

Riding the Waves: Professor T. H. Laby as Imperial Scientist and Radio Visionary

Jennifer Bowen

School of Historical and Philosophical Studies, Faculty of Arts, University of Melbourne, Vic., Australia.
Email: bowen@student.unimelb.edu.au

Thomas Laby, Professor of Natural Philosophy at the University of Melbourne 1915–1942, was an outspoken proponent of science broadcasting during the years when broadcast radio was developing in Australia. While earlier biographical studies have paid some attention to Laby's role in public affairs, there has been no discussion of his sustained advocacy for radio as a means of public education. This article shows how his position was supported by, and in turn enriched, his imperial politics as well as his commitment to scientific research; it draws on a range of archival materials from public hearings, the Australian Broadcasting Commission, and Australian universities. It shows Laby's remarkable grasp of a medium in its formative years, as well as his belief in the need for scientists to participate in social debate.

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Introduction

On the afternoon of 25 July 1941 the University of Melbourne's Professor of Natural Philosophy, physicist Thomas Laby, was called before the Joint Parliamentary Committee into Broadcasting. Prime Minister Robert Menzies had established the committee to enquire into the overall state of radio broadcasting in Australia, fourteen years after a similar set of questions had been tackled by the 1927 Royal Commission into Wireless at which Professor Laby had also spoken. In the intervening years, Laby had joined a deputation of academics to press for the establishment of the Australian Broadcasting Commission and had played a part in securing radio talks by visiting scientists. Indeed, radio ran like a thread through Laby's life: in 1924 he had supported a bid by Australian universities for their own broadcast frequency and from 1927 to 1941 was a member of the Radio Research Board. His active involvement took in not just the science of radio and the technicalities of broadcasting, but also the content of programmes. Nevertheless, his place in the historical record stops short of the last of these so that many histories of Australian radio have failed to mention him at all, and studies of the history of science in Australia—including those concerned with the communication of scientific ideas—have generally excluded his interest in broadcasting.¹

The purpose of this paper is to establish and evaluate Laby's part in Australian science communication with a particular focus on his advocacy for the broadcasting of science programmes. Laby was not alone among scientists in Australia during the interwar years in looking to radio as a means to interest and educate the general public—one of the most well-known radio voices in the 1930s was Sydney University's Professor of Zoology, William Dakin. Laby's concern was primarily with the physical sciences and physicists took a particularly prominent role in the early years of broadcasting.² Most of the academics who were active in broadcasting in the interwar years, however, were presenters of talks and members of advisory committees; by contrast Laby appears to have been neither, leaving no record of ever speaking into a microphone or having been active on committees connected specifically to broadcasting. This makes his 'outsider' role in broadcast radio something of a puzzle; its solution, I shall argue, lies with the way in which Laby's

diverse interests in research science, public education and imperial politics coalesced with radio so it became the intersection of several practices, each of which reinforced the others.

Laby's political activity was part of his active membership of the Round Table, a London-based association that promoted federation between Britain and the dominions.³ Laby was also part of a cohort of dominion scientists whose members had studied in Britain; in particular, he had worked with the New Zealand-born Ernest Rutherford in Cambridge. The diaspora of Rutherford graduates that developed in the universities of the dominions created a network that in effect challenged the old imperial order in which power and prestige in science were found exclusively in Britain.⁴ Local research into radio transmission and reception was a necessary part of its development as a global mass medium: Laby was instrumental in bringing Australia to prominence in this field, thus contributing further to the validation of the physical sciences outside the laboratories of Cambridgeshire.⁵ Finally, Laby was notable for his enduring commitment to the public accessibility of information and autonomous decision-making: in 1915 attacking the British government for restricting information about the war to his later support for the Australian campaign against book censorship in 1935.⁶

The consequence of these affiliations, coupled with his distinctive outspokenness, makes Laby an illuminating case study for the history of broadcasting in Australia and the development of science communication. Both of these fields were themselves in a state of flux in the interwar period. Furthermore, Laby's championing of science broadcasts identified many of the fundamental questions that confront scientists and broadcasters today as they determine how to communicate scientific ideas to the general public. For Laby, making scientific ideas widely accessible was not an option either for scientists or for a broadcaster serving the public interest: it was an obligation for both. His most eloquent statement in support of this was the manner of his own life.

Britannia Rules the Waves—Laby's Imperial Thinking

In April 1924, an exhibition opened in London celebrating the 'people and works of the British Empire' in which King George V described the empire as symbolizing a 'coordination of scientific

knowledge'.⁷ Later the same year the *Sydney Morning Herald* published a leader under the heading 'Universities and Empire Development' in which it identified a responsibility for universities in the dominions to participate in research for the prosperity of the empire.⁸ It argued that dominion-based research was an essential complement to work done in Britain and the two examples it proposed were tropical medicine and the science of atmospheric, saying of the latter:

Its bearing upon wireless and aviation makes it a most important factor in Imperial development. The conditions for atmospheric research at, say, Cambridge, are quite different from those at Montreal, Sydney and Bombay. Experiments have to be conducted at many scattered points and here is a task to which the universities of the Empire could with advantage address themselves.⁹

For Melbourne University physicist Professor Thomas Laby this could have been a call to arms, bringing together as it does the imperatives of imperial duty and scientific research. Both were of crucial concern to Laby, and arguably they had developed in parallel in his early adult life. Like most professors of science in Australia in the 1920s, Laby had undertaken post-graduate studies in Britain;¹⁰ but while many such appointees were British born or, if Australian, from well-to-do backgrounds, Laby owed his education to evening classes and scholarships. He had been born in 1880 in regional Victoria; the family moved to NSW where his father died in 1888 leaving his widow and children in 'straightened circumstances'.¹¹ Laby worked at the Australian Taxation Office before taking a job as a chemistry laboratory assistant. While attending Sydney University classes at night, he published two research papers in the journal of the Royal Society of NSW and in 1905 was awarded an 1851 Exhibition, a prestigious research scholarship open to science graduates in the British Empire. Laby studied radioactivity in Cambridge under J. J. Thompson and later with the New Zealand physicist Ernest Rutherford, with whom he maintained an enduring friendship.¹²

The nature of the relationship between Britain and the dominions was much discussed in the first half of the twentieth century. One of the key participants was Lionel Curtis, a singular individual neither politician nor businessman who has been described as a dedicated 'imperial proselytizer and organiser of extraordinary industriousness'.¹³ He participated in the creation in 1909 of the Round Table, a men-only movement dedicated to the perpetuation of the British empire.¹⁴ Members supported a federal union between Britain and the dominions, and their immediate objective was to prepare the people of the dominions to participate in such a partnership. The Round Table's preferred means of achieving this political education was by discussion, and many of its members were also active in the Workers' Educational Association.¹⁵ In 1910 Curtis embarked on a mission to recruit supporters throughout the empire, partly out of a conviction that the dominions, not London, should appear as the genesis of the movement.¹⁶ In New Zealand he met Laby, recently appointed to the chair of physics at Victoria University College (Wellington), a constituent college of the University of New Zealand.¹⁷ Laby became a foundation member of the New Zealand Round Table, and began a friendship with Curtis that lasted for the rest of his life.¹⁸

University Activism and the First World War

In March 1915, Laby took up the position of Professor of Natural Philosophy at the University of Melbourne where he proceeded to

build up a research laboratory later described as the finest in the southern hemisphere.¹⁹ He was quick to demonstrate his continued enthusiasm for public affairs: on 21 April 1915, he attended a wartime meeting of the Melbourne University teaching staff at which resolutions were passed concerning 'the professional services certain Departments of the University might offer the Defence Department of the Government'.²⁰ The meeting was unambiguous in its support for the imperial cause, concluding that 'there is no form of effort which the University will not undertake, and no form of sacrifice which it will not cheerfully endure, on behalf of the Empire's safety and honour'.²¹

Laby joined a subcommittee set up to organize a series of public lectures and gave an address at the Masonic Hall in Melbourne on 6 October 1915 titled 'The Dominions and the War'.²² He accused the British government of censoring information about the war, calling it 'a policy that removes from both the Governments and the people of the Dominions the responsibility of adjusting their efforts to the situation'.²³ There was a fundamental problem, he argued, with the situation in which Britain controlled the foreign policy of the empire:

Such an allocation of power and responsibility is undemocratic, but it can be altered whenever the Dominions demand a share in both these privileges and obligations.²⁴

Laby's sentiments concur with the Round Table's vision of imperial partnership, particularly in identifying a role for the dominions in *demanding* a relationship that recognized them on such terms. His position affirms the right and capacity of the people of the dominions to engage in the making of decisions of national or imperial interest. The principle of informed decision-making was a precept that underpinned Laby's position on many issues to come, from his support for the pro-conscription campaign during the First World War to his commitment to radio as a vehicle for education.

University academics played an active role in the Australian campaigns around conscription in 1916 and 1917.²⁵ Many of those involved were also members of the Round Table, not a large organization in Australia, but nevertheless influential and well connected.²⁶ Most of its members were academics, followed by professional men active in law, economics or business; scientists were a minority, arguably reflecting their small number in Australia at the time.²⁷ Laby campaigned with fellow University of Melbourne Professors Harold Woodruff and Harrison Moore for the 'yes' vote during the two conscription referendum campaigns.²⁸ While bacteriologist Woodruff did not belong to the Round Table, Moore, a jurist, was a member. Moore emerged as one of the leaders of the pro-conscription campaign in Victoria, notable for his energetic activity outside the university preparing leaflets and speaking in country towns—in other words, using all means available.²⁹ These presented more than simple slogans; they invoked ideas of individual and collective responsibility, as well as an argument based on fear of an attack on Australia by Germany from its Pacific colonies.

Rutherford's Influence

Laby did not share the privileged backgrounds of most Round Table members—Professor Moore and his wife, for instance, are described as representing 'the heart of Melbourne's establishment'.³⁰ It is not fully clear what drew Laby to the movement. It is possible that the benefit he had received from education rather than family advantage inclined him to an organization that promoted education and

equal participation. It can also be conjectured that his views were reinforced by his association with the physicist Ernest Rutherford, of whom he wrote in 1938 after the latter's death the previous year:

Great as he was as a physicist, to me he was a still greater man; he rendered most valued service to science in all the member nations of the British Commonwealth.³¹

Rutherford was an important part of Laby's life, with 'both [holding] each other in high regard'.³² More broadly Rutherford has been attributed a major role in shifting the dynamic of imperial science by his support and encouragement for research in the dominions, creating a situation of imperial partnership homologous with the political model proposed by Curtis. Relations between Great Britain and the dominions regarding the pursuit of science were not constant from colonial times to the twentieth century; Roy MacLeod has identified a series of stages from 'control' to 'cooperation'.³³ Katrina Dean has argued for a refashioning of imperial connections as a consequence of Rutherford and the 1851 scholars whereby scientists from the dominions began to colonize the centre.³⁴ The relationship between the public and scientists was also subject to re-negotiation during the interwar years. While the Round Table urged political education to enable dominion citizens to participate in joint imperial decision-making, many scientists were to press for greater public understanding of science in the interests of social policy. Laby was to play an active role on both counts, such that each was supported by, and in turn enriched, the other.

Science Communication in Australia in the Interwar Years

The USA emerged as a world leader in science in the aftermath of the First World War;³⁵ its scientists were held in great esteem and the popularization of science already established in the early twentieth century increased in the 1920s, particularly with the advent of radio.³⁶ Scientists in the British empire did not benefit from similar interest and support.³⁷ In the aftermath of the devastation of the First World War—much of it due to advances in science—many scientists round the world made a renewed call for greater communication with the public.³⁸ Earnest speeches on the subject were made at Congresses of the Australasian Association for the Advancement of Science (AAAS, later ANZAAS).³⁹ Later commentaries judged little headway to have been made: in Roy MacLeod's words 'a vision endlessly discussed, but only partly realised'.⁴⁰ Joan Clarke spoke of the 'obsessions' of Australian scientists with 'setting up organisations that dealt with research ... at the expense of science-society communications';⁴¹ Jean Moran made the blunt assessment that 'science in Australia did not visibly impinge on public consciousness in the post war period'.⁴² Nevertheless, these conclusions pay insufficient attention to Laby's voice and his resourcefulness with the opportunities available to him.

Laby promoted communication in many ways both amongst scientists and between scientists and the general public, from opening his University of Melbourne laboratory to the public (including a demonstration in 1920 of wireless telegraphy) to setting up with Professor Ross of the University of Western Australia an Australian branch of the British Institute of Physics of which he became the first branch president.⁴³ Laby spoke at the 1921 AAAS Congress to move for 'more effective organisation of science in Australia'.⁴⁴

On this occasion, he proposed the formation of a society of 'scientific workers' for the purpose of 'advancing science education, promoting research, discussing and publishing the results of scientific investigation and reorganizing and encouraging distinguished scientific work';⁴⁵ it was not until 1939 that such an organization, the Australian Association of Scientific Workers (AASW), was formed.⁴⁶ In 1926, Laby gave a public lecture in Melbourne calling for visits to Australia by eminent scientists from overseas;⁴⁷ he suggested the American physicist, Dr Robert Millikan, who had just been appointed to a 'new scientific institute in California' (the California Institute of Technology), urging that this should make scientists in Australia 'realise that a distinct move had been made nearer to them'.⁴⁸ He described how visits by distinguished physicists to California each year enabled a constant flow of new ideas and called for a similar practice in Australia.⁴⁹ Laby could also point out local shortcomings: during the Imperial Geophysical Experimental Survey in 1927 he complained publically of a lack of support from the Australian government, saying 'local scientists seem to be discredited in this country'.⁵⁰

Laby's attention was also directed to the relationship of science with broader problems of the day. MacLeod considers ANZAAS to have been oblivious to the economic problems of the early 1930s;⁵¹ Laby, however, made the following statement at the 1932 ANZAAS congress:

The progress of science has created more social and political problems than mankind has been able to solve. Might it not be to the advantage of mankind if some of those adept in the methods of the physical sciences turned their attention to the solution of the economic and political problems which their discoveries have created?⁵²

He wrote two articles examining science and the Great Depression published in the *Australian Quarterly*, a journal set up in 1929 by Sydney Round Table 'stalwart' Harold Nicholas.⁵³ Laby had an article in its first issue, ostensibly addressing the question of a university in Canberra, but using the occasion to discuss how a university should be run as a self-governed centre of learning and science.⁵⁴ In later issues of *Australian Quarterly* he reviewed new books by Australian scientists, arguing that 'an intelligent and critical interest in the progress of Australian science would further science in the Commonwealth'.⁵⁵ In 1934, he compared the greater attention given to Australian art and literature with the lesser notice paid to science, going on to highlight the contribution of Australian scientists to scientific research on a world stage. '[T]here are few, it would seem,' he declared, 'who appreciate how notable that contribution has recently become'.⁵⁶ While these comments confirm a general lack of interest in research scientists in Australia, they also show Laby's dogged efforts to shine a spotlight on his fellows.

Radio in the Air

A major boost to broader awareness of science in Australia came with the development of radio broadcasting in the 1920s. Most Australians read about radio in newspapers before hearing it and quickly became familiar with the vocabulary of microphones, frequency and wavelength.⁵⁷ Radio broadcasting began in Sydney in November 1923, then in Melbourne and Perth in 1924. Wireless columns in newspapers and whole pages in radio magazines continued to report the technical side of broadcasting until the mid-1940s

so that radio as scientific apparatus co-existed with its standing as polished furniture.⁵⁸ As in many countries, radio in Australia underwent several regulatory changes in the 1920s and public awareness of the issues involved was maintained by continuous press coverage.

Early Australian radio was a hybrid of the licence-fee funded British system and its free-to-air, commercial American counterpart. From July 1924, all listeners were required to purchase an annual licence fee and all radio stations were entitled to take some advertising. There were two categories of radio stations, 'A' and 'B': the amount of advertising was limited for 'A' stations, which also received funding from the licence fee paid in their respective State; 'B' stations were dependent entirely on advertising or private means.⁵⁹ As poor reception could result in a drop in listeners, the bigger 'A' stations invested in scientific advice. In 1925, Laby became technical adviser to Radio 3LO in Melbourne and immediately proposed a change in its signal wavelength 'to enable an increasing number to listen-in on the simplest receiving set, that is, on crystal sets'.⁶⁰ He subsequently received an annual grant to the University of Melbourne of £500 for research on radio transmission and reception in Victoria.⁶¹ In NSW, the University of Sydney's Professor of Chemical Engineering, John Madsen, entered into a similar financial arrangement with 2FC. While radio grew in popularity, difficulties in reception persisted for rural listeners and in 1926 Madsen urged the setting up of a national research body, along the lines of the British Radio Research Board.⁶² The Radio Research Board (RRB) was formed the following year under the auspices of the Council for Scientific and Industrial Research (CSIR).

The work of the Radio Research Board is rightly entitled some significance in the history of Australian science as it was the first government-funded science body in Australia whose priority was not agriculture, leading one commentator to call it an 'enigma'.⁶³ Madsen was later credited with being the 'right man, in the right place' to bring it about; he was appointed Chair, holding the position until 1945. Laby was a foundation member along with George Cook of the CSIR and Commander Cresswell of the Royal Australian Navy, the latter a member of the Round Table.⁶⁴ There were reports of tension between Laby and Madsen, and their areas of research differed, with Sydney working on ionospherics and Melbourne on atmospheric.⁶⁵ The personal difficulties with Madsen were not the only instance in Laby's public and professional life when his relations with other people were strained.⁶⁶ However, the reputation attained by the Radio Research Board was considerable.⁶⁷

In 1927, the Commonwealth Government appointed a Royal Commission on Wireless to hear concerns about radio in Australia from many interested parties including commercial proprietors, electrical dealers, educators, musicians, political organizations and church bodies. Laby appeared before it and took the opportunity to reveal the breadth of his interest in radio. He spoke not just about his preferred wavelength for 3LO, but urged a particular 'public service' purpose for broadcasting:

From my observations of broadcasting in America and England, I trust that this Commission will make some recommendation which will prevent broadcasting being used to any considerable extent for advertising or for political, religious, or other propaganda. I think as little advertising as possible should be allowed and any sort of propaganda should be prohibited or very strictly regulated.⁶⁸

He also attacked what he perceived as the secrecy of commercial companies in relation to their findings about the science

of radio, accusing corporations of funding research for their own 'aggrandizement'.⁶⁹ In its report, the Royal Commission recommended that Australian scientists should carry out research into radio transmission and reception rather than draw on work undertaken overseas or by commercial interests, saying 'it is desirable that public bodies should be encouraged to persevere so that the public as a whole will be able to benefit from their labours'.⁷⁰ This could fairly be seen as a victory for Laby.

Radio and Australian Scientists

While the advent of broadcasting went some way to bring physics into the public domain, scientists were not simply the enablers of broadcasting—they were often heard on air. In the same month, November 1923, that the first Sydney broadcasts were made from Radio 2BS (later 2BL), the newly formed Graduates Association at Adelaide University resolved that the University request a broadcasting frequency, saying 'a great opportunity is opened up by wireless telegraphy for the extension of University influence and dissemination of university teaching'.⁷¹ President of the Graduates Association, biochemist Professor Brailsford Robertson, added presciently 'it may be necessary to develop a special technique of teaching by this medium'.⁷² Adelaide University Council formed a committee including Robertson and physicist Professor Kerr Grant who set about contacting scientists in other universities with a view to a combined bid. The small size of, and regular conferences between, the six Australian universities enabled active networks of interest both within campuses and across the country. The approaches by Kerr Grant to Laby at Melbourne, Professor Ross in Perth and Professor Parnell in Brisbane met with immediate agreement.⁷³ In April 1924, Laby proposed to the Council of the University of Melbourne that it support a request for a waveband to be used by universities for broadcasting and research.⁷⁴ In September that year, it was reported to the All Universities Conference taking place in Adelaide that the government 'had decided to set aside a band of waves in connection with wireless telegraphy for educational purposes'.⁷⁵ No such radio station emerged, but it is evident that universities were aware of the idea and made the case for it, thanks to the initiative of their scientists.⁷⁶

University academics were not deterred from broadcasting by the absence of their own radio station. At the first experimental broadcast in August 1924 of 5DN, Adelaide University Professor of Engineering Robert Chapman gave a talk on electricity.⁷⁷ It was followed by an invitation from the proprietor, Jack Hume, to broadcast University material, subject to some sharing of costs, to which the University promptly agreed.⁷⁸ University of Western Australia mathematician and physicist Alexander Ross presented a session on 'the marvel of electric rays' in the first week's operation of 6WF in Perth in June 1924 and went on to become a frequent broadcaster.⁷⁹ One of the first science broadcasters appearing under the auspices of the Melbourne University Extension Board on 3LO was geologist Dr Clive Loftus-Hills in April 1925.⁸⁰ The Extension Boards of Melbourne and Sydney Universities came to take responsibility for handling requests for radio speakers.⁸¹ Science broadcasts confirmed solid imperial norms, with speakers mostly male and their voices often British. Laby does not appear to have been a broadcaster, possibly due to his reputation as a 'terrible' lecturer.⁸² But while his involvement with radio was behind

the scenes, the informed nature of his commentary suggests he kept a watchful eye and attentive ear on what was taking place.

The 1930s and the ABC

Commercial radio in Australia was increasingly profitable in the 1930s, but science broadcasts declined in number and were often the consequence of sponsorship by a related publication.⁸³ Radio talks became largely the preserve of the Australian Broadcasting Commission (ABC), established in 1932 partly after lobbying by university professors including Laby.⁸⁴ The ABC was formed from the pre-existing 'A' stations and run by a body of five commissioners appointed by the federal government. Their initial brief was to provide 'gaiety' for the whole community: 'follow the BBC' was the informal advice.⁸⁵ This was slightly unfair as, apart from its larger revenue, the British Broadcasting Commission had a well-developed talks department by the early 1930s; it included a specialist producer of science broadcasts who engaged speakers and devised projects in which listeners participated.⁸⁶ By contrast, the ABC took some years to install editorial structures intended to secure its place in a broadcasting environment very different from that of the monopolistic BBC.⁸⁷ In the process, science talks decreased.

In June 1935, the ABC announced that 'outstanding' speakers from different states would be broadcast nationally.⁸⁸ Amongst a list of illustrious names, Sydney University Professor of Zoology William Dakin was the sole scientist.⁸⁹ Dakin proved to be a broadcaster of exceptional ability: he gave topical reports on ANZAAS congresses and, in a series about famous names of the past, 'interviewed' T. H. Huxley.⁹⁰ In the later 1930s his regular programme *Science in the News* became one of the most popular of all programmes.⁹¹ Despite this, radio talks dealt increasingly with international affairs and social sciences.⁹² During preparations for a visit to Britain in 1936, Adelaide University's Professor of History, G. V. Portus, was asked by the ABC General Manager, Charles Moses, to sound out eminent Britons on behalf of the Commission for a speaking tour.⁹³ A roll of fifteen possible names included only one scientist, Julian Huxley, who after some discussion was relegated to the reserve list.⁹⁴

In 1937, however, several newspapers reported an ABC decision to organize speaking tours by international scientists, a plan described as 'complementary to that by which the Commission has induced musicians to tour this country'.⁹⁵ The policy received timely momentum when a mere month after its announcement Dr Harrie Massey, an Australian theoretical physicist of international distinction and a former student of Laby, arrived in Perth and proceeded to give a series of radio talks across the country.⁹⁶ He was billed as 'an eye witness' to new developments in science in Europe; one talk addressed relativity, while others dealt with the structure of matter and the splitting of the atom.⁹⁷ Several newspapers attributed his visit to the ABC, but the Melbourne *Age* reported Laby was behind the talks.⁹⁸ The following year a speaking tour of Australia by the Nobel Prize winner Dr Robert Millikan of California was announced—the very individual Laby had cited in connection with visits by international scientists over a decade earlier.⁹⁹

Millikan's ABC Talks

The ABC's archives show that the Commission's Vice-Chairman, Herbert Brookes, initiated the invitation to Millikan during a trip to

the USA in 1937.¹⁰⁰ Brookes was a wealthy Victorian manufacturer and pastoralist;¹⁰¹ he reported to ABC Chair William Cleary his observations on American broadcasting, from conductors, singers and ventriloquists to science:

One important overture I did make for the ABC, and this I am confident you will approve of—and that was to urge Dr R. A. Millikan, the discoverer of cosmic rays, and head of the California Institute of Technology, and a splendid lecturer and speaker on the air, to think of a trip to Australia. To my great joy he said he would greatly enjoy a trip to Australia.¹⁰²

Arrangements for the visit took almost twelve months as it fell to the ABC to apply for permission to a succession of government bodies for Millikan to conduct experiments in the upper atmosphere while in Australia.¹⁰³ Nine radio talks were scheduled and several public lectures advertised, with Millikan presented to the public in lavish terms:

Instead of a world famous singer or musical instrumentalist, the ABC is now introducing to Australia a star in another firmament ... Millikan, one of the world's greatest intellects, a research worker in physics, who has made astounding discoveries.¹⁰⁴

The titles of Millikan's talks included 'Evolution in Religion', 'Education in a Democracy', 'Science and Standard of Living', 'The Possibility of a Warless World', and 'What are Cosmic Rays Good For?' His concern was not just the function of matter, but also the behaviour of men and women. This accords with Laby's plea in 1932 for scientists to apply their minds to social problems of the day.¹⁰⁵ As to whether Laby had a hand in Millikan's visit, the evidence is at best circumstantial: Brookes was a member of the Round Table of which Laby was secretary from 1917 to 1944, making contact between them unavoidable;¹⁰⁶ Brookes was also a brother-in-law of Sir David Rivett, the head of the CSIR.¹⁰⁷ There is no doubting Laby's support for Millikan's trip; he drew fresh attention to it when urging the ABC to arrange similar visits by scientists during his testimony to a government inquiry into broadcasting in 1941.

Joint Parliamentary Committee on Broadcasting

The Joint Parliamentary Committee on Broadcasting under the chairmanship of W. Gibson was appointed by Prime Minister Robert Menzies in June 1941 to consider broadcasting and any changes that might be made to it, in addition to specific questions about the number of Commissioners of the ABC.¹⁰⁸ Over one hundred and fifty witnesses spoke at sessions across the country and its report led to the most substantial piece of broadcasting legislation in Australia since radio began.¹⁰⁹ Evidence shows the fledgling Australian Association of Scientific Workers discussed a written submission, though no record of it survives.¹¹⁰ Laby appeared before the committee as a scientist and public figure, demonstrating his commitment to public education and his understanding of radio in Australia and overseas.¹¹¹

Laby called for more discussion programmes, giving as example America's 'Town Meeting of the Air';¹¹² he acknowledged that science talks needed to be interesting and pressed for the actual voice of the scientist to be heard, possibly aware of the practice then widespread in America by which science scripts were voiced by professional actors.¹¹³ As President of the Institute of Physics, he noted that there was 'little broadcasting in Australia on the physical sciences' and proposed the involvement of the Institute in remedying

this. He articulated the view that programmes about science and its social relations should be seen as an *obligation* for the ABC in the same way that there were expectations about music programmes.¹¹⁴ As on other occasions in his life, Laby was speaking ahead of his time—it was over twenty years before the ABC appointed a specialist science producer.¹¹⁵ Laby's testimony to the Committee was one of his last public statements. Combining his ideals and his pragmatism, it affirmed his advocacy for the public understanding of science and the participation of scientists in public debate on social issues.

Conclusion

Thomas Laby has been recognized over many years for his contribution to Australian science but previous biographical accounts have not given full credit to his role in science communication. This paper has identified the diverse ways in which Laby participated in public life and shown their interconnections. Laby's involvement with the First World War pro-conscription movement gave him practical experience in the art of campaigning to influence public opinion. He was unwavering in his commitment to the political philosophy of the Round Table movement and his belief in Australian science was interwoven with this conviction. His support for radio would appear, with hindsight, to have been almost inevitable—except that there is nothing inevitable about the development of radio or any other communications medium.

Laby's achievement was his perspicacity with a medium still in its early stages of formation. His understanding of broadcasting was well informed and he was willing to speak out when opportunity arose. While it is not possible to attribute direct influence, it was due to individuals such as Laby that public service broadcasting developed in Australia with an ethos for education through spoken-word programmes.

Laby, however, was a complex figure: while networks within the Round Table, university science and the press enabled the circulation of his ideas, arguably his personality undermined their wider embrace. Laby resigned from the University of Melbourne in 1942 citing an imminent breakdown in his health. There was consternation amongst a small number of friends that the university had not treated him well, but they could not stop the acceptance of his resignation; indeed there were many with whom Laby had fallen out in previous decades, partly due to his threats of litigation against academic colleagues.¹¹⁶ After his death in 1946, there were tributes to him as a physicist and Fellow of the Royal Society;¹¹⁷ there was no word of his early support for radio as a medium for the spread of ideas or his later championing of scientists as broadcasters. One explanation is that support for radio as an appropriate place for scientists had changed from the enthusiasm of the 1920s. An obituary of zoologist William Dakin in 1950, while noting his extraordinary popularity as a broadcaster, noted the criticism this activity incurred from some other scientists.¹¹⁸

This raises questions about the very nature of science communication, from the ways in which scientists are prepared to participate, to the form this takes and what constitutes its effectiveness. The continued exclusion of early radio from assessments of science communication requires some interrogation. Radio is sometimes called an ephemeral medium, with recordings missing and scripts incomplete, but there is firm evidence that it fired the imagination of scientists in its early years. Laby's enduring vision of its greater

potential deserves wider recognition within histories of Australian radio and science communication.

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Endnotes

1. Laby is not referred to in the standard Australian radio histories, such as Ken Inglis, *This is the ABC* (Melbourne, 1983); Lesley Johnson, *The Unseen Voice: a Cultural Study of Early Australian Radio* (London, 1988); and Ian Mackay, *Broadcasting in Australia* (Melbourne, 1957). Histories of Australian science and science communication account for elements of his activity: for example, Roy MacLeod, 'From Imperial to National Science' in *The Commonwealth of Science: ANZAAS and the Scientific Enterprise in Australasia, 1888–1988*, ed. Roy MacLeod, (Melbourne, 1988), pp. 40–72) refers to Laby's commitment to public understanding of science through AAAS but omits the rest of his engagement with public life in. Aitor Anduaga, *Wireless and Empire: Geopolitics, Radio Industry, and Ionosphere in the British Empire 1918–1939* (Oxford, 2009) places Laby in the centre of the frame to discuss radio science in Australia in relation to imperial politics but does not include Laby's broader interest in public education or science broadcasting. Ann Moyal, *Clear Across Australia: a History of Telecommunications* (Melbourne, 1984) makes only a passing reference to Laby. Edmund Muirhead, in his short biography of Laby, *A Man Ahead of his Times* (Melbourne, 1996), does provide some detail of his involvement in public affairs, though without reference to broadcasting.
2. It is not within the scope of this paper to discuss medical and agricultural broadcasts that also developed in the early years of radio.
3. Leonie Foster, *High Hopes: the Men and Motives of the Australian Round Table* (Melbourne, 1986); Daniel Gorman, *Imperial Citizenship* (Manchester, 2006).
4. Katrina Dean, 'Inscribing Settler Science: Ernest Rutherford, Thomas Laby and the Making of Careers in Physics', *History of Science*, 12(2003), 217–240; Tamson Pietsch, *Empire of Scholars: Universities, Networks and the British Academic World, 1850–1939* (Manchester, 2013).
5. Aitor Anduaga, already cited (n.1), p. 203.
6. Laby's lecture 'The Dominions and the War' 6 October 1915 at the Masonic Hall, Melbourne, published in *Public Lectures on the War* (Melbourne, 1915/16), pp. 173–184; Joel Barnes 'The Right to Read: the Book Censorship Abolition League 1934–37', *Labour History*, 107(2014), 75–93, esp. p. 85.
7. Roy MacLeod 'Passages in Imperial Science', *Journal of World History*, 4(1) (1993), 117–150, concluded that 'the reality never quite matched the rhetoric.' (p. 141).
8. *Sydney Morning Herald*, 22 August 1924, p. 8.
9. As above.
10. Pietsch, already cited (n. 4), pp. 61–89.
11. Cecily Close, 'Laby, Thomas Howell (1880–1946)', *Australian Dictionary of Biography*, National Centre for Biography, Australian National University, <http://adb.anu.edu.au/biography/laby-thomas-howell-7004/text12177>, published first in hardcopy 1983, accessed online 31 January 2016.
12. Muirhead, already cited (n. 1), p. 7; Anduaga, already cited (n. 1), p. 139. At his death in 1946, Laby was working on the publication of his correspondence with Rutherford.
13. Gorman, already cited (n. 3), p. 40.

14. Curtis was one of twelve men present at a meeting called in September 1909 by Sir Alfred Milner, a former High Commissioner to South Africa, at which the movement was founded. Foster, already cited (n. 3), p. 12.
15. The cultivation of discussion groups was a feature of the Workers' Educational Association (WEA). The founder of the WEA in Melbourne belonged to the Round Table and many Australian Round Table members conducted WEA courses. Foster, already cited (n. 3), p. 55.
16. Foster, already cited (n. 3), p. 12.
17. Muirhead, already cited (n. 1), pp. 5–6; while at Wellington, Laby was active in its University Reform Association, along with the mathematician D. K. Picken who later moved to Melbourne University. The Association campaigned for university autonomy. Laby's time in New Zealand was notable for the publication in 1911 of *Tables of Physical and Chemical Constants and Some Mathematical Functions*, co-authored with G. W. C. Kaye; it was later described by *Nature* magazine in 1942 as 'indispensible' and has been reprinted 14 times. See Pietsch, already cited (n. 4), p. 115.
18. They maintained a continuous correspondence until 1946: University of Melbourne Archives, Laby, Thomas Howell 83/149; 85/144; 96/111. In 1920, Curtis became godfather to Laby's second daughter, Betty. Muirhead, already cited (n. 1), p. 6.
19. Anduaga, already cited (n. 1), footnote 77, p. 140, citing Oliphant.
20. Richard J. A. Berry and Archibald T. Strong, eds, *Public Lectures on the War* (Melbourne, 1915/6), p. 8.
21. As above.
22. Laby, already cited (n. 6), pp. 173–184.
23. Laby, already cited (n. 6), p. 179.
24. Laby, already cited (n. 6), p. 182.
25. Joy Damousi 'Universities and Conscription: the 'Yes' Campaigns and the University of Melbourne', in *The Conscription Conflict and the Great War* eds Robin Archer, Joy Damousi, Murray Goot and Sean Scalmer (Melbourne, 2016), pp. 92–10.
26. Foster, already cited (n. 3), p. 4.
27. Foster, already cited (n. 3), p. 46. The Round Table membership was not made public though Foster has identified 277 members in Australia, of whom 15 were trained in science, including medicine and engineering. Foster, already cited (n. 3), Appendix A, pp. 189–243.
28. Damousi already cited (n. 25), p. 105.
29. Damousi, already cited (n. 25), pp. 100, 105.
30. Damousi, already cited (n. 25), p. 101.
31. Dean, already cited (n. 4), p. 235.
32. Anduaga, already cited (n. 1), p. 140.
33. Roy MacLeod, already cited (n. 7), pp. 127–136.
34. Dean, already cited (n. 4), pp. 217–240.
35. Germany and USA were arguably leaders in science before the First World War, see Fritz Stern *Einstein's German World* (London, 2001) p. 44; Roy and Kay MacLeod, ('The Social Relations of Science and technology 1914–1939' in *The Fontana Economic History of Europe*, vol. 5 'The Twentieth Century – 1', ed. Carlo M. Cipolla (New York, 1977), pp. 30–363) discuss the significant roles of Japan and France in the early part of the century, as well as USSR by the 1930s.
36. For the popularisation of science on American radio, see Marcel LaFollette, *Science on the Air* (Chicago, 2008).
37. Roy MacLeod and Kay MacLeod, already cited (n. 35), p. 303.
38. Roy and Kay MacLeod, already cited, (n. 35), p. 344, consider the situation of scientists in Western Europe. LaFollette, already cited (n. 36), p. 48, discusses the political engagement of scientists in the US.
39. MacLeod, already cited (n. 7), p. 59; the organization became the Australian and New Zealand Association for the Advancement of Science in 1930.
40. As above.
41. Joan Clarke, 'Scientists as Intellectuals' in *Intellectual Movements and Australian Society* eds Brian Head and James Walters (Melbourne, 1988), pp. 88–108, esp. p. 97.
42. Jean Moran, *Scientists in the Political and Public Arena: a Socio-intellectual History of the Australian Association of Scientific Workers, 1939–49* M Phil thesis, School of Science, Griffith University 1983, p. 36.
43. Muirhead, already cited (n. 1), p. 65.
44. MacLeod (1988), already cited (n. 1), p. 61.
45. As above; MacLeod adds that while the minutes report 'a hearty and instructive debate', the idea was left in abeyance.
46. The AASW was founded in Sydney in 1939 after a motion from Professor William Dakin and its first chair was Professor Eric Ashby—both were accomplished broadcasters.
47. *The Age*, 16 April 1926, p. 10.
48. As above.
49. As above.
50. Laby criticized the government for 'overlooking Australian scientists in favour of overseas specialists', saying science graduates 'were not given the consideration to which they were entitled' *The Age*, 9 August 1927, p. 11.
51. MacLeod already cited (n. 1), p. 65.
52. MacLeod, already cited (n. 1), p. 65.
53. T. H. Laby, 'The Causes of the Economic Depression', *The Australian Quarterly*, 3 (9) (1931), 50–59; T. H. Laby, 'Science and the Economic Depression', *The Australian Quarterly*, 5(18) (1933), 80–91. Laby argued that Australia should process more of its raw materials prior to export and that the way to achieve this was by fostering science. For the founding of Australian Quarterly, see Leonie Foster, already cited (n. 3), p. 58.
54. Anon, 'A University for the Commonwealth', *The Australian Quarterly*, 1 (1) (1929), 32–42.
55. T. H. Laby, 'Heat and Thermodynamics', *The Australian Quarterly*, 1 (3) (1929), 141–143. This was a review of J. K. Roberts, *Heat and Thermodynamics* (London, 1928).
56. T. H. Laby, 'Australian Science', *The Australian Quarterly*, 6 (23) (1934), 121–122. Laby reviewed two books: N. F. Mott and H. S. W. Massey, *The Theory of Atomic Collisions* (Oxford, 1933); F. L. Arnot, *Collision Processes in Gases* (London, 1933).
57. Peter Hoar 'Morse, Magic and Modernity: Receiving Radio in New Zealand' in *Radio and Society: New Thinking for an Old Medium* edited by Matt Mollgaard (Newcastle, 2012) pp. 1–15, pp. 16–29.
58. Radio histories often speak of radio attaining the status of furniture as if this replaced its older technical form, one recent example is Bridget Griffen-Foley *Changing Stations: the Story of Australian Commercial Radio* (Sydney 2009), p. 15.
59. Some B stations were set up by electrical retailers to promote the sale of radio receivers; 'B' stations were not fully 'commercial' until the 1930s. See Inglis, already cited (n. 1), p. 8.
60. *Geelong Advertiser*, 26 March 1925, p. 5.
61. His assistant, R. O. Cherry, appeared in the papers with his mobile testing apparatus *The Argus* 5 May 1927, p. 17; W. F. Evans, *History of the Radio Research Board, 1926–1945* (Melbourne, 1973), p. 14.
62. W. F. Evans, already cited (n. 61), p. 14.
63. W. F. Evans, already cited (n. 61), the RRB as an 'enigma' p. 1; Anduaga discusses its distinction in not being connected to agriculture, already cited (n. 1), p. 129.
64. W. F. Evans, already cited, (n. 61) p. 2; Foster, already cited, (n. 3), p. 202.
65. For Laby's difficulties with Madsen, see Muirhead, already cited, (n. 1), p. 33; for their different research areas, see Muirhead, already

- cited, (n. 1), pp. 35–36. Anduaga also discusses ‘two styles, two personalities’ already cited, (n. 1), p. 136.
66. Muirhead, already cited (n. 1), pp. 58 and 61, noted Laby’s ‘alienating not a few’.
 67. Anduaga, already cited (n. 1), p. 203, wrote that by 1938 Australia was ‘the most pioneering Dominion in radio’.
 68. T. H. Laby, witness at the Royal Commission on Wireless 1927, Vol. 2, p. 211.
 69. *Daily Standard* (Qld) 18 March 1927, p. 6.
 70. Laby, Report of the Royal Commission on Wireless, already cited (n. 68), p. 28.
 71. 23 Nov 1923 letter from Professor Brailsford Robertson, President of the Graduates Association to University of Adelaide Council, University of Adelaide Archives (UAA).
 72. As above.
 73. University of Adelaide Archives.
 74. 29 April 1924, letter from Laby to Professor Kerr Grant, University of Adelaide Archives.
 75. *Western Argus*, 2 September 1924, p. 11.
 76. It should be noted that university physicists took an active role in early American radio, particularly the formation of college stations, see Hugh Richard Slotten ‘Universities, Public Service Radio and the ‘American System’ of Commercial Broadcasting 1921–40’, *Media History*, 12 (3) (2006), 253–272.
 77. *The Register*, 22 August 1924, p. 8.
 78. Letters 26 August & 2 September 1924, University of Adelaide Archives.
 79. *The Western Wireless*, 10 November 1926, p. 4.
 80. *The Argus*, 27 April 1925.
 81. University of Sydney Archives. Other organizations were also approached for speakers, and in July 1931 the Australian Chemical Institute published a request for members to co-operate with 2BL ‘in a scheme of short talks over the air entitled ‘The Romance of Everyday Things, such as Soap, Rubber, Gelatine etc.’, *Chemical Engineering and Mining Review*, 23 (1931), 387. The author thanks Dr Ian Rae for pointing out this reference.
 82. Muirhead, already cited (n. 1), p. 73.
 83. For example, the *Farmer and Settler* newspaper was linked with the ‘Man on the land’ session on 2UE, later 2UW; *Wildlife* magazine sponsored the natural history talks by Crosbie Morrison on 3DB.
 84. Inglis, already cited (n. 1), p. 17; *Riverine Herald*, 21 January 1932, p. 2.
 85. Inglis already cited (n. 1), p. 5.
 86. Allan Jones, ‘Mary Adams and the producer’s role in early BBC science broadcasts’, *Public Understanding of Science*, 21(8) (2011), 968–983.
 87. Inglis, already cited, (n. 1) p. 46.
 88. *ABC Annual Report* June 1935, p. 16.
 89. As above; their respective subjects were Professor Charteris ‘law/international affairs’, Professor Portus ‘social science’ and Professor Murdoch ‘humanities’.
 90. As above: June 1935, p. 17.
 91. Ann Elias, ‘The Ocean in Our Blood: William Dakin’s Modern Story for ABC Radio’, *Journal of Australian Studies*, 37(4) (2013), 425–437.
 92. Inglis, already cited (n. 1), p. 61.
 93. National Archives of Australia (NAA), Series SP1558/2; W. G. K. Duncan, ‘Portus, Garnet Vere (Jerry) (1883–1954)’, Australian Dictionary of Biography, National Centre for Biography, Australian National University, <http://adb.anu.edu.au/biography/portus-garnet-vere-jerry-8082/text14103>, published first in hardcopy 1988, accessed online 21 November 2014.
 94. As above.
 95. *The Australasian*, 5 June 1937, p. 14.
 96. *West Australian*, 19 July 1937, p. 14; *ABC Annual Report* June 1940.
 97. *The Age*, 16 July 1937, p. 13; *Sydney Morning Herald*, 28 July 1937, p. 8.
 98. *Northern Herald*, 5 June 1937, p. 22; *The Age*, 16 July 1937, p. 13.
 99. *The Age*, 16 April 1926, p. 10.
 100. NAA: SP1558/2.
 101. Alison Patrick, ‘Brookes, Herbert Robinson (1867–1963)’, Australian Dictionary of Biography, National Centre for Biography, Australian National University, <http://adb.anu.edu.au/biography/brookes-herbert-robinson-5372/text9089>, published first in hardcopy 1979, accessed online 14 February 2016.
 102. NAA: SP1558/2, extract from letter 12 July 1937 to Cleary.
 103. Millikan proposed atmospheric experiments with balloons. Permission was required from Customs, the Bureau of Meteorology, the Post Master General, and Federal and State governments, and quantities of hydrogen were needed.
 104. NAA: SP1011/2, ABC federal publicity department press release; newspapers often wrote in similar terms, for example, ‘Dr Millikan’s talks are refreshing draught from the fountain of knowledge, golden fruits from the tree of life’ *Northern Champion*, 21 October 1939, p. 8.
 105. MacLeod, already cited (n. 1).
 106. Foster, already cited (n. 1), pp. 197, 219.
 107. Both were married to daughters of Alfred Deakin; see C. B. Schedvin, ‘Rivett, Sir Albert Cherbury David (1885–1961)’, Australian Dictionary of Biography, National Centre for Biography, Australian National University, <http://adb.anu.edu.au/biography/rivett-sir-albert-cherbury-david-8512/text14381>, published first in hardcopy 1988, accessed online 9 April 2017; Alison Patrick, already cited (n. 101).
 108. Paul Hasluck, *The Government and the People, 1939–42* (Canberra, 1952), p. 421.
 109. Its recommendations included the lifting of much political censorship and a minimum Australian content requirement. NAA: A1203, 384/54/AUS.
 110. AASW Archive, ANU E101B/7 Subcommittees.
 111. Joint Parliamentary Committee on Broadcasting, Minutes, Commonwealth Government of Australia, 1942, pp. 115–119.
 112. As above.
 113. LaFollette, already cited (n. 36), p. 134.
 114. Joint Committee Minutes, already cited (n. 111), p. 119.
 115. Inglis, already cited (n. 1), p. 215 notes that Peter Pockley was appointed in 1964.
 116. Muirhead, already cited (n. 1), pp. 62–63.
 117. D. Picken, ‘Thomas Howell Laby, 1880–1946, *Obituary Notices of Fellows of the Royal Society* 1948, 5(16), 733–755.
 118. Alan Colefax, ‘Obituary of William Dakin’, *Australian Journal of Science*, 12 (6) (1950), 208–209.