toes.

14

15 Q. From an occupational point of view, is the bowing of  
16 the tibiae and the degeneration of the spine suggestive of  
17 someone doing a heavier type of occupation, or can't you  
18 say?

19 A. Yes, I think it does indicate some repetitive  
20 movement, perhaps a little bit outside the usual.

21

22 Q. Dr Donlon, you also examined the time that elapsed  
23 since death from an examination of the skeletal remains.  
24 What was your finding there?

25 A. The bones I found were consistent with someone who had  
26 been buried for many years. It is very difficult to say  
27 how long, but the bones were not at all greasy, there was  
28 no tissue attached and they were very fragile, and from my  
29 experience of looking at buried bones, of bodies in New  
30 South Wales, these were certainly, I would say, at least  
31 decades old. The condition of the coffin and the nails,  
32 which were very heavily corroded, and the press studs also  
33 indicates a long period - decades.

34

35 Q. I suppose the question is: are the bones consistent  
36 with a person buried in 1942?

37 A. Yes, I think they are.

38

39 Q. Dr Donlon, you also refer at page 0242 to the  
40 potential of one mark on the skull having been caused by  
41 birds. I think that is at page 0251, figure 9?

42 A. Yes. There was just a very small hole there. We  
43 didn't cause it when we excavated the remains, and I have  
44 seen photographs of bones that have been scavenged by birds  
45 and it is a similar sort of mark.

46

47 THE PRESIDENT: Q. What sort of size is that hole?

1 A. It is on the right side of the frontal bone.

2

3 Q. Yes. What size?

4 A. It is 2mm in diameter, so it is very tiny.

5

6 Q. It is very small.

7 A. Yes.

8

9 CMDR RUSH: Q. It may be more a matter for dental  
10 expertise, but if we look at figure 10 immediately under  
11 that, which I haven't taken you to, there is slight  
12 shovelling of the incisors. What is the significance?

13 A. Shovelling - the scooping out appearance there of the  
14 inner side of the incisors - is a feature which is present  
15 in a much higher frequency in some racial groups than  
16 others. It is actually present in a very high percentage -  
17 90 to 100 per cent - of Asians, and it is present in about  
18 5 to 10 per cent of caucasoids or Europeans. I guess that  
19 one of the things that anthropologists often look at are  
20 these little sort of morphological features of the skeleton  
21 and the teeth, and it can be useful sometimes in sending  
22 you along a certain direction.

23

24 THE PRESIDENT: Q. Is it due to diet or something else?

25 A. No, it is actually genetic. It is definitely genetic.  
26 These are not really strongly shovelled, but there is  
27 certainly shovelling there. It doesn't necessarily mean  
28 that the person has Asian ancestry, but it is a feature,  
29 I suppose, which a person themselves may be aware of.

30

31 Q. What happens if somebody is of mixed race?

32 A. Actually, they tend to either have them or not. In  
33 fact, I actually had a PhD student some years ago who was  
34 working on these kinds of features on teeth, and she was  
35 actually of mixed race. She was Eurasian. She had  
36 shovelled incisors and she also had another feature called  
37 Carabelli's cusp which is typical of Europeans. So she  
38 actually had both, but it is possible she could have had  
39 neither. But you don't get a merging of them; you either  
40 get them or you don't.

41

42 CMDR RUSH: They are the matters that I have for  
43 Dr Donlon.

44

45 THE PRESIDENT: Thank you very much, Doctor. CMDR Rush  
46 will take control of this skull and get it back to you in  
47 due course.

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CMDR RUSH: Yes, sir.

**<THE WITNESS WITHDREW**

CMDR RUSH: That concludes the evidence for today, sir.  
The next evidence of the Commission of Inquiry is to be  
taken in Perth during the week after next.

THE PRESIDENT: Very well. Thank you very much. I will  
adjourn until Tuesday week.

**AT 3.45PM THE COMMISSION WAS ADJOURNED  
TO PERTH ON TUESDAY, 2 FEBRUARY 2009 AT 10AM**