NRAO ONLINE 10

Wing Commander Pither's Assessment of the CSIR Radiophysics Laboratory, December 1946

Also see ESM_9.4.1 (main book) **Wing Commander A. George Pither, A Brief Biography**

In his unpublished text *An Account of the Development and Use of Radar in the Royal Australian Air Force*, (to be designated "Pither Account") Wing Commander A.G. (George) Pither summarised his experiences, written 16 months after the end of World War II. The account contains a vast amount of useful material about the history that began with Pither's return to Australia in May 1941 after a visit in the UK in late 1940 to attend a course on radar and its tactical uses. The growing conflicts between Pither and the Radiophysics Laboratory have been outlined in the main text.[1] The main issue that occurred to poison the situation was the poor performance of the ASV (Air to Surface Vessel) project, the main project required by the RAAF in 1941. Certainly the RPL hardware was inferior. In July 1941, the project was cancelled as the decision was made to accept the UK ASV MkII model which was under development. As Minnett et al (MacLeod, R. (1999). "The'boffins' at Botany Bay: radar at the university of Sydney 1939-1945." *Historical Records of Australian Science 12,* no. 4: 411, p. 431) wrote: "This was a sensible decision that RPL could have made much earlier, given better information …" Pither was not impressed; he stated (Pither, 1946, PITHER-ACCOUNT, p. Appendix B. p 2) that all "work had to 'start again from scratch.'"

The RPL did gain valuable experience with airborne radar problems; but the damage was done. Pither maintained his disaffection for RPL throughout the war. In addition, it is likely that Pither also shared the Australian military's disdain for the severe management problem of March 1941 as the RPL Chief David Martyn was tainted by the scandal due to his relation with the German citizen, Ella Horne. (NRAO ONLINE 7).

Pither's main critique of the RPL is contained in two appendices: Appendix A "Radiophysics Advisory Board" and Appendix B "Radiophysics Laboratory". A common theme was the continual problem of moving from research, to prototype to manufactured production. The boundaries in this process were unclear, leading to confusion and conflict.

Pither has critical commentary for both the RAAF and CSIR, but the brunt of the criticism was reserved for CSIR. Pither did point out major problems facing the advisory board: the

[1] "*Boffins*" is the invaluable collection of papers in *Historical Records of Australian Science*, vol 12, number, 1999, "The 'Boffins' of Botany Bay: Radar at the University of Sydney, 1939-1945", edited by Roy MacLeod based on a conference at the University of Sydney 10 February 1998. Minnett et al (*Boffins*, 1999, p. 432) have pointed out that the disagreement with the RAAF had predated Pither's return to Australia in May 1941: "This strategic assessment was firmly stated as late as 1940 by Group Captain C. Eaton, Commander of the RAAF station in Darwin, when D.F. Martyn, Chief of RPL and Jack Piddington, head of the radar systems group [went to Darwin] ... According to Piddington, 'we urged him to consider radar, but he flatly rejected the idea'… But as Piddington later noted, it was to be 'Bad luck for Darwin', for if enemy bombers did get through, there was likely to be little warning."

administration of a collection of multiple governmental cultures, as they discussed a complex and novel new process- radar. They were then required to design a new weapon, followed by prototyping. Then, they had to use this system on an inhospitable battlefield, which existed in a hot, humid tropical climate. The location was mainly in the islands north of Australia, New Guinea, New Britain, Solomon Islands etc. Fortunately, the Australian military understood the handicaps associated with the tropics: corrosion, humidity and rot.

In Appendix A (RP Advisory Board): It is no surprise that Pither complained:

> From its inception the proceedings of the Board appear to have been dogged by misunderstanding … [These unfortunate results] were largely due to the very high level at which the board operated and … CSIR had technical representation and [the three military chiefs had a limited knowledge of the technical details]. The net result was that the Service Chiefs were "**blinded by science**" [our emphasis] and the progress of radar was marked by a long string of promises which often proved impossible of fulfilment.

Concerning the Radiophysics Advisory Board:

> The trouble lay mainly in the fact that the scientists of CSIR, in the usual enthusiasm of scientists, did not foresee the difficulties involved and the considerable time necessary to design equipment and produce prototypes. Further, even when prototypes were produced they had to be handed to PMG (Postmaster General) Laboratory for manufacture and it was then found that they had been produced by people without knowledge of commercial technique and, as a result, had to be re-designed before they could be manufactured. From the Services [military] point of view the fault lay in the fact that there were no scientific advisers to the Chief of Staff, with the result that the Chiefs had to meet the scientists in conditions where they were out of their depth and had to waste much personal time listening to technical details which they could only refer second-hand to their technical staffs.[2]
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> As time went on it became more and more apparent that the influence of CSIR on the radar programme was too strong. The problem had moved from pure research (if it had ever dwelt there for long) to development and production of prototypes.

Not surprising, the Advisory Board experienced rapid evolution. In December 1941, representatives of the Department of Munitions (see chapter 9 and ESM _9.4), NKS Brodribb, and S.H. Witt of the PMG Laboratories, joined the board: "which acquired a production bias which was very necessary …" A technical committee was formed with the technical

[2] The main text (page 81) of the "Pither Account" also contained a description of the prototype problem with similar complaints as the Appendix A. "… [T]he RP lab had to produce equipment which could be used operationally by the Services ... [Equipment when produced at RP] as a prototype complete with manufacturing drawings, could not be manufactured without re-design ...The Laboratory in those days (1941-1942) tended to be a law unto itself …"

representatives from the various services, with Fred White from RP (Chair of the RAB and after October 1942 Chief of RPL) as chair. Pither was one of two members from the RAAF.

Pither's version of the "revolution of 14 July 1942 at the RAB board (as Madsen resigned) is described in Chapter 9, NRAO ONLINE 15 and ESM_9.4.

The Appendix B in Pither's book (Radiophysics Laboratory) contained similar complaints, but with a different emphasis. Pither repeated the story of the ASV problem of 1941. His summary was especially critical, getting Harry Minnett's attention in 1998 at the Boffins meeting at Sydney University (*Boffins*, 1999, p. 432). Minnett quoted the text from Appendix B of Pither's book:

> Thus, from the RAAF point of view the RP laboratory had spent 18 months on a project [the ASV project of 1940-1941] which was very largely wasted. From this time [August 1941] onwards, the RAAF had practically no interest in the Laboratory until the war with Japan and the advent of AW equipment (December 1941), which it may be said was the only worthwhile product of the Laboratory in the first three years of its existence.

Pither then asserted that the continual false promises ("inability of the Laboratory to live up to its promises") had proved that the organisation in the RPL was "poor". He cited examples of the promise of up to 30 Shore Defence radars in July 1940; by March 1942 only a handful were complete. Another example of missed deadline was the 20 cm AWH radar based on the magnetron constructed at the University of Melbourne by LH Martin towards the end of the War. Again, there were long delays.

As Pither summarised his impressions he was again critical about the poor management skills of scientists. (Pither 1946, Pither Account)

> The one lesson which must be learnt for the future is the need for close and properly organized coordination, and above all, really experience business management of the laboratory. This of course crosses the principles of the scientist who claims that he must be "free and unfettered". Unfortunately, the free and unfettered scientist is usually no business man, and the answer lies in some kind of compromise.

Pither also made the comparison with the US and the UK in WWII:

> …[T]hat [scientists and military] can be made to work together is demonstrated in the success achieved by TRE [Telecommunications Research Establishment] and the RAF in England and MIT and the US Services in America.

Then Pither concluded his text with a surprise. He ends his narrative with an attempt at faint praise for RPL: "From the RAAF point of view, the RP Laboratory was extremely valuable at

many stages in the war, the real possibility for improvement being the achievement of quicker and more definite results."[3]

[3] On page 60 of the Pither text he has a surprising text about "radio countermeasures". He described the early 1942 experience when the British radars on the south coast of the UK were following the German battle ships Sharnhorst and Gneisenau were attempting to "sail through the English Channel under the noses of the British defences. Just when the RAF (actually British Army) radar system was about to be used for attacks on these vessels it was suddenly put almost out of action by a barrage of enemy jammers on the French coast The possibilities of jamming had been foreseen by the designers of radar but this was the first occasion on which it had been used …" Pither was not aware of the report of Hey "Solar Radiation in the 4-6 Metre Radio Wave-Length Band", (*Nature,* vol 157, p 47, 1946 published on 12 January 1946, well before the Pither publication of December 1946). The "jamming" had been solar bursts, not German transmitters. See NRAO ONLINE 20 for a description of this important publication of Stanley Hey.