Annex 2. Notes from an Interview with with Professor Arthur Dale Trendall by Desmond Ball on 10 May 1990

Interview with Professor Arthur Dale Trendall, in his suite at La Trobe University, Melbourne, on 10 May 1990. (Introductions made by Professor J. D. B. Miller and D. C. S. Sissons).

Trendall moved to Melbourne soon after Japan's entry into the war. He returned to Sydney University in the latter half of 1944.

In 1940–41, when he was Professor of Greek at Sydney University, he used to get together from time to time, mostly at weekends, with three other colleagues to test their teeth on various coding systems. They were mainly Japanese transposition and substitution codes. The other members of the group were Professor T. G. Room and Mr R. J. Lyons, mathematicians, and fellow classicist Dr A. P. Treweek. On one occasion, probably in January 1940, they worked out a simple Japanese code from scratch, even without knowing the language.

Trendall was introduced to the group by Professor Room. 'I was approached by Room'. Treweek was a Lecturer in Trendall's Department, and a Major in Sydney University Regiment.

Room, Lyons and Treweek had done some 'practice' on Japanese codes before Trendall joined them, 'but I was with them for about two years before Japan entered the war'. Trendall had only moved to Australia in August 1939.

The 'practice' consisted mainly of becoming acquainted with cryptographic theory and techniques, rather than working on actual Japanese traffic. In 1941, they were given some messages encoded with the LA system. They found these 'relatively easy to decrypt'. They realised the code involved repetitive patterns; the clue was the repetition at the end of each sentence. It used two-letter combinations (one vowel and one consonant). LA was a very simple, straightforward code.

Nobody was doing any translation at this stage. The messages were not current. They were being used by the Sydney University group only for experimentation. Translation was not necessary as the content was not important.

Trendall was asked to join the Army in late 1941, but he preferred to remain a civilian and to take secondment from Sydney University. The Army reached

an agreement with the University that he would be paid the equivalent of his Professorial salary; he was nominally given Lieutenant Colonel rank. The Vice-Chancellor was told that he was to work 'in intelligence'.

Treweek was in the Army Reserve already, but Trendall, Room and Lyons all remained civilians throughout the war.

Trendall stayed as a civilian mainly to preserve the option of returning to Sydney University at a time of his choosing. However, it had the incidental benefit that as a Professor he had more access to senior Army authorities than he would have had as a Lieutenant Colonel.

Trendall moved to Melbourne at the very beginning of 1942. He worked initially with the Royal Australian Navy's cryptanalytical group under Eric Nave. They worked in what is now a block of flats near Albert Park in St Kilda. He worked there for several months. His commanding officer was Commander Long, the Director of Naval Intelligence. Trendall headed the group at Monterey which worked mainly on Japanese diplomatic traffic, while Nave was mainly responsible for Japanese Naval traffic.

In fact, Trendall worked on both Japanese diplomatic and Service traffic. It was 'mainly diplomatic', but all personnel worked on 'whatever came in'.

Trendall never dealt with Japanese machine cyphers at any time during the war. He had 'no contact with them whatsoever'.

Trendall moved to the Army, and to Victoria Barracks, in November 1942. His commanding officer was now Lieutenant Colonel A. W. Sandford, the CO of Central Bureau. He has 'no idea' why the diplomatic activity was transferred from the RAN to the Army.

Trendall had no knowledge of the interception stations. An Army Sergeant simply brought the messages in on signal pads. He had no recollection of the station at Park Orchards. He remembered Ferny Creek, 'but only that a station was there'. He also remembered Mornington, 'but the stations were of no significance to us'.

When Trendall was with the Navy group, the cooperation was just with Britain, not the United States. The exchanges principally involved 'current keys'. After the diplomatic section was hived off to the Army, it worked almost entirely with the British. Trendall had 'no knowledge of contacts with Washington'.

The numerical code 10101 was introduced in 1943. Messages encoded with this system began with '10101'. It involved a 'block' from which some squares had been blacked out. It usually involved two-letter groups, but sometimes three-

letter and sometimes four-letter groups. Trendall 'worked it out from the key'. 'We could be lucky and break one in no time at all — a matter of half an hour'. 'Sometimes we got a beautiful fit. Otherwise, we had to slog it out'.

10101 traffic came in the greatest quantities. It provided enormous amounts of material for 'depth'. It involved 'prepared groups of 5 random numerals', which were added without carrying. Patterns would emerge with sufficient 'depth' of messages. A 'considerable bulk of messages' was required. It was introduced in mid-1943, and 'it took considerable time before sufficient material built up'. We 'prayed for check and repeat' messages.

On Arthur Cooper: 'There was a somebody'. He was a really good linguist (Chinese). When he first appeared in Melbourne—having come by submarine from the Philippines—he had a gibbon called Tertius with him. (He gave Trendall a book, with an inscription dated 15 July 1942). His 'special knowledge' was Icelandic, but he was also especially good at classical Chinese. Tertius was later presented to the Melbourne Zoo. Cooper worked at Victoria Barracks for as long as Trendall was there; he was still there after Trendall returned to Sydney. Trendall tried to persuade him to take up a Chair at Sydney University. (In 1973, Penguin Books published Cooper's annotated and translated collection of poems by Li Po and Tu Fu). Cooper had 'a very fine brain'. 'For intelligence purposes, Arthur Cooper was very much at the top of the tree'.

On decryption: The patterns kept repeating, given the relatively small code books used. Cooper prepared a chart of the Japanese words likely to be commonly used. Often, the senders had to spell out a word, and that was very helpful. This was particularly the case with place names. 'Really, when you get into the hang of it, with practice, it becomes fairly easy. It was not as difficult as it appears to be'. 'So often it was a matter of luck'.

Trendall had an inexplicable ability to see the patterns in the encoded text underneath the jumbled bigrams and random additives. 'You get a feeling for it. Your eye lights up on something, and … bang'.

Trendall only ever worked on Japanese codes. He has 'no knowledge of any others, including Russian' codes.

He recalled that Miss Shearer and Miss Robertson 'worked with us at Vic Barracks'. He also recalled that Tony Eastway and Alan Rogers had joined Australia's post-War cryptographic organisation.

The TRENCODE: It was designed to fulfil the need for a safe means of communication that would be unlikely to be broken for at least some hours or even days. It was sufficiently simple to use in the field but difficult to break quickly. He developed it in Melbourne in 1943 (?). It is 'correct that Treweek got it out'. However, he 'cheated a bit', and it took him a long time.