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Refereed Scholarly Journal Articles

“What Comes First, Technology or Science? Clues from the Field of Energy Conversion Technology,” *Social Studies of Science* (under review, October 2020). Dmitry S. Smirnov & Kelvin W. Willoughby.

“Reverse Innovation, International Patenting and Economic Inertia: Constraints to Appropriating the Benefits of Technological Innovation,” *Research Policy* (under review, August 2020). Kelvin W. Willoughby & Nadezhda Mullina.

“Customized to Fit: Intellectual Property Management in Innovation-focused Co-creation Projects,” *The Journal of Product Innovation Management* (under review, July 2020). Anja Tekic, Kelvin W. Willoughby & Johann Füller.

“Contextual Factors Affecting Patent Licensing Provisions in Collaboration Agreements of Complex Technological Organizations,” *International Journal of Intellectual Property Management* (accepted for publication, in print, 8 June 2020). Punyapat Saksupapchon & Kelvin W. Willoughby.

“Intellectual Property Management, Dynamic Capabilities and Competitive Innovation in the Commercial Aircraft Industry,” *International Journal of Intellectual Property Management* (accepted for publication, in print, 12 May 2020). Punyapat Saksupapchon & Kelvin W. Willoughby.

“Endogenous innovation, outward-bound international patenting and national economic development,” *Journal of Technology Transfer*, 45, 3 (2020), 844-869.
Kelvin W. Willoughby.
<https://doi.org/10.1007/s10961-018-9705-1>

“Configuring intellectual property management strategies in co-creation: A contextual perspective,” *Innovation: Organization and Management*, 22, 2 (2020), 128-159.
Anja Tekic & Kelvin W. Willoughby.
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“Interorganizational cooperation, knowledge intensity and the sources of innovation in the bioscience-technology industries,” *Knowledge, Technology and Policy*, 18, 3 (2006), 56-73.

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“Generic strategies and action modes: A philosophical challenge for strategic management,” *Journal of International Business and Economy*, Fall (2000), 69-90.

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"The economic-development potential of California's biotechnology industry," *International Journal of Technology Management, Biotechnology Review*, 1 (1993), 11-27.

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"Transfer or generation? Biotechnology and local industry development," *Journal of Technology Transfer*, 15, 4 (1990), 31-38.

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Kelvin W. Willoughby.

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Books / Monographs

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Anja Tekic & Kelvin W. Willoughby, "Intellectual property management in co-creation: Exploring the value of contextual and configurational perspectives for the development of strategy by employing the Qualitative Comparative Analysis methodology," Paper for the 79th Annual Meeting of the Academy of Management, Boston, USA, 9-13 August 2019.

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Kelvin W. Willoughby and Alexander Vidiborskiy, "Technological Innovation, International Patenting and National Economic Development: A Multinational Multi-year Study," INFORMS (Institute for Operations Research and the Management Sciences) 2016 Annual Meeting, Nashville, Tennessee, November 13-16, 2016.

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"Intellectual Property and Technology Start-ups: Size Matters," INFORMS (Institute for Operations Research and the Management Sciences) 2012 Annual Meeting, Phoenix, Arizona, October 14-17, 2012.

"Standing Apart in the Crowd: Alternative Pathways for Economic Development in Minnesota through BioBusiness," Economic Development Association of Minnesota, 2006 Winter Conference, Minneapolis, January 19-20, 2006.

"How do entrepreneurial technology firms really get financed, and what difference does it make?" Paper for the Annual Meeting of the United States Association for Small Business and Entrepreneurship, Tucson, Arizona, January 12-15, 2006.

Kelvin W. Willoughby, "Four Heterodox Ideas about Technology and Economic Development," Paper presented to the International Association for Management of Technology, Annual Conference, Vienna, Austria, May 2005.

Kelvin W. Willoughby and Edgar C. Harrell, "Networking: The Key to Strong Performance in Technology Incubators," Paper presented to the International Association for Management of Technology, Annual Conference, Vienna, Austria, May 2005.

Kelvin W. Willoughby, "The 'Affordable-Resources' strategy and the 'Milieux-Embeddedness' strategy as alternative approaches to growth for entrepreneurial firms in the biotechnology industry," Paper, Academy of Management Conference, August 2000, Toronto, Canada.

Kelvin W. Willoughby, "Alternative strategies for success in technology incubators: Evidence from Maryland, New York, California, Utah and Australia," National Business Incubator Association, National Conference, Cleveland, Ohio, May 2000 (with E. Harrell).

Kelvin W. Willoughby, "Informal Communication, Formal Collaboration, and the Growth of Research-Intensive Entrepreneurial Firms in the Biotechnology Industry," Paper presented to the 1999 Babson College/Kauffman Foundation Entrepreneurship Research Conference, University of South Carolina, Columbia, May 12-15, 1999.

Kelvin W. Willoughby, "Strategies for Interorganizational Activity in Industrial-Technological Networks: Communication and Collaboration in Commercial Biotechnology," Paper presented to Thirteenth International Conference of the Strategic Management Society, Chicago, Illinois, September 12-15, 1993.

Kelvin W. Willoughby, "Innovative Milieux and the Role of Knowledge Based Industries," Paper presented to Fourth International Workshop on Technological Change and Urban Form, CIB W72, University of California at Berkeley, April 14-16, 1993.

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Kelvin W. Willoughby, "Biotechnology and Economic Development in New York State," Paper presented to 2nd Annual Meeting of New York State Network for Economic Research, Nelson A. Rockefeller Institute of Government, State University of New York. Albany, New York, 26th September, 1991.

Kelvin W. Willoughby, "The Regional Form of Advanced Technology Industries: Clues from the Case of Biotechnology in California," Paper presented to the 30th North American Meeting of the Regional Science Association, Santa Barbara, California, November 10-12, 1989.

Kelvin W. Willoughby, Report of Workshop on "Science, Technology and People-oriented Development Processes," University of Philippines (Quezon City), Manila, December 1983, in Yuzon, L.A. (ed), *Towards an Asian Sense of Science and Technology* (Singapore: C.C.A., 1984), pages 173-177.

Kelvin W. Willoughby, Report of Workshop on "Appropriate Technology for Australia" (chaired by K. Willoughby), University of Melbourne, December 1983, in Ledger, C. (ed), *1984 and Beyond*, (Sydney: Australian Council of Churches, 1984), pages 80-82.

Kelvin W. Willoughby, (Contributor, pages 85-86) "New Approaches to Environmental Assessment," paper by D.C. O'Connor in *Environmental Impact Assessment and Procedures*, Proceedings of public seminar organized by the Department of Conservation and Environment, July 1983 (Perth: Government of Western Australia, 1983), pages 83-102.

Kelvin W. Willoughby, "Appropriate Technology: an outline of the concept using the philosophy and practice of E.F. Schumacher," Paper presented to E.F. Schumacher Memorial Conference, Macquarie University, Sydney, December 1982, 21 pages.

Kelvin W. Willoughby, "Appropriate Technology for Australian Industry: a challenge to philosophical analysis and policy formulation," Paper presented to Section 37 (History, Philosophy & Sociology of Science) of the 52nd ANZAAS Congress, Australia's Industrial Future, Macquarie University, Sydney, May 1982, 42 pages.

Kelvin W. Willoughby, "Social Responsibility Towards the Natural Environment," Seminar #3, ANZAAS Seminar Series: Social Responsibilities of Scientists and Professionals, The University of Western Australia, 19th August 1981.

Invited Lectures and Guest Seminar Presentations

Invited speaker, *International Conference, "Intellectual Rights: Challenges of the 21st Century,"* Tomsk State University, National Research University, Tomsk, Russia, 14-16 November 2019.
Topic: "Endogenous Innovation, Outward-bound International Patenting and National Economic Development"

Invited speaker, *International Conference, "Intellectual Rights: Challenges of the 21st Century,"* Tomsk State University, National Research University, Tomsk, Russia, 14-16 November 2019.
Topic: "What Can Be Patented? Technological Innovation and the Contemporary Mess in Patent Law"

Invited speaker, *Skolkovo IP Academy* (IP Академия Сколково), Technopark, Skolkovo, Moscow, Russia, 18-20 September 2019. Master Class.
Topic: "Universities, Intellectual Property and Global Technological Innovation"

Invited speaker, *National Science and Technology Agency, Kingdom of Thailand*, Thailand Science Park, Bangkok, 21 January 2019.
Topic: "Fostering Linkages Between Research and Education with Innovation and Entrepreneurship"

Invited speaker, *Skolkovo Patent School* (Патентная Школа Сколково), Technopark, Skolkovo, Moscow, Russia, 1-2 November 2018. Seminar on Best Practice in Managing Intellectual Property in Universities and Institutes.
Topic: "Raking Leaves in the Wind: Managing University IP in Turbulent Times"

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Keynote speaker, *International Conference on Business and Sustainable Development (JCBSD 2018)*, University of Rajshahi, Rajshahi, Bangladesh, 8-9 March 2018.

Topic: “Endogenous Innovation, Outward-bound International Patenting and National Economic Development: What is Happening in Asia?”

Keynote speaker, *China Intellectual Property Conference*, Nanjing University of Science and Technology, College of Intellectual Property, Nanjing, China, 15-16 December 2017.

Topic: “Endogenous Innovation, Outward-bound International Patenting and National Economic Development: China and the World”

Keynote speaker, *28th DAAAM International Symposium*, Intelligent Manufacturing and Automation, DAAAM International Vienna, Technical University of Vienna & University of Zadar, Croatia, 8-11 November 2017.

Topic: “What is Technology?”

Invited speaker and seminar leader, *National Innovation Agency (NIA)*, Government of the Kingdom of Thailand, Bangkok, Thailand, NIA Innovation Space, 24 January 2017.

Topic: “Intellectual Property Management for Entrepreneurs”

Invited speaker, *Skoltech Gen-Y Cross Disciplinary Conference for Young Scientists*, Skolkovo Institute of Science and Technology, Rosa Khutor, Sochi, Russia, 27 September to 1 October 2017.

Topic: “Innovation, Intellectual Property and the Creation of Wealth: What’s at Stake for Nations and Entrepreneurs?”

Keynote speaker, *7th International Conference on Mass Customization and Personalization in Central Europe (MCP-CE 2016)* and the *1st Regional Conference on Entrepreneurship and Open Innovation (IDEAlab 2016)*, University of Novi Sad, Novi Sad, Serbia, 20-23 September 2016.

Topic: “Open Innovation and Intellectual Property”

Invited speaker, *Intellectual Property Management Teaching Workshop*, University of Cambridge & Chalmers University; Sponsored by EITIM (European Institute for Technology and Innovation Management), EPO (European Patent Office), UKIPO (U.K. Intellectual Property Office), and WIPO (World Intellectual Property Organization), 16 September 2016.

Topic: “Technology Licensing Games and IP Management Education.”

Invited seminar presentation, Rajiv Gandhi School of Intellectual Property Law, Indian Institute of Technology, Kharagpur, India, 19 May 2016.

Topic: “Contemporary Issues in the Law of Patent-eligible Subject Matter in the United States and Europe.”

Invited seminar presentation, Rajendra Mishra School of Engineering Entrepreneurship, Indian Institute of Technology, Kharagpur, India, 18 May 2016.

Topic: “Financing Technology Entrepreneurship.”

Keynote speaker, Startup Village 2015, Skolkovo Innovation Center, Annual Conference organized by Skolkovo Foundation, Moscow, Russia, 2 June 2015.

Topic: “Why is the Subject of Intellectual Property Important for Startups?”

Invited seminar presentation, John Curtin Institute of Public Policy, Curtin University, Perth, Australia: Policy Forum on the *Next Era of Major Global Technological Innovation*, 17 June 2014.

Topic: “The Biological Nexus of Technological Innovation.”

Invited seminar presentation, MIT-Skoltech Innovation Symposium, Skolkovo Innovation Center, Moscow, Russia, 4 June 2014.

Topic: “What Can Be Patented? Technological Innovation and the Contemporary Mess in Patent Law.”

Invited seminar presentation, Massachusetts Institute of Technology, Sloan School of Management, Cambridge, Massachusetts, 21 October 2013.

Topic: “Intellectual Property and Technological Entrepreneurship.”

Professor Kelvin W. Willoughby: List of Publications

Invited Speaker, Innovation Centre WA, Resident Entrepreneur Program, Government of Western Australia, Technology Park, Perth (6 November 2013).

Topic: "Leveraging the Value of Consulting for Technological Entrepreneurship."

Invited Keynote Speaker, Inter-University Summer School for Postgraduate Research Excellence (InSPiRE) [The University of Western Australia, The University of Notre Dame, Murdoch University, Curtin University, Edith Cowan University], Perth, Western Australia, 11-15 February 2013. (Lecture: 14 February 2013).

Topic: "Intellectual Property and the Commercialization of Technical Ideas: Australia, Asia and the Global Knowledge Economy."

Invited Keynote Speaker, Innovation Centre WA, Resident Entrepreneur Program, Government of Western Australia, Technology Park, Perth (13 February 2013).

Topic: "Where Three Rivers Meet ... The Sources of Entrepreneurial Wealth."

Invited Keynote Speaker, Yangon Technological University, Yangon, Myanmar, Sponsored by the Ministry of Science and Technology of the Republic of the Union of Myanmar (Myanmar/Curtin Symposium). (21 November 2012)

Topic: "Developing Local Capabilities for Entrepreneurship and Innovation."

Invited Keynote Speaker, International Symposium on Trade and Management, Pakse, Lao People's Democratic Republic (Laos) (May 30, 2012).

Topic: "Trading Ideas! Is That Real Business? Asia and the Global Knowledge Economy."

Invited Speaker, International Trade Day Conference of the Export Council of Australia and the Chamber of Commerce and Industry of Western Australia, Perth, Western Australia. (30 August 2012)

Topic: "Trading Ideas! Is That Real Business? Australia and the Global Knowledge Economy."

University-wide lecture: Universidad de Puerto Rico Recinto de Mayagüez, Mayagüez, Puerto Rico.

Invited Speaker. (16 August 2012)

Topic: "Appropriate Technology: From Idea to Experiment to Sustainable Practice."

International Symposium on Trade and Management, Ubon Ratchatane, Thailand.

Keynote Speaker. (May 30, 2012)

Topic: "Trading Ideas! Is That Real Business? Asia and the Global Knowledge Economy."

Invited Presentation to the Minnesota State House of Representatives, *Jobs and Economic Development Finance Committee*, State Capitol, St. Paul, Minnesota, USA (15 February 2011).

Topic: "The State of the Biobusiness Economy in Minnesota and the United States."

Invited Presentation to the Minnesota State Senate, *Jobs and Economic Growth Committee*, State Capitol, St. Paul, Minnesota, USA (15 February 2011).

Topic: "The State of the Biobusiness Economy in Minnesota and the United States."

Human Resources Summit—Asia, Sentosa Island, Singapore (GDS International).

Invited Speaker. (June 15, 2011)

Topic: "Flexible Delivery of Management Education in a Complex World of International Business."

BioAsia, 2008 Conference, Bangkok, Thailand.

Invited Speaker. (November 27, 2008)

Topic: "Intellectual Property: Friend or Foe for BioBusiness?"

Global University Network for Innovation - Asia and the Pacific (GUNI-AP), 2006 Conference, Bangkok, Thailand.

Invited Speaker. (November 10, 2006)

Topic: "The Role of Technology Firms in Accelerating Commercialization of Science and Technology in the Asia-Pacific Region."

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The Future 500 China 2006 Global Conference, Chinese Academy of Social Sciences, Beijing, China.
Invited Speaker. (October 24, 2006)
Topic: "How Can We Turn the Triple Bottom Line from an Idea in to Reality?"

Federal Laboratory Consortium for Technology Transfer, Annual Meeting, Minneapolis.
Invited Speaker. (May 4, 2006)
Topic: "Opportunities for Education and Training in Technology Transfer."

Curtin University of Technology, Graduate School of Business, Perth, Australia.
Invited Speaker. (March 10, 2006)
Topic: "Alternative Financing Options for Entrepreneurs."

Economic Development Association of Minnesota, 2006 Winter Conference, Minneapolis, Minnesota.
Invited Speaker. (January 19, 2006)
Topic: "Standing Apart in the Crowd: Alternative Pathways for Economic Development in Minnesota through BioBusiness."

Tsinghua University, School of Economics and Management, Beijing, China.
Invited Speaker. (October 27, 2005)
Topic: "Organizing for Technological Innovation."

The Future 500 China 2005 Conference, Chinese Academy of Social Sciences, Beijing, China.
Invited Speaker. (October 19, 2005)
Topic: "Soft Technology Strategy: A Key to Corporate Citizenship."

The University of Tokyo, Research Center for Advanced Science and Technology, Doctoral Seminar Series in Intellectual Property, Tokyo, Japan.
(July 28, 2005)
Topic: "Intellectual Property Management: Empirical Evidence from the Bioscience Technology Industries in the United States."

Licensing Executives Society, Minneapolis, Minnesota.
Invited Speaker. (July 12, 2005)
Topic: "Networking and the Performance of Knowledge Intensive Firms in Technology Industries."

Minnesota High Technology Association, Spring Conference, Minneapolis.
Invited Speaker. (May 3, 2005)
Topic: "Technology Commercialization and Global Competitiveness."

T2M Horizons Conference, The University of Utah.
Keynote Speaker. (October 1, 2004)
Topic: "Technology and Economic Development."

Edison Conference, The University of Utah.
Panel member. (May 19-20, 2004)
Topic: "Identifying the Market."

Edison Conference, The University of Utah.
Workshop leader. (May 19-20, 2004)
Topic: "Building a better business plan."

National Technology Transfer Center, Wheeling, West Virginia. Entrepreneurial Technology Apprenticeship Program (Sponsored by the Minority Business Development Administration)
(June 25-27, 2003)
Topic: "Technology commercialization careers in a variety of contexts."

Griffith University, Graduate School of Management, Brisbane, Australia.
(January 3, 2003)
Topic: "Alternative strategies for innovation in high technology industries."

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Society of Public Accountants, Annual Professional Development Program, Salt Lake City, Utah.
(September 28, 2001)

Topic: "The Surprises of Financing Utah's High Technology Industries."

National Academy of Sciences, Washington, D.C., National Research Council Seminar on "Ways and Means of Science" (seminar on the impact of corporate funding on the conduct of research).
(July 14, 2000)

Topic: "The university-industry complex as a creative milieu for science."

Seoul National University, School of International and Area Studies, Seoul, Korea.
(April 18, 2000)

Topic: "E-commerce Infrastructure and the Development of Cyber-business."

1999 Rocky Mountains Biotechnology Symposium, Salt Lake City.
(January 29, 1999)

Topic: "Utah's Bioscience Technology Industry Complex: Prospects for the New Millennium."

New York Software Summit, 1999, New York City.
(January 21, 1999)

Topic: "The Shortage of People in Computing-related Professions and Engineering in New York."

Bio '98, Biotechnology Industry Organization, International Biotechnology Meeting, New York City.
(June 17, 1998)

Topic: "Long Island's Biotechnology Industry." (in Panel on regional Clustering of Bioscience Companies)

Roland Berger & Partner / Government of Bavaria, Munich, Germany.
(November 7, 1997)

Topic: "Factors which lead to technology-based economic development in regions."

New York Biotechnology Association, 6th Annual Meeting, New York City.
(October 24, 1996)

Topic: "New York's Biotechnology and Bio-medical Engineering Industries."

Utah Information Technologies Association, Going Global Conference, Salt Lake City, Utah.
(November 21, 1995)

Topic: "Utah's Information Technology Industry: Going Global."

Fourth International Medical Devices Industry Congress, Park City, Utah.
(August 16, 1995)

Topic: "International Business and Biomedical Technology Industry."

Edison Biotechnology Center, Cleveland, Ohio.
(January 20, 1994)

Topic: "Methodological Considerations in the Evaluation of Economic Impacts of Biotechnology Centers."

Case Western Reserve University, Weatherhead School of Management, Cleveland, Ohio.
(January 19, 1994)

Topic: "Strategies for the Local Development of Advanced Technology Industries: Clues from the Case of Biotechnology."

Columbia University, New York City, Graduate School of Architecture, Planning and Preservation.
(December 9, 1993)

Topic: "Technology and the Competitive Advantage of Cities."

Western Australian Technology Studies Society, Inaugural Public Lecture,
Western Australian Technology Park, Bentley.

(March 18, 1993)

Topic: "Technology and the Competitive Advantage of Regions."

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New York Biotechnology Association, Inc., Annual Meeting, World Trade Center, New York City.
(September 26, 1991)
Topic: "What's at Stake Here? Can New York Compete in Biotechnology?"

Centre for International Research on Communication and Information Technology, Melbourne, Australia.
(November 1990)
Topic: "Spatial Dimensions of the Information Economy."

Australian Graduate School of Management, The University of New South Wales.
(July 1990)
Topic: "Strategic Issues in the Development of Advanced Technology Industries."

Division of Agriculture and Natural Resources, Office of the President, University of California (System wide).
(June 1990)
Topic: "Is Local Enterprise Development Possible in Rural Areas with Limited Resources?"

State University of New York at Stony Brook, Center for Biotechnology.
(June 1990)
Topic: "Lessons for New York from California's Biotechnology Industry."

Fordham University, Graduate School of Business Administration, New York City.
(June 1990)
Topic: "Strategic Issues in the Development of Advanced Technology Industries."

The University of Lethbridge, Faculty of Management, Alberta, Canada.
(March 1990)
Topic: "Technology and Regional Economic Development."

Institute of Governmental Studies, University of California at Berkeley, Rural Development Seminar Series. (March 1990)
Topic: "Agriculture, Productivity and Rural Development."

Institute of Governmental Studies, University of California at Berkeley, Faculty Seminar.
(October 1989)
Topic: "Technological Semantics and Technological Practice."

California State University, Stanislaus, Institute of International Studies.
(April 1989)
Topic: "People, Technology and a Sense of Place: Critical Choices in Economic Development."

Fulbright Annual Conference, Asilomar, California. Keynote Speaker.
(March 1989)
Topic: "New Forms of International Collaboration."

Judge and Resource Person, Biotechnology Symposium, Lawrence Hall of Science, University of California at Berkeley. (November 1988)

Prince of Songkla University, Faculty of Management Sciences, Thailand.
(January 1988)
Topics: "Research Methodology" and "Technology Policy and Management."

2nd E. F. Schumacher Memorial Conference, The University of Newcastle, N.S.W.
(November 1986)
Topic: "Technology and Work: Applying Schumacher's Philosophy."

Professor Kelvin W. Willoughby: List of Publications

Other Publications

Kelvin W. Willoughby & Kevin Michael Permenter, "Technology Transfer Training Resource Database," Federal Laboratory Consortium for Technology Transfer, USA. (2004)
Online database: <http://www.federallabs.org/training>

Kelvin W. Willoughby, "Finance and California Biotechnology," *BioWorld*, 2, 47 (March 12, 1990).

Kelvin W. Willoughby, "Appropriate Technology: Will it work?" *Environment WA*, 5, 2 (Autumn 1983), 8-13.

Kelvin W. Willoughby, A review of *Small is Possible*, by George McRobie (London: Abacus, 1982), in *Environment Victoria*, #47 (June/July 1983), 15.

Kelvin W. Willoughby, A series of articles, reviews and commentaries in the national APACE Newsletter (Sydney) and the APACE Western Australia Newsletter (North Fremantle).

Kelvin W. Willoughby, Submission to the Inquiry into "New Technology and Employment," of the Senate Standing Committee on Science, Technology and the Environment (Hansard, June 1985, pages 1124-1225); incorporated into final report of the Standing Committee. Parliament of the Commonwealth of Australia, Technology Assessment in Australia (Canberra: A.G.P.S., 1987).