

NRAO ONLINE 14 High Frequency Valve Group Moved from RPL to the University of Melbourne- 1942

Introduction: In July 1942, Madsen and Rivett began discussing whether “extra mural” research for RPL could be carried out at the University of Melbourne. The proposal was to move Leslie. H. Martin (later Sir Leslie) and E. H. Burhop from Sydney (RPL) to physics (“Natural Philosophy”) in Laby’s Melbourne laboratory. By late May 1942 Martin and Burhop (at RP in Sydney) had made a successful lab model of a magnetron.

Madsen wrote Rivett in July 1942: “It is quite obvious that certain Universities, particularly Melbourne, should be encouraged to indulge in radio research of some sort or another, since such places are the training ground for graduates who should participate in radio location work either in this Laboratory or in the Services after having left University.”¹

Madsen was nervous about the organisation of extra-mural research, especially how it would be supervised. At the end of Madsen’s letter, Rivett wrote (in pencil), “Any extra-mural work will flourish only on a basis of complete trust and confidence between the workers concerned. If this cannot be guaranteed, the longest list of conditions will be worthless.” Rivett’s common-sense approach to management was in evidence; clearly, he desired to make the agreement as simple as possible. Rivett’s response to Madsen on 29 July 1942 was a frank expression of his own misgivings; no amount of verbiage could take the place of “complete trust”.

White (still the Deputy Chairman of the Radiophysics Advisory Board- RAB) wrote Rivett on 23 July 1943 with the news that Oliphant was willing to remain in Australia for 2-3 months before he was to return with his family to the UK. “If Professor Oliphant is to stay in Australia, I should like ... to ask him to collaborate with me in organising and running the centimetre research work. I feel quite sure that Dr Pawsey, Dr Martin and Dr Piddington would be very pleased to collaborate in this work under the general supervision of Professor Oliphant and myself.” He asked Rivett to discuss this plan with Oliphant; then White would continue the negotiation.

In the intervening month of August, Rivett showed yet again his genius for effecting compromise and creating consensus among contentious colleagues. Numerous letters and

¹ The Sydney-Melbourne negotiations are described in 35 letters and telegrams involving many people in Australia, including the Prime Minister’s office. Rivett, White, Madsen, Laby, Dedman, Oliphant, Martin and Marsden (New Zealand) were involved. CSIR Archive, KE 5/23.

meetings ensued in Melbourne and in Sydney. Rivett stressed his bottom line: creating the best possible weapon for the Australian Military in the presence of a severe threat. A special problem was the behaviour of the obstreperous Prof Thomas Laby (1880-1946), who had been Pawsey's advisor at Melbourne in the late 1920s-early 1930s. In the end, the successful arrangement spearheaded by Rivett was an example of his patient, wise negotiating skills.

The final agreement consisted of 15 items. Two were decisive:

Professor Oliphant will go to Melbourne immediately and assume control of the microwave work there. Despite the very obvious personnel difficulties in which [sic] it involved him, he generously consented to remain in Australia for a period of up to two months. On his departure, Dr LH Martin will succeed him as Officer in Charge [would be 26 October 1942].

Due to the experience of the staff of the Natural Philosophy Department [Physics, Melbourne] in Vacuum Physics in the past, it was suggested and later agreed that the Laboratory should undertake fundamental research in connection with the development of special valves for radiophysics purposes. Since certain other work on special valves is already under way at the RPL, it is most important that this should be brought to finality.

The two main items to be prototyped were the CV.35 10 cm klystron and the NT.98 10 cm magnetron.

A component of Rivett's success in this "peace treaty" was his humour: On 2 September 1942 he wrote to his friend, a lawyer at the University of Melbourne, who had been involved in the negotiations:

... The ice wore a little thin on one occasion, but it stood the slight strain and the whole discussion was carried on in quite the right spirit. I have deliberately abstained from dragging you into this effort, feeling that, in case of disaster, it might be well for someone to be left with unspoiled robes. I am perfectly well aware, however, that you have been most active and I want to thank you very warmly indeed for the guidance you have given to our friend [Laby].

As a matter of fact, if the old gentleman [Laby] would only allow himself sometimes (say, for about five minutes monthly) to realise the futility of all human affairs, even of the "Labyan" section, he would have a much happier life, and so would some other people. I can assure you that he played the game in excellent fashion and with complete consistency all through these negotiations, and I am fully convinced that nothing now

can prevent us from developing a really good Research Section in the Physics Department [at Melbourne]. Failure would have been disastrous, for it would have just have indicated criminal inability on the part of the people concerned to subordinate personal relations to national interest.

In the end, Martin and Burhop moved to Melbourne to set up a productive valve laboratory. They created prototypes which were then given to industry for manufacture. The centimetre radar field was now opening in Australia.

At the 23rd meeting of the RAB on 15 October 1942, Oliphant was at the meeting, only 11 days before his departure with the family from Australia, via ship. [David Martyn was also now present, as a representative of the Army (Operations Research Group)]. Oliphant had a few minor comments about valve manufacture. Rivett thanked Oliphant for his efforts: "The Board was under a considerable debt to Professor Oliphant in connection with the whole effort, although, unfortunately, Professor Oliphant would shortly be returning to England. When he left, Dr L. H. Martin would take over." Oliphant reported that a few valves were already being produced and tested. Even Madsen was in a generous mode: "[Sir John] stated that Professor Oliphant had been extremely helpful."

Thus in the end, the latter half of Oliphant's visit was partly successful. His prestige and experience assisted Rivett as he initialled a new facility in Australian radar research. Cockburn and Ellyard (1981, p. 93): "When the time for his departure finally came, White and Madsen professed themselves satisfied with the outcome of the visit even if Oliphant was not. Rivett called it 'very productive' and proposed that, on his return to Britain, Oliphant should stay in touch." In NRAO ONLINE 13 (Part 2), we summarise Mark Oliphant's impressive (and lengthy) document "The Physical Sciences in Australia in War and Peace". This document was to serve as a guide for the post-war era. Oliphant and his family left Australia on 26 October 1942 on a dilapidated Free French ship *Desirade*, which was condemned on arrival in Cape Town, end of November. After waiting almost two months, the family left on SS *Orion* for Glasgow on 24 January 1943, arriving in Glasgow on 1 March 1943. Oliphant had been away from the UK for 11-plus months, only having five months of productive work in Australia. (also NRAO ONLINE 13)