

1  
2 <IAN ELVINS PFENNIGWERTH, sworn: [2.05pm]

3  
4 <EXAMINATION BY CMDR RUSH:

5  
6 CMDR RUSH: Q. Could you state your full name and  
7 address and occupation to the Commissioner, please?

8 A. Yes, my full name is Ian Elvins Pfennigwerth. I live  
9 at [REDACTED]

10 [REDACTED] As my occupation, I suppose I'm an  
11 historian these days - a failed retiree, anyway.

12  
13 THE PRESIDENT: I know what it's like.

14  
15 CMDR RUSH: Q. Dr Pfennigwerth, prior to your engaging  
16 in your interest in retirement of history, were you  
17 a member of the Royal Australian Navy?

18 A. Yes. I joined the Navy as a Cadet Midshipman in 1958  
19 and I resigned as a Captain in August 1992.

20  
21 Q. Over that period of time, did you have various  
22 seagoing, staff and overseas appointments?

23 A. Yes, I did.

24  
25 Q. Did your career finish with you serving for a period  
26 of time as the Director of Naval Intelligence?

27 A. Yes. I was Director of Naval Intelligence for  
28 two years between 1987 and 1989. When I returned from  
29 China, where I was a Defence Attache for two years, they  
30 had created a job which had the title of DNC for IEW, which  
31 was Director of Naval Intelligence, Communications,  
32 Electronic Warfare, Security and something else - oh,  
33 Computers as well, which I held until I resigned from the  
34 Navy.

35  
36 Q. Dr Pfennigwerth, you have obviously obtained  
37 a doctorate. Can you indicate to the Commissioner where  
38 the doctorate was obtained from and what the thesis giving  
39 rise to the doctorate involved?

40 A. Certainly. The PhD was awarded by the University of  
41 Newcastle in 2005. My thesis was the "Contribution of  
42 Intelligence to RAN Operations 1939 to 1972".

43  
44 Q. Over your career and since, have you had a particular  
45 interest in intelligence and have you researched that topic  
46 as it involves Naval communications and, indeed, other  
47 forms of communications in the intelligence environment?

1 A. I've researched to the depth which was necessary to  
2 prove my thesis, but I have not done any deep research into  
3 communications per se, only as it affected the matters  
4 touched on by my thesis.  
5

6 Q. As a consequence of contact being made with you by the  
7 Commission of Inquiry, did you prepare a report for the  
8 Commission of Inquiry that involved your opinion in  
9 relation to voice radio transmission from *HMAS Sydney*,  
10 Allied direction-finding capability in 1941, Australian  
11 coast watching in 1941 and the decoding of German messages  
12 in 1941?

13 A. I did.  
14

15 CMDR RUSH: Sir, can I, firstly, tender the letter to  
16 Dr Pfennigwerth of 3 March 2009 from LCDR Harper at  
17 CORR.011.0167 and the response of Dr Pfennigwerth at  
18 CORR.020.0179.  
19

20 **EXHIBIT #233 LETTER TO DR PFENNIGWERTH DATED 3/3/2009 FROM**  
21 **LCDR HARPER, BARCODED CORR.011.0167; RESPONSE OF**  
22 **DR PFENNIGWERTH, BARCODED CORR.020.0179**  
23

24 CMDR RUSH: Q. Were you also asked for a further opinion  
25 in relation to HF/DF capability in correspondence from  
26 myself of 26 February 2009 - that letter, sir, is at  
27 EML.005.0291 - and did you respond, Dr Pfennigwerth, with  
28 your answers to various questions raised in that  
29 correspondence on 9 March 2009?

30 A. Yes, I did.  
31

32 CMDR RUSH: I tender those two documents, sir.  
33

34 **EXHIBIT #234 LETTER FROM CMDR RUSH TO DR PFENNIGWERTH DATED**  
35 **26/2/2009, BARCODED EML.005.0291; OPINION OF**  
36 **DR PFENNIGWERTH IN RELATION TO HF/DF CAPABILITY, DATED**  
37 **9/3/2009, BARCODED CORR.020.0182**  
38

39 CMDR RUSH: Q. Dr Pfennigwerth, may I firstly ask for  
40 your opinion as to the voice communications of *HMAS Sydney*.  
41 Could we go to CORR.020.0179. Before it comes up, I can  
42 ask you these questions. You referred to "TBS", or talk  
43 between ships. From your understanding and research, did  
44 you form any view as to whether that capacity was fitted to  
45 *HMAS Sydney* in 1941?

46 A. I would be almost certain that TBS was not fitted in  
47 *HMAS Sydney*. I say that because TBS really was introduced

1 to the RAN at the time of the battle of Savo Island in  
2 August 1942, and it was after that that RAN ships began to  
3 acquire this equipment from the Americans.  
4

5 Q. In the second paragraph under "Voice Radio in  
6 *HMAS Sydney*", you state:  
7

8 *I think it unlikely that any of Sydney's*  
9 *transmitters had an R/T capability for*  
10 *technical reasons to do with frequency*  
11 *stability, the bandwidth required for voice*  
12 *transmission and the means of modulating*  
13 *with voice the continuous wave (CW)*  
14 *transmitted.*  
15

16 What are you driving at there, in terms that the layman  
17 might understand?

18 A. The frequency spectrum we all use is divided into  
19 bands for administrative and operational reasons. These  
20 bands have characteristics, so it is often said that the  
21 frequency spectrum runs from sound to light, which it does,  
22 so that our seeing is part of the electromagnetic spectrum,  
23 as are all kinds of communication, including voice  
24 communications. So we're talking now and my voice is  
25 putting about 3,000Hz at its top range. If I screamed, it  
26 would probably get higher than that.  
27

28 In order to transmit the human voice on a radio  
29 signal, you need to modulate that signal. We all know the  
30 terms "AM", amplitude modulation, and "FM", frequency  
31 modulation, and they have their purposes. That means that  
32 the signal, the carrier wave, for this intelligence needs  
33 to be very stable before the modulation is applied.  
34

35 As I've said in my response, I have no knowledge of  
36 the radio equipment, the transmitting equipment, on board  
37 *HMAS Sydney II*. All I have is the Olson book, and I don't  
38 recognise the names of those transmitters at all, but  
39 I would be very surprised if any of them were capable of  
40 being modified in order to modulate voice on to the carrier  
41 wave.  
42

43 There are several reasons, other operational reasons,  
44 why that was not a high priority, one of which was that  
45 before we had a high level of sophistication in tuning our  
46 equipment, the art - and it was an art - of tuning a radio  
47 to a particular frequency was one that had to be constantly

1 practised. In other words, they were not frequency stable.  
2 If it's not stable, it's very hard to modulate them and  
3 very hard for the intelligence to get through.  
4

5 On the other hand, if you are talking about a very  
6 narrow band of intelligence, such as in a morse code  
7 transmission, where essentially you're breaking the carrier  
8 wave for a dit or a da, and then it starts again, that is  
9 a very narrow band of information and a comparatively low  
10 data rate, of course, but it can be tracked through fading  
11 and it can be heard much better than the human voice.  
12

13 So while Navies generally were involved in  
14 communication that involved morse code, or codes similar to  
15 morse, in the case of the Japanese, that was the favoured  
16 method. It required less technologically advanced  
17 equipment on board the ships; it was easier for the people  
18 to maintain; it didn't go bad - if it went did, you  
19 couldn't fix it in those days, but morse code transmissions  
20 were very simple and the equipment that transmitted them  
21 was simple as well.  
22

23 So the reasons why there was no great rush to get into  
24 voice radio, or radio telephony, as it was called, changed  
25 later in the War as the advantages of using voice,  
26 particularly in tactical situations where you were fighting  
27 a battle, became very clear and very important. There was  
28 then impetus to get this equipment on board ships. But at  
29 the time, in 1941, we hadn't got to that stage. I'm not  
30 sure if I have explained all the questions you were asking.  
31

32 Q. You do refer in the second-last line there to the  
33 ability to transmit morse in encoded messages and that that  
34 quality was not available initially in R/T.

35 A. Yes, that is another clear advantage. What term did  
36 I use - "code" or "encipher"? I had better be careful  
37 here. Encode a message. Well, the same applies to  
38 enciphered messages. Whichever way the information in the  
39 message was concealed by a code, which is basically  
40 substitution of a phrase by, say, a five-letter or  
41 five-numeral group, or it was passed through an electronic  
42 system like Enigma, where you changed the order of the  
43 letters in each particular word to something completely  
44 different - whichever - that could very easily be sent by  
45 morse code.  
46

47 Voice, in those days, I think I'm right in saying,

1 could not be encoded. We had to really wait until  
2 digitisation before that became possible. So if you had  
3 classified information to pass between ships, then you  
4 preferred to do it, in fact you were required to do it, so  
5 far as you could, in an encoded or enciphered fashion,  
6 which meant that morse code was clearly - let's not get the  
7 two things mixed up. Morse is a code in the sense that you  
8 translate letters into a series of dots and dashes, but  
9 there's no security attached to that. The coding is done  
10 as a separate issue by coders, who mix up what is being  
11 sent, hopefully to conceal it from the enemy.

12  
13 Q. You were also asked to comment on the Allied DF,  
14 direction-finding, capability in 1941. You refer there to  
15 a system which was a Pacific DF network set up by  
16 Commonwealth Navies and controlled from the Far East  
17 Combined Bureau in Singapore. Can you enlighten us  
18 a little bit in relation to what the system was, who was  
19 involved, where it was in Australia and what the element of  
20 control in Singapore was?

21 A. Yes. The British, in the 1920s, became concerned  
22 about their ability to monitor what the Japanese Navy was  
23 doing, and their concern took two forms. One was, as my  
24 book suggests, that they began to pay a lot of attention to  
25 the decoding of Japanese Naval messages, in other words,  
26 breaking codes.

27  
28 The second form was that, as technology advanced, it  
29 became possible to track ships by their radio transmissions  
30 by direction-finding them, DF-ing them, but also using  
31 other methods. With the invention of the cathode ray tube,  
32 cathode ray oscilloscope, you could then project on  
33 a screen the waveform of the transmitter itself. That was  
34 called TINA in the British terminology.

35  
36 That enabled you to say two things: firstly,  
37 transmitters, like everything else, have their own  
38 characteristics, some of them distinctive. So you might be  
39 able to say that that particular transmitter is on *Musashi*,  
40 has always been on *Musashi*, has always been identified as  
41 being on that ship. So when we see that waveform on  
42 a screen, that transmission is from *Musashi*.

43  
44 They also discovered that operators of morse code have  
45 what was known in the trade as a fist, that is, a special  
46 way of sending morse. Although training was designed to  
47 eliminate those peculiarities which could identify an

1 individual operator, nevertheless, sailors being sailors,  
2 they were proud of their capability and they would almost  
3 always finish with a little flourish or there would be  
4 a special way they made their As or their Ts or something  
5 like that. Now, that could be seen on an oscilloscope and  
6 they could say, "Right, that operator is also associated  
7 with various flagships", so they could say that probably he  
8 is part of the Admiral's staff, and if that different fist  
9 or distinctive fist showed up on another ship, you could  
10 say that it's probable that the Admiral has shifted his  
11 flag to a different ship.  
12

13 All this collectively was called traffic analysis. So  
14 there are two forms of radio intelligence: one was the  
15 direction in which the transmitter lay from a receiving  
16 shore station, but also the characteristics of  
17 a transmission itself, quite apart from the code. In fact,  
18 traffic analysis became an increasingly important way of  
19 getting intelligence on what the Japanese Navy was doing.  
20

21 That's a very long-winded introduction, but because of  
22 these characteristics that were discovered and the fact  
23 that trials showed that in order to track Japanese Navy  
24 ships across the Pacific you needed a number of radio  
25 intercept stations, receiving stations, to listen in on  
26 Japanese transmissions - or anybody else's, for that  
27 matter - these needed to be geographically separated  
28 because of the vagaries of HF as a medium of transmission.  
29

30 I'll explain that, if you'd like. Because of that, it  
31 was necessary to have a number of geographically separated  
32 stations, not necessarily close to Japan but certainly  
33 forming a network, so that if a transmission was made, then  
34 the chances were that one of the stations in one area would  
35 receive that particular signal.  
36

37 These were networked, or netted, from a control  
38 station, and the British were running the show, they  
39 controlled that, and they set up the initial control  
40 station in Hong Kong, but that was later moved to Singapore  
41 when the Japanese invaded the Chinese mainland opposite  
42 Hong Kong. They needed to get these people out from under  
43 the Japanese threat.  
44

45 Now, the stations were in - before they were kicked  
46 out, Shanghai, was certainly one; Hong Kong clearly was the  
47 key to the system. As well as that, there were receiver

1 stations established in Borneo, I think one in Sabah; one  
2 was certainly in Kuching; we have mentioned Singapore,  
3 Kranji W/T- it is still there, I think; and it became  
4 necessary to have stations in this part of the world and  
5 the British Admiralty prevailed on the RAN to establish  
6 three stations, which were at Harman in Canberra,  
7 Coonawarra in Darwin and initially Jandakot in Western  
8 Australia. As well as that, there were stations  
9 established in New Zealand, Awarua - two I think - and I'm  
10 fairly sure there was one in Fiji as well, the idea being  
11 that if a Japanese ship transmitted, the signal would come  
12 to earth somewhere and one of those stations would pick it  
13 up.

14  
15 THE PRESIDENT: Q. Would they all be listening on  
16 different frequencies?

17 A. Yes, they would, because of the geographic separation,  
18 time of day, latitude issues, weather issues. They would  
19 be capable of receiving a certain band of frequencies only.  
20 So a signal sent on 5MHz from a Japanese battleship would  
21 not be received by all those stations, but it might be  
22 received by three or two, or maybe only one. On the other  
23 hand, if the ship was transmitting on 10MHz, then it might  
24 be heard by six stations. So, yes, a bank of receivers was  
25 manned on the most likely frequencies for receiving  
26 Japanese transmissions.

27  
28 CMDR RUSH: Q. Dr Pfennigwerth, as a consequence of  
29 receipt of the signals, were the signals received but also  
30 was there a capacity in relation to identifying where the  
31 signals geographically were sent from?

32 A. Yes. There is a system called single station  
33 location, but it is probably not necessary to go into that.  
34 Generally speaking, a fix or a cut is established when two  
35 DF stations receive the same message. In those days, it  
36 was done by direction of arrival, so you took a bearing.  
37 Depending on how accurate the bearing was, obviously, you  
38 got a cut, but the cut was surrounded by an ellipse of some  
39 size. So two cuts might give you an ellipse which would be  
40 100 miles high and 200 miles wide, so quite a large area.

41  
42 The size of that area could be reduced if you got more  
43 than two cuts. So three would be great; four would be  
44 excellent. The way you communicated this information was  
45 through a network of generally landlines, but not always,  
46 connecting these stations to the hub in Singapore. Can  
47 I just add that Australia did have a TINA station, and that

1 was at Harman, so if a signal was received at Harman, then  
2 the ability was there, theoretically, for them to identify  
3 the transmitter and the person, telegraphist, sending the  
4 signal.

5  
6 Q. We have heard during the course of the hearings of the  
7 Commission of Inquiry the term "radio silence".

8 A. Yes.

9  
10 Q. Was it that capacity to pick up signals and identify  
11 location which brought about an aspect of the need for  
12 radio silence?

13 A. Yes, it did. There was also a cultural thing about  
14 radio silence, and that was that you assumed that the  
15 commanding officer knew what he was doing and didn't need  
16 to be told all the time. While ships were maintaining  
17 radio silence, it didn't mean they weren't receiving  
18 messages; it just meant that they weren't sending anything.

19  
20 The appreciation that during the First World War both  
21 sides had used DF against each other led to the belief that  
22 you should say as little as possible. The silent service,  
23 if you like, made manifest. The idea was that you  
24 transmitted as little as possible, and what you did was  
25 terse. So that was a characteristic of Naval  
26 communications. Radio silence was a fact of life, and most  
27 people learned to live with it.

28  
29 It meant that you couldn't transmit, but cruisers, for  
30 example, had aircraft, which could be despatched ashore  
31 with messages, so it didn't mean they were incommunicado;  
32 it just meant that they weren't using their radios.

33  
34 Q. In that paragraph, you also refer to the RAAF being in  
35 the process of commissioning a series of coastal HF/DF  
36 sites around Australia:

37  
38 *... and as I have now learned, the*  
39 *Department of Civil Aviation (DCA) was also*  
40 *commissioning DF sites in various*  
41 *localities. So far as I am aware, the DCA*  
42 *sites were not networked (or even*  
43 *constructed) by November 1941 ...*

44  
45 The first question I have is, what is the difference  
46 between an HF/DF and a DF capability?

47 A. It simply refers to the frequency band in which you

1 want to receive the signals. I'm sorry, I might have to  
2 give you another physics lesson.  
3

4 The radio frequency we use runs, effectively, from  
5 what's called very low frequency - there is extra low  
6 frequency, but, effectively, very low frequency - which is  
7 used, for example, from Harold E Holt in Western Australia  
8 to communicate with submarines, and the radio waves  
9 penetrate the surface of the water so can be heard by  
10 a submerged submarine, right up to EHF, which is used in  
11 spacecraft and radar activities but can also be used for  
12 communication.  
13

14 The bands we're talking about were generally in the  
15 MFHF field. So what are we talking about there? It's  
16 basically 300kHz through to 30MHz. What would be a good  
17 analogy? AM radio operates at MF. If you listen to  
18 a Sydney radio station, then you're listening to the ground  
19 wave of a station operating that frequency band.  
20

21 The problem with the physics of communications is that  
22 the lower the frequency, the longer the wavelength, and  
23 that has importance because it affects your capability of  
24 radiating that intelligence, because you need a huge  
25 antenna. The lower the frequency, the bigger the antenna  
26 has to be.  
27

28 So at the time we're talking of, ships had begun to  
29 concentrate their attention on frequencies where it was  
30 reasonable for them to provide a reasonable antenna length.  
31 So we're talking about MFHF.  
32

33 HF was generally used by the Navy because its ground  
34 wave gave you almost a certain ground wave coverage of  
35 50 miles in any direction. It could, on occasions,  
36 depending on the time of day and the frequency and all  
37 those sorts of things, give you 150 miles, and it was  
38 fairly reliable and the technology wasn't challenging.  
39

40 MF was normally used on land stations where you could  
41 put up a big stick with an antenna with a piece of wire  
42 stuck in it. So the reason for HF was that that was the  
43 mode of communications used by ships, increasingly aircraft  
44 and mobile stations generally - because it was physically  
45 reasonable to erect an antenna to send the message and  
46 receive a message.  
47

1 Q. You say there that, as far as you are aware, the DCA  
2 sites were not networked or constructed by November 1941?

3 A. The letter I received, or Mr Lander's report, was the  
4 first time I knew there was one. I surmise that it has to  
5 do simply with aircraft safety. Aircraft would send their  
6 positions, presumably routinely, on their flights, and they  
7 would be DF-ed by the DCA stations. Whether they were  
8 networked or not I'm not sure. If they were, I don't know  
9 where the network control was. Perhaps Sydney. I don't  
10 know.

11

12 Q. I'll come to that in a little bit more detail a little  
13 later. If I could ask that we go to 0180, under the  
14 heading "Decoding German messages", you refer to a huge  
15 amount of misunderstanding and misinformation in relation  
16 to this point. You are specifically referring to, I think,  
17 a submission from Mr Kennedy and a conversation you had had  
18 with him. I just want to pick up a couple of the dot  
19 points. Enigma code or Enigma machines is probably a name  
20 that we're familiar with. You indicate that it was not the  
21 only system that was used by the Germans.

22 A. No it wasn't. It was the main one. Enigma was  
23 a cipher machine. In other words, it was one of these  
24 devices whereby, by changing the position between  
25 electrical contacts, you changed the letter A to the letter  
26 X this minute and Z the next minute and C the next minute.  
27 So it made it very difficult to break.

28

29 The way this was done in the German system was by  
30 rotors, and in fact there were Allied systems that is  
31 followed this. You had, I think, six rotors that were  
32 used, and by changing the settings on the rotors for the  
33 day and inserting them in the machine, you changed what was  
34 happening to the message. Obviously, that can be made more  
35 secure if you add more rotors, and in fact the German Navy  
36 did add another rotor, so they had a seven-rotor system.

37

38 It was daily changing, so an operator would have to  
39 change the settings on those rotors each day and put them  
40 in correctly, hopefully applying the changes correctly. It  
41 has been known not to happen. Because of the large need  
42 for this system, there were, I think - I did some  
43 research - 170 separate Enigma-based systems, so breaking  
44 one didn't mean that you had broken the others. In fact,  
45 that was also compounded by the fact that there were some  
46 systems that you really needed to get into much more  
47 urgently than you did others.

1  
2 I think I quoted the example of the system used by the  
3 German High Command for submarines. That was obviously  
4 a very, very important cipher to break, so it received  
5 a lot of attention from both sides of the Atlantic. At  
6 many stages of the War, it was being broken relatively  
7 quickly. But, at the same time, there were stages where it  
8 wasn't broken for a week, or something like that.

9  
10 So the public view that once you've pushed the button  
11 and you get the message out and you can read it, that's the  
12 problem gone away, is quite incorrect. The problem  
13 continued until the last day of the War.

14  
15 There were other codes as well. So Enigma would be  
16 used - variations on the Enigma technology would be used  
17 for important, longer-term messages. For messages in  
18 between ships manoeuvring in a fighting situation, you  
19 would use a brevity code, which is not meant to last any  
20 time at all, but you don't want the guy knowing you're  
21 turning to 180 and you're about that launch torpedoes, so  
22 you have a little code that conceals that. But it only  
23 needs to conceal that until the torpedoes have been  
24 launched, so it's a short-term code. As well as that,  
25 there were codes which are like --

26  
27 Q. Could I perhaps stop you. You make reference in your  
28 second dot point to:

29  
30 *Raiders like Kormoran employed a system and*  
31 *code known as Kurtzsignal ...*

32  
33 A. Yes.

34  
35 Q. What is the nature of that?

36 A. This is a transmission system, a modulation system.  
37 I was just going to introduce that. If you were a raider  
38 and you needed more ammunition, and you needed to fuel by  
39 27 May, or something like that, you would use a brevity  
40 code, and, "Need more ammunition" might be BZQ, or  
41 something like that. In other words, it is simply a way of  
42 compressing the information. Kids sending text messages  
43 use much the same system now. So there was no concealment  
44 in the sense that it was a code. It was a brevity code,  
45 simply.

46  
47 Then to conceal it, to keep it safe, it was sent in

1 various systems, but "Squash" was an Allied equivalent,  
2 where you simply compressed the message down to a very  
3 small but very compact ball of information and you squirted  
4 it off extremely quickly, so it's very difficult to  
5 intercept because the transmission is so short.  
6

7 The information contained in the message is not huge,  
8 but it tells the German Admiralty that you need more  
9 ammunition, you need more fuel by 28 May, which is all you  
10 needed to say, and the brevity of the message was what  
11 protected it from intercept, because you had to be right on  
12 the frequency, right on the mark. By the time the message  
13 had gone, all you would know would be that there was  
14 a transmission, but there was in no sense any way of  
15 copying it down or anything like that.  
16

17 THE PRESIDENT: Q. Did it also protect you from  
18 direction-finding?

19 A. Largely, yes, because if you can't be intercepted, you  
20 can't be DFed.  
21

22 CMDR RUSH: Q. You make two comments concerning it. In  
23 the third dot point, you say:  
24

25 *As the signal was very difficult to*  
26 *intercept and there were very few messages*  
27 *sent, this system was essentially*  
28 *unbreakable.*  
29

30 A. Yes.  
31

32 Q. In the final dot point on that page, you say:  
33

34 *The Enigma cipher developed for use by*  
35 *raiders was Aussheimish, which remained*  
36 *unbroken at the war's end, probably because*  
37 *it was a low priority cipher, with very few*  
38 *intercepts to use to attack it ...*  
39

40 A. Yes. Breaking a code or cipher requires there to be  
41 a certain number of messages in that particular code or  
42 cipher to be examined. As raiders were told not to  
43 transmit unless they really needed to and as there were  
44 relatively few raiders, Aussheimish was also used for other  
45 purposes, but generally speaking the level of traffic was  
46 so low that it was very difficult to assemble a sufficient  
47 pile of intercepts for it to be attacked.

1  
2 Of course, later, as the German Aussheimish operations  
3 were wound up, then it became less necessary. The raiders  
4 were never the same level of threat as the Luftwaffe or the  
5 German submarine attacks in the Atlantic and Indian Oceans.  
6

7 THE PRESIDENT: Q. An examination of the German records  
8 has disclosed that whilst there were a considerable number  
9 of messages sent to *Kormoran* through October and November,  
10 the last message the *Kormoran* sent to Germany was on  
11 26 October.

12 A. Yes, that's what I would expect. Their orders were  
13 very clearly to stay concealed. That was their weapon, if  
14 you like. That was their advantage over everything else.  
15

16 CMDR RUSH: Q. Then you were also provided with  
17 a statement that Mr Reginald Lander made to the  
18 Parliamentary Inquiry.  
19

20 CMDR RUSH: I don't think I have tendered this. It is  
21 EML.005.0293.  
22

23 **EXHIBIT #235 STATEMENT TO PARLIAMENTARY INQUIRY BY**  
24 **MR REGINALD LANDER, BARCODED EML.005.0293**  
25

26 CMDR RUSH: Q. You were asked to provide comment in  
27 relation to it, but if I can perhaps put the substance to  
28 you. Mr Lander indicates at paragraph 2:  
29

30 *I was a civilian, at the time, working for*  
31 *the Civil Aviation Department which at that*  
32 *particular time was controlled by the Post*  
33 *Master General (PMG). I was engaged in*  
34 *this facility --*  
35

36 which he indicated was at the Qantas Empire Airways Base at  
37 Rose Bay --  
38

39 *with employees from AWA and Civil Aviation*  
40 *Department, testing the high frequency*  
41 *direction finding equipment and calibrating*  
42 *it, testing the remote control system*  
43 *between Holsworthy Remount Depot and*  
44 *Rose Bay. I was backward and forward*  
45 *between the two bases at all times.*  
46

47 He advised that it was at this point that he was told by

1 the officer-in-charge, John Christie, the radio chief  
2 stationed at Mascot Aerodrome, that there was a German  
3 raider on the west coast operating outside Fremantle,  
4 moving up and down the coast, or so they thought,  
5 transmitting on a certain frequency each night, making  
6 a rendezvous with Danzig radio.

7  
8 There are a number of aspects to that, but in relation  
9 to a raider or Danzig radio, how would that be worked out?

10 A. I don't know where that came from. I know where  
11 Danzig is. That's where my family came from. It's in  
12 North Germany on the Baltic. It's now part of Poland, of  
13 course. I do not know where the raiders would have sent  
14 their messages to, but I think I know that the major German  
15 overseas transmitter was in Hartz Mountains in what used to  
16 be East Germany, so it's possible that there was a receiver  
17 site at Danzig, but I don't know, and I don't know why  
18 *Kormoran* would have been sending messages to arrange  
19 a rendezvous. As I've explained, that's what the  
20 Kurtzsignal system was about.

21  
22 Q. You make the comment at CORR.020.0183, in the fourth  
23 paragraph:

24  
25 *Whether Kormoran was, in fact, transmitting*  
26 *regularly to a supposed supply ship during*  
27 *her patrol off Western Australia seems to*  
28 *me to be highly unlikely. It would have*  
29 *been quite contrary to her instructions*  
30 *and, according to Wesley Olson [Bitter*  
31 *Victory, P176] she had replenished from the*  
32 *supply vessel Kulmerland between 16 and*  
33 *26 October and was stored with 'enough*  
34 *supplies ...*

35  
36 On the basis of the Kurtzsignal, which you've discussed,  
37 and the cipher code of Aussheimish which was used, do you  
38 have any opinion as to the likelihood of that signal being  
39 sent at midnight on a nightly basis?

40 A. I think it's most unlikely. I think that's most  
41 unlikely. I did think about this. I can't see any reason  
42 why that would have been done. It was my impression that  
43 I got from somewhere that the rendezvous were set by  
44 Germany. The ships had to be at a particular position  
45 between a series of times and dates, and that was the way  
46 it was done. It was all organised from shore, not from the  
47 ships.

1  
2 I can't find any reason why *Kormoran* would want to  
3 send messages every night. She may have sent one that  
4 said, "I can't make the rendezvous", for example; you might  
5 expect that. But why every night for a series of nights,  
6 I have no idea. I couldn't think that that would happen.  
7

8 Do you want me to deal with the question of whether it  
9 was possible that it was being intercepted?  
10

11 THE PRESIDENT: I think we now know that it just didn't  
12 happen.  
13

14 CMDR RUSH: We do have the transmission, sir.  
15

16 Q. The question of whether it's possible to be  
17 intercepted?

18 A. If she was trying to communicate with Danzig radio,  
19 then you're talking about quite a complex physical problem.  
20 To communicate with Germany - we're midnight here, so 10pm  
21 off the West Australian coast - at 2 or 3 o'clock in the  
22 afternoon in Germany, you're travelling from summer to  
23 winter, you're travelling from night to day, your frequency  
24 choice is going to be different from the one that you would  
25 use if you were going to simply talk to another merchant  
26 ship that's a reasonable distance from you. So I think the  
27 frequency chosen would be wrong. I don't know that. There  
28 would be ways of working that out.  
29

30 Similarly, I think it would be unlikely that you would  
31 be able to - I mean, you would need to be within about  
32 150 miles of RAAF Pearce, which seems to me to be a bit  
33 scary for a raider, and whether that same frequency you're  
34 communicating with to Danzig is going to reach the east  
35 coast of Australia and be intercepted at Holsworthy seems  
36 to me equally questionable. It might possible; I don't  
37 know. It doesn't sound right to me.  
38

39 THE PRESIDENT: Q. I think we know, don't we, now that  
40 the Germans did have pre-determined meeting points; each  
41 had a code and a name, and latitude and longitude were  
42 given, and there was an arrangement that they would turn up  
43 at, whatever it was, 4 o'clock every day and then go away  
44 if no-one was there, and they received signals from Germany  
45 telling the two different ships that they would meet on  
46 a given day at one of those nominated places. They just  
47 didn't communicate between each other.

1 A. That's clearly the safest and most secure way of doing  
2 it. Then you don't have to transmit at all, unless, in an  
3 emergency, you couldn't make the rendezvous for some  
4 particular reason. I just found this to be very difficult  
5 to believe, although, as I suggested, perhaps Mr Lander was  
6 engaged in a trial of some kind where a transmitting  
7 station was operating off the Western Australian coast and  
8 they had chosen a frequency so it would be intercepted by  
9 both Pearce and Holsworthy, as you would in a trial.  
10 There's no point having a trial if you're not going to  
11 intercept the signal. But I couldn't see that it would be  
12 *Kormoran*.

13

14 Furthermore - I'm not sure if you want me to go on.  
15 Do you want me to finish there?

16

17 CMDR RUSH: Q. Yes, if you've finished.

18

19

20 Q. You perhaps raised something along those lines at  
21 0184, in the second paragraph, where you used what  
22 Mr Lander said in his submission to the Parliamentary  
23 Inquiry. You said:

24

25 *... I do not understand his statement that*  
26 *"They operated on, to the best of my*  
27 *memory, 6.540 Megacycles". DF stations do*  
28 *not transmit, and to monitor only one*  
29 *frequency is illogical.*

30

31 A. Yes, I puzzled over this, because he was now talking  
32 about later in the War where the Air Force had established  
33 a number of intercept stations, mainly for use in  
34 anti-submarine work along the east coast. I don't know,  
35 but unless the Imperial Japanese Navy 8th Fleet only ever  
36 operated on that frequency, which seems unlikely, there  
37 would be no point for a station to be fixed on that  
38 particular frequency, because time of day and latitude and  
39 longitude issues mean that you would use a different  
40 frequency to communicate to your base, wherever you were.

41

42 The only thing I could think was that maybe that was  
43 a "telling" frequency, a frequency which netted the  
44 stations, and that's what they transmitted on. But, of  
45 course, the receiving station would try not to transmit,  
46 because if you transmit, it's bad for your reception. So  
47 I didn't follow that at all.

1  
2 Q. There are two further matters which you conclude in  
3 answering specific questions at 0185, Dr Pfennigwerth. The  
4 first one is at (c), where you say:

5  
6 *Exactly what was happening at Rose Bay is*  
7 *unclear, but I think it highly unlikely*  
8 *that a DCA station would have been tasked*  
9 *with intercepting raider transmissions.*  
10 *The target transmissions were probably from*  
11 *a non-military station as part of the*  
12 *trial.*

13  
14 Why do you say that a DCA station would be unlikely to be  
15 tasked with being involved in a raider transmission?

16 A. I couldn't see the reason why it would be, because, by  
17 then, we had a perfectly efficient Naval system set up.  
18 The second point was that this was classified information.  
19 The intercepts, DFs and particularly the traffic analysis  
20 were highly classified. They were not shared routinely  
21 around the Navy. Very few people had access to this  
22 information, for the obvious reason that the fewer people  
23 that knew about it, the less chance there was of it getting  
24 to the enemy.

25  
26 So whilst these were not the most closely guarded  
27 secrets, they certainly weren't tossed around lightly.  
28 There might have been an occasion where a DCA station was  
29 particularly well located to listen out on a frequency  
30 which was of interest, but you wouldn't tell them what it  
31 was. You would tell them, "This frequency is of interest.  
32 Report any activity on it." I can't see that the Navy or  
33 another authority would hand this information willy-nilly  
34 over to DCA station so that it became common knowledge, as  
35 it seems to have been.

36  
37 Both Mr Christie and Mr Lander were civilians, so  
38 I don't quite see how they would have been entitled to have  
39 access to it, when many Naval personnel with perhaps  
40 a higher need didn't have access to it. It just doesn't  
41 sound right to me.

42  
43 THE PRESIDENT: Q. The signal sent by *Kormoran*, by the  
44 way, on 26 October was received at a radio station called  
45 Norddeich in Germany.

46 A. Yes. It's near the Hamburg area, I think. That still  
47 exists today. It would be possible to find out where that

1 is. So, yes, he was in fact using the frequency to enable  
2 it to get to Germany.

3  
4 CMDR RUSH: Q. I have three questions unrelated to what  
5 we have been talking about, Dr Pfennigwerth. You  
6 researched and then wrote a book concerning CAPT Eric Nave,  
7 entitled "A Man of Intelligence". CAPT Nave, I think then  
8 CMDR Nave, in 1941 was based, as I understand it, in  
9 Melbourne?

10 A. Yes.

11  
12 Q. In what organisation in Melbourne and who was the  
13 organisation answerable to?

14 A. He was working in an organisation called the Special  
15 Intelligence Bureau, which was an amalgam of code-breaking  
16 activities which had been conducted by the Australian Army  
17 in Sydney and the RAN's own indigenous capability. He  
18 concentrated this activity in Melbourne, which was, in  
19 those days, the Defence Headquarters, in fact, in Victoria  
20 Barracks, until they were kicked out when they got too big.

21  
22 He reported to the Director of Naval Intelligence,  
23 CMDR Long. Messages were intercepted on his behalf both by  
24 the Naval network - Harman, Coonawarra and Jandakot - and  
25 also by an Army station at Park Orchards in Melbourne. The  
26 targets were codes used by diplomatic missions,  
27 particularly, obviously, the Japanese merchant ship  
28 traffic, and, interestingly, consular traffic from South  
29 America, which was being intercepted very freely. That  
30 indicates the physical bit - you can receive stuff from  
31 South America in Melbourne quite easily.

32  
33 He was still an officer of the Royal Navy, having  
34 transferred. He was instructed on codes and given the  
35 information from the British on codes. By this time,  
36 November 1941, because of the cooperation between the  
37 British and the Americans, particularly in the Far East, he  
38 was getting access to some American intercepts as well -  
39 codes they had broken that he could work on. It was quite  
40 a big organisation.

41  
42 Q. Was his organisation under the control or the  
43 direction of the FECB in Singapore?

44 A. Effectively, yes, yes, although there was a strong  
45 sense of independence in SIB.

46  
47 Q. It has been suggested in evidence to the Commission of

1 Inquiry that after the engagement between *Sydney* and  
2 *Kormoran*, CMDR Nave, in some manner or another, made  
3 communication with a journalist in Singapore, a Mr Bernard  
4 Hall, who was responsible for an article that appeared on  
5 I think 8 December 1941 in the Daily Express in the United  
6 Kingdom. It is unknown how that communication would have  
7 taken place, but having regard to the man you researched,  
8 is that the sort of manner in which he would operate?

9 A. No, I don't think so. His downfall in his own  
10 organisation - he was kicked out of his own organisation by  
11 the Americans in 1942 - came from his adherence to the  
12 rules that he had learned, and that was that he worked for  
13 the Australian Chief of Naval Staff.

14  
15 THE PRESIDENT: Q. He wasn't going to tell anybody else  
16 anything?

17 A. He wasn't going to tell anybody else. So I would find  
18 that extremely unlikely. I have, for example, been  
19 accosted by people who said that they lived in Adelaide -  
20 the Nave family was from Adelaide - and they got a phone  
21 call from CMDR Nave after *Sydney* was sunk telling them  
22 exactly that. Again, I just find that so totally unlikely.  
23 After all, nobody knew *Sydney* was sunk, so how would he  
24 have known? He would have been very reticent to talk to  
25 any journalist about the work that he did.

26  
27 CMDR RUSH: I have no further matters, sir. May  
28 Dr Pfennigwerth be excused?

29  
30 THE PRESIDENT: Yes. Thank you very much, doctor. You  
31 have been a great help.

32  
33 <THE WITNESS WITHDREW

34  
35 CMDR RUSH: Sir, that concludes the evidence today.  
36 Professor Frame will be the witness tomorrow.

37  
38 THE PRESIDENT: Very well, I will adjourn until 10am  
39 tomorrow.

40  
41 **AT 3PM THE COMMISSION WAS ADJOURNED**  
42 **TO TUESDAY, 21 MARCH 2009 AT 10AM**

43  
44  
45  
46  
47