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Talking Over Water: History, Wireless and the Telephone

For a third of the twentieth century, the only way Antipodeans could talk with people on the other side of the world was by wireless. The submarine cables that traversed the oceans from the 1860s carried messages in Morse Code, ‘telegraphy’, but not voice. From 30 April 1930, the wireless telephone service made it possible to conduct a conversation in real-time between England and Australia. ‘The privilege, which the mightiest monarch could not command twenty years ago for the expenditure of millions, of speaking across oceans, is now within the power of any citizen with a few pounds in his pocket,’ declared the Evening News. (‘Ring up London’) Wireless telephony remained the only way Australians could converse with the world until the 14,000 km coaxial cable across the Pacific, COMPAC, opened in December 1963.

COMPAC linked Australia and New Zealand to Vancouver, where it connected to microwave links across Canada to Montreal and Grosses Roches on the St Lawrence Estuary. There, signals connected into the Commonwealth Atlantic submarine cable linking North America to Europe via a landing point in Scotland. (OTC, 1963) This network turned on its head the technology tradition of the era of international wireless telephony, when oceans were traversed by wireless and continents by cable. The capacity, quality and reliability of the telephone links offered by this new cable, and the Intelsat satellites launched over the next few years, quickly brought short wave, high frequency international wireless telephony to an end.

They did not, however, end the use of wireless for telephony. On the contrary, satellite links eventually dominated the international carriage of voice for a time. Since the 1990s, mobile telephony has boomed, fundamentally transforming the content, practices and commerce of human messaging. Late in 2006, Australia’s biggest telecommunications company, Telstra, launched a new wireless network which would reach around 98 per cent of all Australians. (Telstra, Wireless Broadband) Chief Executive Sol Trujillo said this NextG network marked yet another revolution in personal communications:

I believe today is a very important day in Australia’s history. It’s not a national holiday but it marks a significant milestone that is likely to be noted, I believe, in Australia’s history.
You see this is the day, the sixth of October, in 2006 that life in Australia will be changed forever. It’s going to be changed by a new nationwide, high-speed broadband wireless network. (quoted in Glanville)

This article explores the old era of international wireless telephony at a time when wireless is again transforming social and economic possibilities. It examines the economics and politics of the era, the man most closely identified with the Australian services, the technology employed and the way the service was used, identifying similarities and differences between this period and the present.

**Economics and politics**

The Anglo-Australian wireless telephone service played to the economics and politics of its time, a beacon of novelty and optimism in darkening times, a new link between a distant, industrialising Dominion and the centre of its political, economic and social universe. It opened six months after Wall Street’s Black Tuesday, 29 October 1929. Already in recession and heavily dependent on overseas trade and investment, the Australian economy had been ‘overwhelmed’ by the ‘convulsion’ in global capital flows at the end of 1929. Still relatively open to the world despite increases in tariffs during the preceding decade, the country quickly imported the international slump that would come to be called the Great Depression. (Dyster and Meredith, 123) One of the Government’s first responses was a revised tariff schedule, announced in early April 1930, that prohibited some imports and rationed others. This helped to communicate the seriousness of the situation to the press and the public, shifting the mood from ‘academic concern’ to ‘genuine alarm’. (Schedvin, 141-2) In June, the Smoot-Hawley law signed in the United States increased average tariffs on imported goods to nearly 50%. (Irwin, 150-1) Two years later, the governments of the British Empire toughened preferential trading arrangements, helping to breakdown multilateral trade even further. (Dyster and Meredith, 149) The tentative re-opening of the world economy after World War One dissolved in capitalism’s greatest crisis.

The economic catastrophe was accompanied by a crisis of faith in the politics of capitalism itself. In their book accompanying the Art Deco exhibition at London’s Victoria and Albert Museum in 2003, Charlotte and Tim Benton wrote of this era:

> From the ‘Roaring Twenties’ to the Depression, the inexorable spread of capitalism [was] mirrored by Fascist and Communist totalitarian regimes, while remorseless globalization was accompanied by isolationist nationalism. At the same time, the spread of mass-produced consumer goods, accompanied by the perfection of promotional tools to generate demand, prioritized visual appeal in the seduction of the would-be consumer. From the nouveau riche ‘flapper’ decorating her Parisian apartment to the struggling farmer in the American MidWest leafing through mail order catalogues for new equipment, hope lay in novelty. Never was fantasy so necessary for survival, whether to industry or the individual. (Benton and Benton, 13)
The British Empire was still vast but not as powerful economically or militarily as it had been before 1914, contested both from within by restless territories, and from without, especially by the United States and Germany. It inspired complex responses from Australians simultaneously asserting independence and the strength of their imperial ties. The new telephone service opened with a conversation between British Prime Minister Ramsay Macdonald at Number 10 Downing Street and his Australian counterpart James Scullin in Canberra—the first since Macdonald had appeared on a political platform in Ballarat to support Scullin against Alfred Deakin two decades earlier. (‘First wireless talk links Australia and England’) Macdonald referred immediately to ‘Australia’s present economic difficulties’, advising that ‘whatever action we find it necessary to take to correct our trade balance, it is our earnest desire that the greatest possible co-operation and reciprocity shall obtain in the relations between Britain and Australia’. (‘From London to Canberra’) The service provided distant Australians with a new link to the heart of the Empire, but was praised for using Australian-made equipment:

The men who operated the mechanism last night were Australian trained; the mechanism was Australian made. And the triumph of the Australian wireless system was achieved without the assistance of duties or bounties. It was won in competition with the world. (‘Ring Up London’)

Around the same time, the company that launched the service, Amalgamated Wireless (Australasia), or AWA, announced the acquisition of a site on Parramatta Road at Ashfield, about eight kilometres from the centre of Sydney, where it planned to relocate and expand its electrical manufacturing capacity, especially to meet the growing demand for household radio receivers. The site was being used to assemble Dodge motor cars (‘AWA buys big model park’; ‘Radio Electric Works’), after a failed attempt to produce the ‘Australian Six’, a motor car ‘Made in Australia, by Australians, for Australia’ on the same site. (Powerhouse Museum) A year later, Scullin opened the new AWA facility (Souvenir, 1931), described by the company as ‘An Australian Factory in an Australian Garden’, ‘the factory and the fairyland’. (AWA Premises) Billy Hughes, the crucial political force behind the 1922 recapitalisation of AWA when he was Prime Minister, and a director of the company for nearly 30 years, delighted in using his first turn at the wireless telephone to remind his war-time colleague Lloyd George of the scepticism of 1921, ‘when that massed band of experts said that this could not be done’. Australia, now, was ‘dry in parts, and then we have a lot of pessimists’. (‘Wireless telephone. London-Australia’)

**Ernest Fisk**

Although the wireless telephone service needed interconnection into the Post Office’s landline telephone network to make it useful to individual subscribers, the public face of the new service was Ernest Fisk, AWA’s managing director. Fisk was an Englishman who came to Australia in 1911, aged 24, as the Australian and New Zealand representative of Marconi’s multi-national Wireless Telegraph and Marine
Communications companies. Leaving the British Post Office in 1906 to learn wireless telegraphy a decade after Marconi’s first patent was issued, Fisk was present soon after the birth of the new medium. He was made technical and general manager of Amalgamated Wireless (Australasia) or AWA, formed in Sydney in 1913 to acquire the Australian- and New Zealand-based assets of Marconi and its German rival Telefunken. Four years later, he became its managing director, a position he held until the end of 1944, when he returned to Britain as managing director of the music and consumer electronics giant, Electric and Musical Industries (EMI). The Australian Government acquired a bare majority share in AWA in 1922, boosting its capital to support the establishment of direct international wireless telegraph services. In theory, this gave the government control of the company; in practice, it was controlled by Fisk. The first of these services, with Britain, opened in 1927, and the second, with Canada, in 1928. (Harcourt, 199-201, 215) This and other short-wave directional ‘beam’ wireless services were so successful that Britain’s cable services and Marconi’s wireless interests were soon amalgamated into the company that became Cable and Wireless. (Barty-King, 203-227; Headrick, 206-8)

Just as Fisk became ‘an Australian born in England’, his wireless company, founded through the Pacific expansion of European multinational enterprises, became an Australian business, though it remained tightly connected into an international network of technologies, institutions, services and people. Fisk and AWA’s relationships with Marconi enlarged the story of wireless in Australia and New Zealand into something global and historic. The irreverent Smith’s Weekly captioned a drawing of the AWA managing director on a tightrope:

Young Fisk’s people didn’t know what to put him to, until Mr Marconi saw him walking a la Blondin [a nineteenth century French tight-rope walker and acrobat] along some wires. He said to the little chap, “How would you walk along there if there were no wires?” Fisk said, “Walk by wireless, of course.” So Marconi thought about wireless and that’s how Fisk is the boss of Amalgamated Wireless today. (Episodes)

By 1930, the press was in no doubt who was responsible for Australia’s new wireless link with the world, and where he now belonged. ‘Mr Fisk has emphatically shown himself a good Australian in pushing Australia ahead in the field of science,’ said Sydney’s Evening News.

Some quiet pacific men have revolutionized the world. Arkwright, Stephenson, Bell, Edison and Marconi...If Mr Fisk has not revolutionized the world, he has created a revolution in Australia, a bloodless revolution that brings benefit and not disaster in its train. Of such men is Australia proud. (‘Ring Up London’)

*Technology and science*
Wireless, in 1930, could do something that cable could not. It was the only way telephony could be carried across large bodies of water in the decades before reliable submarine telephone repeaters were developed that could be linked in a long series (there were 350 along the length of COMPAC). Wireless telegraph cables had carried morse code signals under the oceans since the 1860s, but in 1935, when the Australian Post Office laid a 161 nautical mile cable across Bass Strait that opened for service the following March, it was the longest underwater telephone link in the world. (PMG’s Department Annual Report 1935/36, 15; Hayes and Anquetil; Adams, 17; Moyal, 144) The cable failed in 1937 and was repaired and supplemented by a wireless service. (PMG’s Department Annual Reports 1937/38, 1938/39, 1939/40; Watson; Moriarty) Not until 1956 was the Atlantic traversed by a telephone cable. (BT, 56) The unique capability of wireless at the time and the relative cost of the infrastructure meant East Coast Australians could talk to London in 1930 several months before a landline telephone link across the NullaborPlain allowed them to talk to those in the west, and six years before they could talk to Tasmanians (Moyal, 140-44; Apollo Bay Cable Station, site visit, 10 February 2007). The telephonic isolation of the island state was not lost on one correspondent to The Argus in 1931, when the head of the Post Office announced the expansion of the international service to reach subscribers in South America and Italy. (‘Telephone to Tasmania’)

The telegraph had brought global electronic communication within the reach of many, but its specialist language required the intermediation of trained telegraphists. It was wireless that allowed people on opposite sides of the earth to converse directly in the language they used for everyday speech. This first occurred in Australia when Fisk, working from the experimental facility at his home in Vaucluse, Sydney, received a short wave transmission from Marconi’s station at Poldhu in Cornwall. (‘“Hello, Australia! – England Speaking!”’) Long wave wireless telegraphy had struggled to compete effectively with submarine cables, but by the early 1920s, long wave trans-ocean telephony loomed as a unique commercial opportunity for wireless. Marconi’s success with long distance short wave telegraphy and telephony experiments from 1923 completely transformed the quality and economics of both, although there were still major technical difficulties to overcome. (Hugill, 125-34) A commercial wireless telephony service opened across the Atlantic in January 1927. (Vyvyan, 176-82) AWA first demonstrated trans-ocean wireless telephony to an audience of newspapermen and the United States Consul in Sydney in October 1928, communicating with the American General Electric Company in Schenectady and the Dutch East Indies Radio Company in Java. (Durrant, 7-9)

International wireless telephony was part of a constant stream of wireless innovations at the time. Direct wireless telegraph communication between Europe and Australia was achieved during the First World War and demonstrated just before it ended (‘Wireless. First messages from England’), before being launched commercially in 1927. Radio broadcasting was demonstrated over a short distance in Sydney in 1919 (‘Music by wireless’) and services were licensed a few years later. Fisk and AWA staged their first short wave ‘Empire Broadcast’ from Sydney in September 1927, which was relayed by the BBC’s 2LO in London. (‘Broadcast from Sydney to the Empire’; ‘Successful Empire
Broadcast. Countries linked.’) A regular, though still officially ‘experimental’, short wave service was commenced in 1931 and continued until the war when public services were launched. A commercial picturegram service, transmitting still images between Australia and Britain, was opened in 1934. (‘Pictures by wireless’) Each new service, launched on the politically, economically and socially crucial Australia-Britain route, enriched the overall sense of this as a wireless age, where there seemed no limits to what the medium might achieve. As the international services expanded steadily, the mainly domestic medium of radio broadcasting grew rapidly as well. The number of new radio listener licences grew more strongly in the 1930s than the 1920s. (author calculations from ABCB, 9) By contrast, the motor vehicle industry that had preceded AWA’s manufacturing at Ashfield crashed in the Depression—motor vehicle registrations did not reach their 1926/27 peak again until after the war. (Forster, 56)

The Sydney Sun linked the revolution in communications to changes in transport, comparing the overseas wireless telephone service to the new marvel of the Brisbane Air Mail taking off each morning at a few minutes after eight, bound for Sydney. It was in awe at the wireless telephone, ‘a human achievement in its own way as great as the writing of “Hamlet” or the Seventh Symphony’, thinking it ‘raises the question of the possible limits of human technique and mastery over physical phenomena’. (‘Ring up London’) Marconi himself imagined individual subscribers with wireless telephones in their houses, aeroplanes without pilots, and wireless transmission used against enemies to ‘redirect aeroplanes against the original assailants’. (‘Future of Wireless’) Fisk promised ‘an even more wonderful age ahead of us; we cannot exhaust the infinite’ (‘Radio era. Next step’), and later famously contemplated using wireless to communicate with the dead. (‘Talking to dead by radio’; ‘Sir Ernest Fisk explains ionosphere speculation’)

Using the wireless telephone

International wireless telephony was an expensive novelty. Calls cost £2 per minute with a minimum of three minutes (Moyal, 141), so the cheapest call cost the contemporary equivalent of over $350. Durrant estimates this was equivalent to 1.5 weeks’ pay for a worker on the average weekly wage. Sixteen years later the nominal cost had halved, and the cheapest call cost equated to about half the average weekly wage. (Durrant, 15) By comparison, ordinary rate international telegrams in 1930 cost 1s 8d a word, or 4d a word for press telegrams. (‘Beam Wireless to England’) Initially, there was just a single wireless telephone circuit, so only one international telephone call could take place at a time. On opening night, there were twelve booked from London and eight from Australia. (‘Calling London by phone’) The service was quickly interconnected with landline networks at both ends, enabling most telephone subscribers in both countries to make international calls. It was also connected to further wireless links across the Atlantic and from Sydney to New Zealand and Rabaul. In December 1938, a direct service opened between Sydney and San Francisco. Less than a thousand international calls were made and received by Australians in 1931/2, nearly 6,000 in 1938/9 and just over 22,000 in 1945/6. (PMG’s Department Annual Reports, 1930/1, 1931/2, 1938/9, 1945/6; Moyal, pp. 140-4)
The rare individuals who experienced the new facility were struck by the experience. Alasdair Cooke recalled that, in the mid-1930s, ‘telephone calls between London and the United States were placed only by the Rockefellers, Presidents of the United States, and export-import millionaires’. (quoted by Moyal, 141) Fisk arranged for the headmaster at his sons’ school, Geelong Grammar, to call his mother in England the year the Anglo-Australian service opened. It ‘alarmed her greatly’. (Darling, xiii) The mother of the captain of the Australian cricket team touring England in 1930 said she ‘wouldn’t mind speaking to Billy [Woodfull] myself’, but only ‘if he makes a couple of hundred in the first Test’. The cricketer’s brother was so ‘astonished and pleased’ with the news that Bill had spoken by telephone from England that he ‘went off at once to tell his father, the Reverend T.S. Woodfull’. (‘Wonderful, says Mrs Woodfull’) The New South Wales members of the team assembled in dressing gowns and overcoats at 7 o’clock one morning at the Midland Grand Hotel for a telephone call to their families, gathered at an office in the St James Building in Elizabeth Street, Sydney. The 21-year-old Don Bradman, who would score more runs in the coming Ashes series than anyone before or since, waited for his turn after Bert Oldfield, Alan Kippax, Archie Jackson, Stan McCabe and A.G. Fairfax. He told Mr, Mrs and Miss Bradman England was ‘a very beautiful country and he was not feeling the cold’. (‘Anglo-Australian Telephone’)

**The Next wireless revolution**

The NextG wireless network was launched in 2006 in very different economic circumstances to the Anglo-Australian wireless telephone service three-quarters of a century before. The Australian economy had been growing uninterrupted for a decade-and-a-half, its longest boom ever. Its connections to the global economy were ‘thicker, more varied, richer, and more complex than ever before’. (Edwards, 8-11) The British Empire had long gone; Australia and Australians connected to a wider range of overseas markets and people. After the boom and bust of the Dot Com era in the late twentieth century soured the idea of the information economy, the continued success of companies like Microsoft, eBay and Nokia, the resurgence of Apple and the emergence of Google had confirmed the significance of information and communications not just as sectors in their own right, but as enablers of innovation and growth throughout the whole economy. Just as the wireless telephone was devised and promoted as a product for its times, personalized wireless devices that use networks like NextG are iconic products for this changed environment, engines and emblems of a mobile workforce, liberal markets and consumer lifestyles.

No single person dominates public perceptions of contemporary Australian wireless as Ernest Fisk did in the 1930s. Sol Trujillo, at Telstra, is highly visible, but his mission is as much about organizational change as it is about particular technical breakthroughs. NextG is part of the ‘fundamental transformation’ of Telstra into a ‘world-class company’, no longer a government agency, community property or just a telephone company, but ‘a communications company that is preparing to combine high-speed transport with digital content to meet the changing needs of our business and consumer
customers – no matter where they live here in Australia’. Telstra is becoming ‘a new kind of company – what I like to refer to as a media communications company’ (Trujillo, June 2006). Fisk Australian-ised AWA while keeping it within a global network of wireless companies. Trujillo is globalizing an Australian company while stressing its still special relationship to all Australians, the one telecommunications company that can be relied on to provide services right across the continent. Fisk eventually made his history and global links work for him. His Marconi roots bequeathed a reputation both for pioneering innovations and sharp dealing with government; AWA’s Telefunken origins were excised during the First World War, but lingered in the perceptions some people retained about Australia’s wireless giant. Fisk freed AWA from Europe’s control, while preserving access to technical prowess. Trujillo’s American origins encouraged Australians to see the new man in charge of the old Australian communications enterprise as a mix of slasher-capitalism and marketing hype; the all-American executives he imported were given the racist moniker, ‘The Three Amigos’. Politicians in Fisk’s time were constantly angered by the independence of a chief executive whose company they thought they controlled. Politicians today, curiously, are uncomfortable with the independence of a chief executive whose company they sold.

The wireless telephone had the business of two-way, trans-oceanic voice communications to itself for three decades. The technology used for the NextG network is one of many vying to deliver voice, text, images and data to fixed and mobile receivers. This 3GSM (or HSDPA - High Speed Downlink Packet Access) network uses spectrum in the 850MHz band to deliver promised peak download speeds of up to 3.6Mbps initially, increasing up to 14.4Mbps early in 2007, and average speeds of 550Kbps to 1.5Mbps (Telstra, 6 Oct 2006). Within a few months of its launch, the federal government had committed around $1 billion to a rival consortium to build a competing network in country Australia using a different technology, WiMAX, promising download speeds of 12Mbps. In the cities and big regional centres, both major political parties have plans for a new fibre-to-the-node cable network as well. (Coonan) No-one now imagines, as some did in the 1930s, that wireless would ultimately replace cable, a more modern and versatile and cheaper technology than the telegraph cables that had been laid under and across land and sea for nearly a century. On the contrary, wireless and cable are both now seen as part of an even broader group of information and communications technologies that have come to be described as ‘general purpose technologies’, affecting ‘every industry and every service, their interrelationships, and indeed the whole way of life of modern societies’. (Soete and ter Weel, 1)

These new networks are not sold as miraculous or magical, like the wireless innovations of the 1930s, but as inevitable, perhaps even overdue additions to the tools of individual choice. ‘Faster. Simpler. Everywhere you need it.’, Telstra promises NextG will offer connection ‘Anytime, Anywhere’—though the competition and consumer regulator has forced it to constrain the extravagance of these representations in its television advertisements. (ACCC) This kind of promise is a profound change from joining the queue to speak with London, waiting on limited service hours, any other customer who had got in first, and technology whose effectiveness varied considerably at different times of the day. The new wireless networks connect the user to the world like the wireless
telephone, but they are not marketed as such heroic conquerors of distance, or binders of imperial space. They enable small, private experiences, but promise to locate them anywhere, anytime. ‘Hold a Samsung Mobile,’ declares one advertisement, ‘and you’re holding the whole world.’ (Samsung) What these new networks will be used for is uncertain. The international wireless telephone transformed communication between people, but this function might be overshadowed in the future by the expanding web of wireless connections between things—a future anticipated by The Economist as a place and time ‘when everything connects’. (Cukier) The cover graphic of the magazine’s 28 April 2007 issue showed wireless devices embedded in a host of places, exchanging messages with other devices: a refrigerator low on milk, a device in a human body warning that blood pressure was too high, a lost key notifying its location, fruit on a tree advising it was ripe for picking. Entirely invisible, these chips and the networks linking them together ‘could yet prove to be the most potent wireless of them all’.
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