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Year 2002

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Politics, Law and Economy of Radio
Spectrum

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This article was originally published as Mohr, R, Making Money Out of Thin Air: The Politics, Law and Economy of Radio Spectrum, Australian Financial Review, 8 February 2002.

This paper is posted at Research Online.

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Making Money Out of Thin Air: The Politics, Law and Economy of Radio Spectrum

Originally published in the Australian Financial Review, 8 February 2002

Richard Mohr

Reporting on the Australian government's windfall of \$1.3 billion from the auction of radio spectrum in 2000, the Australian Financial Review on 5 May quoted Ian Hayne, the man responsible for the marketing exercise, as saying, "This is better than selling sand to the Arabs or ice to Eskimos... We are really selling nothing here." More circumspectly, he added, "Maybe I shouldn't say that; this is about the right to use a natural resource."¹ Some of his New Zealand counterparts may have thought he should not have said that, either, since they were disputing Maori claims to radio spectrum as a natural resource under the treaty of Waitangi.

The commodification of radio spectrum, that is, turning it into something that can be bought and sold by establishing property rights over it, is another chapter in the long history of the transformation of a variety of goods into commodities. In various historical times land, animals, metals and even people have been transformed into commodities. Since at least the time the nineteenth century anarchist Joseph Proudhon declared 'property is robbery'² there has been a deep suspicion of private property. Karl Marx caricatured the 'commodity fetishism' of his time by suggesting that commodities had a life of their own, with their owners mere 'guardians' through whom the commodities entered into relations with each other.³ On the other hand the neglect of publicly owned resources has been characterised as 'the tragedy of the commons', a counter-slogan coined some one hundred and thirty years after Proudhon's.⁴ In a world dominated by private property slogans and neo-liberal solutions more and more goods may be bought and sold: fishery rights, water rights and tradeable carbon emissions and carbon sinks. Property ownership, based in contract or title, is the outcome of wide-ranging contests between different interests, often mediated by the state, and constituted by law.⁵ The fact that property is a legal relationship, rather than a thing, is nowhere clearer than in the case of the 'nothingness' of radio spectrum.

Though the practical implications of radio spectrum were not understood one hundred years ago, wavebands have recently been auctioned first in New Zealand in 1989, the United States in 1993 and Australia in 1998. Debate over commodification and potential uses of radio spectrum spans many issues. This article considers the role of the US-based law and economics movement and various positions on ethnic and linguistic politics and national sovereignty in New Zealand, Cuba and Spain. Before exploring some of these social, political and legal issues, we need to clarify what radio spectrum is, and how its technological potential may be developed.

The 'map' of radio spectrum is calibrated in multiples of a thousand Hertz. At the lowest (kilohertz) frequencies are the medium wave AM radio stations, then citizen

band (CB) and, getting into megahertz, VHF television and FM radio. Between these frequencies and those used for UHF television lie the frequencies used for communication between aircraft and between ships, with a substantial band for military purposes. Getting up towards 1,000 megahertz, or one gigahertz, the frequencies are at present mainly used for mobile telephones. These are the frequencies which were auctioned in Australia two years ago (1.8 GHz). Of course, apart from the range and directionality of the signal, there is nothing predetermined about what sort of data or messages may be used at each frequency. As Jock Given pointed out in the *AFR Review* (7 December 2001) it has taken a hundred years to work out the various ways we currently employ radio waves.⁶ A new proposal called 'mesh radio', being trialled in Cardiff in Wales, uses the 28 GHz frequency to beam internet, movie and other data between buildings in urban areas as a means of vastly increasing the speed of internet data delivery and choice of television or other programming.⁷ New ways of employing wave bands are still being developed, limited only by our technology, our imaginations, and, of course, the number of wavelengths available while avoiding interference.

Radio spectrum may also be mapped in other ways, onto territory. Generally speaking, the lower the frequency, the further the waves can travel. 'Short wave' radio travels round the world. At the highest frequencies, you need line of sight to a transmission tower or satellite. So the reach of particular spectra may, depending on the medium and power of their transmission, reach a 'footprint' on earth, a whole continent, the next country or the next building. This sort of map of radio spectrum looks much more like a geo-political map of the earth. The trouble is, as we will see in examples from Cuba and Spain, radio waves don't necessarily respect the same borders as governments.

The territorial dimension has not been a major feature of debates on radio spectrum, and yet, as will become clearer, we can't ignore territorial maps, of nations and language groups, when we consider competing uses of radio spectrum. In allocating frequencies by regulatory licence or property rights governments assume administrative control, or even sovereignty, over radio spectrum usage on their territory. Such rights as property in land can be accurately mapped onto national territory. They are more amenable to control within state borders than radio waves beamed out from transmission towers, relay stations and satellites. The disparate maps of radio spectrum and geo-politics make for a more complex mix of law, politics and property in frequency allocation. Sovereignty itself is at the heart of some of the disputes on which this article focuses.

These geo-political realities have been neglected in much of the debate over the commodification of radio spectrum. The law and economics movement, whose US-based *Journal of Law and Economics* is the flagship of neo-liberal legal theory, directed attention to the market potential of this scarce resource over forty years ago. The most influential article from that journal is Robert Coase's 'The Problem of Social Cost' (1962), analysing the problem of interference and cost allocation among competing uses.⁸ That article arose, as Coase said in a footnote, 'out of the study of the Political Economy of Broadcasting which I am now conducting'.⁹ He had begun to develop his 'social cost' argument in the very first volume of that journal in 1959, where he took up an earlier suggestion¹⁰ that the allocation of frequencies should be

by the market mechanism of auction, rather than by the current system of regulation. Coase wrote:

'But it is a commonplace of economics that almost all resources used in the economic system (and not simply radio and television frequencies) are limited in amount and scarce, in that people would like to use more than exists. Land, labor and capital are all scarce, but this, of itself, does not call for government regulation. It is true that some mechanism has to be employed to decide who, out of the many claimants, should be allowed to use the scarce resource.'¹¹

Coase quoted Chief Justice Taft of the US Supreme Court, who compared radio frequency allocation with 'trying to interpret the law of the occult, it seems like dealing with something supernatural'. Coase concluded, 'It was indeed in the shadows cast by a mysterious technology that our views on broadcasting policy were formed. It has been the burden of this article to show that the problems posed by the broadcasting industry do not call for any fundamental changes in the legal and economic arrangements which serve other industries.'¹² In other words, he said that radio spectrum should be allocated by market forces and legally regulated as private property.

The Journal of Law and Economics returned to the topic of radio spectrum in 1998, devoting a special issue to the subject.¹³ Nearly forty years after Coase's proposal in their pages, and five years after the US Federal Communications Commission's first public auction of radio spectrum, the law and economics community had a victory to celebrate. The path-breaking role of New Zealand was discussed, more radical proposals (licence-free access on a pay-as-you-go basis) were aired, and threats to free speech were canvassed and debunked. Throughout some 300 pages concern with the social implications of radio spectrum and its uses did not extend much beyond the question of free speech.

Radio spectrum is primarily a means of communication, so it raises a range of issues in relation to information, language and culture. In order to better understand the social and political implications of the regulation and ownership of frequencies, it is possible to examine several recent disputes over radio spectrum. I will consider three disputes with crucial social and political dimensions. Only the first of these, Maori claims under the Treaty of Waitangi, relates directly to the sale of radio spectrum. However, each of them illustrates the special nature of radio spectrum as a resource for disseminating information, language and culture, and each involves the struggle for survival of particular languages and cultures (Maori, Basque) or political regimes (Cuba). Allocation or control of radio spectrum is central to each of these struggles.

Since property rights and other legal arrangements are, as I said above, the outcome of competing interests which are usually mediated by states, these disputes over spectrum illustrate some of the interests and some of the means which they may use in the struggle for control of the radio waves. These cases are complicated by the fact that each involves a dispute between states, putative states, or 'nations' in the sense of ethnic groups laying claim to some degree of sovereignty over territory and other resources. These resources include radio spectrum.

The New Zealand government, recognised as a pioneer in the commodification of spectrum, passed an act to allow the auction of spectrum in 1989, at a time of critical Maori concern over the loss of the language and culture. Those concerns had been recognised by the Waitangi Tribunal and by the Maori Language Act 1987. The sale of radio spectrum raised further issues in regard to Maori access to natural resources, and to communication media which could be used to disseminate the language and the culture. Specifically, the 2GHz frequencies could be used for video-conferencing, tele-working at distance education by narrow-casting between schools, homes and community centres.

My account here rests on the work of legal academic Cheryl Britton, now at the University of Waikato Law School. She has documented the dispute between Maori interests and the New Zealand government, culminating in the most recent sale, in 2000, of rights to radio spectrum in the 2 GHz range.¹⁴ She argues that both radio spectrum and Maori language and culture constitute taonga (valued resources) under the Treaty of Waitangi, claims supported by the Waitangi Tribunal. Accepting that the New Zealand Government had an administrative right (kawanatanga) under the Treaty, to manage resources (through, for instance, licensing schemes) Britton denies that this right extends to a sovereign right to alienate the radio spectrum resource as private property. She backs this argument by comparing the property rights to spectrum (under the NZ Radiocommunications Act 1989) with those to land, including rights to transfer, mortgage, among others. She argues that the alienation of property constitutes an exercise of sovereignty (tino rangatiratanga) which is not available to the Crown without consultation and sharing with Maori.

Arguments against this Maori claim used the common colonial ploy of seeking to freeze colonised peoples in time. In 1999 Australia's High Court was asked to deny an Aboriginal man, Mr Yanner, his traditional hunting rights because he used an outboard motor. He succeeded in part because he had used a spear to catch a crocodile.¹⁵ Indonesian fishermen may access waters around the Ashmore Reef provided they use traditional navigational methods, thus making it very difficult for them accurately to avoid forbidden Australian territorial waters.¹⁶ According to similar arguments, radiospectrum was not a Maori resource since they did not use the 2GHz waveband in 1840 when they signed the Treaty of Waitangi, though it was argued that they used electromagnetic fields for navigation. Of course, neither were the British colonisers broadcasting at 2GHz in 1840.

Despite these arguments and the support of the Waitangi Tribunal, the New Zealand government sold the 2GHz frequencies in January 2001, reserving one block of the spectrum for the use of Maori interests. This was not reserved for them as a rightful part of their heritage or taonga, but was to be sold to them at a 5% discount off the average price of the other successful bids.

The relationship between sovereignty and radio spectrum is at the heart of another dispute, between Cuba and the United States. In May 1985 US National Security Decision Directive 170 established Radio Martí, under the aegis of the Voice of America, to broadcast to Cuba 'in a manner consistent with the broad foreign policy of the United States'. The directive authorised use of the 1180 KHz (AM) radio band, and a shortwave frequency. Anticipating jamming by the Government of Cuba, Congress

authorised monitoring of interference on the 1180 band, and set aside money to compensate any broadcasters in the United States who may have been adversely affected. In 1997, due to lack of claims and the irrelevance of this provision, it was repealed.¹⁷ Cuban jamming may not be impacting on US broadcasters, but the Cuban Government continues to be concerned at interference with what it sees as its sovereign right to regulate its radio waves. In a legal opinion piece in the official Cuban newspaper *Granma* (17 March 2001), Santiago Cuba Fernandez wrote, 'The protection, control and defence of radio spectrum is, for any country, as important as that of its territory, seas and territorial waters, since it constitutes part of its sovereignty.'¹⁸ He cited United States 'repeated' and 'permanent' aggression in the field of radio spectrum as one of the stimuli to the recent establishment of an agency devoted to the control and supervision of radio spectrum.

In the case of New Zealand and Cuba, the territorial boundaries of these island states is not in dispute in regard to radio spectrum. Sovereignty figures in these disputes as a result of contests for control of the resource between parties to a treaty (Maori and Pakeha) and between different sovereign governments (Cuba and USA). In New Zealand the dispute hinges on the Waitangi distinction between administration and sovereignty and the implications for the latter of definition and alienation of property. The Cuban analogy of defending state territory against external aggression recalls the territorial wars of the nineteenth and twentieth centuries and their echo in the Cold War, which is still being waged across the strait between Florida and Cuba.

The question of state territory as well as sovereignty is at the heart of Spanish disputes over radio spectrum. Franco's long rule insisted that Spain was a monolingual state, with centralised, state-owned radio and television networks. After directing the Luftwaffe to bomb Guernica, a town symbolic of the Basque's ancient legal rights, Franco outlawed the speaking of Basque. By the 1970s the Euskera language-anchor of Basque culture-was, like Maori, in a perilous state. The return to democracy and the development of autonomous regions based in linguistically distinct Catalonia, Galicia and the Basque Country introduced, via the statutes of autonomy, a mandate to develop local language television and radio stations. The Basques began transmitting through Euskal Telebista (ETB) in 1982, followed by the Catalans in 1983 and Galicians in 1984. While the regional broadcasting authorities accept the central role of Madrid to allocate radio spectrum, they have not always been prepared to wait for licences before they begin broadcasting. In *The Spectacle of Democracy*, Richard Maxwell tells of the head of Basque broadcasting refusing to take a call from Madrid on a day in 1988 that a new Basque radio channel 'occupied' another wavelength. "Let them call. I know what they'll say and I don't care. We have another radio channel, and that's all that matters." If Madrid had the right to allocate spectrum via national rights and exclusive coverage of Spain within the European Broadcasting Union, the Basques had the right to transmit under the statute of autonomy. Transmit they did, and they continue to beam radio and television across the autonomous region of Euskadi. Maxwell concludes, "They may have been nations without states, but the Basque Country and Catalonia still had their own broadcast networks. In the territory of electronic regions, if nowhere else, the Basques and Catalans enjoyed sovereign status-at least for the time being."¹⁹

This territory of electronic regions continues to define its own borders, which do not always respect the political borders of the regions, nor even the nations of Spain,

France and Portugal. Basque television reaches far into Navarra, a neighbouring province with a substantial Basque minority, and into Iparalde, the 'northern Basque provinces', which just happen to be on the French side of the border. Catalan broadcasts reach into the linguistically-related Occitan areas of France, and Galician can be heard in northern Portugal. Some of these broadcasts come from transmitters within their home regions, but others beam from relay stations constructed in the neighbouring areas by town councils or political parties. Jaime Otamendi, head of news for the Basque ETB television and radio, told me in May 2001 that, much to the chagrin of the Navarrese authorities, most of Navarra receives Basque television from a relay built on a church-owned mountain controlled by a very old priest who supports the survival and revival of Euskera among his parishioners. A week before my meeting with Otamendi, the Popular Party, which rules in Madrid and in Navarra, had unsuccessfully contested the Basque regional election on a platform which included stopping ETB reporting Navarrese news.

This is an incomplete story, because radio spectrum is still only partially commodified in countries such as New Zealand and Australia. At the same time, it is still only partially confined to political borders in Cuba or Iberia. Sale of the 1.8 or 2GHz spectrum may not foreclose all the democratic and experimental uses that may occur to Basque, Maori or other activists reviving their language and culture. It is important to recognise, however, that even this low-range high frequency has potential to carry signals other than mobile phone chatter, as illustrated by the 'mesh radio' trials in Cardiff or Maori proposals for distance education and video conferencing. We cannot expect either the market forces advocates of the law and economics community nor the media and telecoms moguls to draw a line below 1.8 GHz and regard the battle as won. An exclusive focus on economic definitions of resources and their potential uses neglects the fascinating possibilities of culture and language, and the ambiguities of geography and sovereignty which are still being played out in the realm of radio spectrum. As an evolving chapter in the history of commodification, radio spectrum is a space worth watching.

NOTES

1. Toohey, Brian. "Selling 'Nothing' Adds A Big Something." *Australian Financial Review*, 5 May 2000, 19. p 19.
2. Proudhon, Pierre Joseph. "What is Property?" In *The Anarchists*, edited by I. L. Horowitz, 87-106. New York: Dell, 1964. p 87.
- 3 Marx, Karl. *Capital: A Critique of Political Economy*. Translated by S. Moore & E. Aveling. 3 vols. Vol. 1. The Process of Capitalist Production. Chicago: Charles H. Kerr & Co., 1919. p 83.
4. Rose, Carol M. "The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems." *Minnesota Law Review* 83 (1998): 129. referring to the title of Garrett Hardin's 1968 article.
5. Compare Islamoglu, Huri. "Property as a Contested Domain: A Reevaluation of the Ottoman Land Code of 1858." In *New Perspectives on Property and Land in the Middle*

East, edited by Roger Owen. Cambridge, MA: Harvard University Press, forthcoming. pp 5-9.

6. Given, Jock. "Mr Marconi's Music." *Australian Financial Review*, 7 December 2001, *Review* p 1-2, 11.

7. Fox, Barry. "The Net Next Door." *New Scientist*, 24 November 2001, 22.

8. Coase, R. H. "The Problem of Social Cost." *Journal of Law and Economics* 3 (1960): 1-44. This was 'the most cited article on law' according to Robert C. Ellickson, *Order Without Law: How Neighbors Settle Disputes*. Cambridge, MA: Harvard University Press, 1991. p 2.

9. *ibid.* note 1, p 1.

10. Proposed by Leo Hertzler in volume 18 of the *University of Chicago Law Review* (1951).

11. Coase, R. H. "The Federal Communications Commission." *Journal of Law and Economics* 2 (1959): 1-40. p 14.

12. *ibid* p 40.

13. Volume 41 no. 2.

14. Britton, Cheryl. "Indigenous Peoples' Claims to Radio-spectrum Resources in New Zealand." Paper presented at the ALTA Conference, University of Canberra, 3 - 5 July 2000.

15. *Yanner v Eaton* [1999] HCA 53 (7 October 1999)

16. *Troubled Waters*, documentary directed by Ruth Balint, screened SBS Australia, 9 November 2001.

17. Federal Communications Commission, Removal of the Rules Implementing S 7 of the Radio Broadcasting to Cuba Act, adopted 29 July 1997. <http://www.fcc.gov/Bureaus/Compliance/Orders/1997/fcc97266.txt> accessed 4 April 2001.

18. Fernandez, Santiago Cuba. "Defender el Espectro Radioel ctrico." *Granma*, 17 March 2001, 2. p 2.

19. Maxwell, Richard. *The Spectacle of Democracy. Spanish Television, Nationalism and Political Transition* (Minneapolis: University of Minneapolis Press, 1995), pp 111-112.

Acknowledgements

Cheryl Britton's work gave this article its initial impetus. It was assisted by ideas, references and contacts from Jacqueline Urla at the University of Massachusetts,

Amherst, and the facilities of the International Institute for the Sociology of Law, Oñati, in the Basque Country. Thanks also to Silvia D'Aviero, John Brigham, Ian Burnett, Roger Lewis, Scott Grattan and Jaime Otamendi.

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