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Actor-Network Theory (ANT)

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Introduction

Introduction

Actor-network theory, commonly abbreviated as ANT, has become a key inspiration for geographers to incorporate materiality into geographical theorizing and practice and conceive of agency as a distributed arrangement. Its popularity in geography is a result of providing both new conceptual resources for the discipline's preoccupation with all things material: nature, buildings, technologies, objects, and the like. It can be seen as a counterbalance to the cultural turn in the late 1980s (as described in the Oxford Bibliographies article, [Cultural Geography](#) by Lily Kong), which focused geographers' attention on meaning and representation. Emerging in the early 1980s from [Science and Technology Studies \(STS\) in Geography](#), it was sociologists Bruno Latour, Michel Callon, and John Law who pioneered ANT. For ANT, all entities, whether they are germs or people, stand on equal ontological footing in the beginning. With this assumption, it breaks with the established academic division of labor whereby social scientists look at people and natural scientists look at nature. In its focus on associations, ANT claims that it is the relations established between these entities that make the difference whether powerful actors emerge in particular situations. Hence, Latour (see Latour, Bruno. *Reassembling the Social: An Introduction to Actor-Network Theory*. Oxford: Oxford University Press, 2005.) also called ANT a "sociology of associations" (p. 9). ANT puts an emphasis on tracing these associations to understand how hybrid networks of humans and nonhumans come together to make things happen or validate particular knowledge claims. Geographers have appropriated ideas from ANT to rethink space and scale as relational, to understand how material things (instead of being mere passive objects) coproduce socio-material realities, and to unravel how powerful actors, entities or knowledge claims emerge, solidify, transform, and founder. Acknowledgements: A Swiss National Science Foundation Professorship (PP00P1_144699) supported this work.

General Overviews

There exist both introductions to ANT thought in general and interpretations for the specific concerns and interests of the discipline of geography. The themes that overviews cover vary, depending on when they appeared and who wrote them, and reflect the intellectual trajectory of ANT. During the several decades of its existence, ANT has transformed considerably.

Early ANT

Early ANT has a strong focus on science and technology, associated knowledge claims and the emergence of stable, structured networks. [Latour 1987](#), [Law 1991](#), and [Law 1992](#) are manifestos of key early ANT claims and introduce important concepts. [Latour 1987](#) has served as a major reference for ANT scholars and critics alike and has become a textbook of sorts. [Law 1991](#) presents views from a range of different scholars more or less closely connected with the ANT project, whereas [Law 1992](#) is a shorter and more concise introduction.

- **Latour, Bruno. *Science in Action: How to Follow Scientists and Engineers through Society*. Milton Keynes, UK: Open University Press, 1987.**

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A textbook of early ANT if there ever was one. It covers many of the important concepts (translation, centers of calculation, circulation, obligatory passage points, trials of strength, enrollment) and also gives some methodological hints for doing ANT research.

Find this resource:

- **Law, John, ed. *A Sociology of Monsters: Essays on Power, Technology and Domination*. London: Routledge, 1991.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

An early collection of essays focusing on power and notable for going beyond the narrow domain of science and technology studies to incorporate the work of organization studies scholars (Clegg and Wilson) and sympathetic critiques (Star).

Find this resource:

- **Law, John. “Notes on the Theory of the Actor-Network: Ordering, Strategy and Heterogeneity.” *Systems Practice* 5.4 (1992): 379–393.**

DOI: [10.1007/BF01059830](https://doi.org/10.1007/BF01059830) [Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A crisp, no-nonsense introduction to what ANT meant at the time, in less than fifteen pages. Focuses on power and organization and introduces all key terms.

Find this resource:

ANT and After

The publication of [Law and Hassard 1999](#) marks something of a watershed between “early ANT” and what is often termed “ANT and after.” In contrast to “early ANT,” “ANT and after” literature, as [Latour 1999](#) makes clear, is more concerned with the multiple shifting shapes of actor-networks and moves away from the managerialism (i.e., on how things get done and coherent actors emerge) that characterized much (although not all) of early ANT. Two short introductions, [Law 2009](#) and [Mol 2010](#), reflect this reformed ANT.

- **Latour, Bruno. “On Recalling ANT.” In *Actor-Network Theory and After*. Edited by John Law and John Hassard, 15–25. Oxford: Blackwell, 1999.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A burial of sorts. Latour recants “actor-network theory” and proposes to replace it with the more appropriate “actant-rhizome ontology.” With this, Latour claims, should come a refocusing on circulation and the fluid nature of networks.

Find this resource:

- **Law, John. “Actor-Network Theory and Material Semiotics.” In *The New Blackwell Companion to Social Theory*. Edited by Bryan Turner, 141–158. Oxford: Blackwell, 2009.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A concise introduction to ANT and its development over the years that foregrounds the generative effects of the enactment of relations. Insists on ANT’s multiplicity and radical commitment to empirical work.

Find this resource:

- **Law, John, and John Hassard, eds. *Actor-Network Theory and after*. Oxford: Blackwell, 1999.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

The landmark collection charting out paths for “ANT and after.” With contributions on ontological politics, markets, materiality, among other subjects.

Find this resource:

- **Mol, Annemarie. “Actor-Network Theory: Sensitive Terms and Enduring Tensions.” *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 50 (2010): 253–269.**

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In this eminently readable piece, Mol characterizes ANT as “a set of sensitivities” (p. 253) rather than a coherent theory. The overview is structured along the three key terms of “actor,” “network,” and “theory.”

Find this resource:

Commentaries

As ANT has become firmly installed as a major approach to social theory, assessments of its conceptual merits have appeared. These have mostly focused on Bruno Latour as the figurehead of ANT, with either a more thematic focus, as in [Blok and Jensen 2011](#), or a more philosophical tack, as in [Harman 2009](#).

- **Blok, Anders, and Torben Elgaard Jensen. *Bruno Latour: Hybrid Thoughts in a Hybrid World*. London: Routledge, 2011.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Dissecting Latour along thematic foci, the two Danish sociologists carve up Latour's work into four substantive chunks: science and technology studies, the question of modernity, the politics of nature, and the sociology of associations. Not just a celebratory Latourology, the authors also engage with his critics and with misunderstandings of his work.

Find this resource:

- **Harman, Graham. *Prince of Networks: Bruno Latour and Metaphysics*. Melbourne: re.Press, 2009.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Written by a longtime interlocutor of Latour's, this is an assessment of the philosophical basis and merits of Latour's thought. While sympathetic to Latour in general, Harman differs from Latour in wanting to look at the properties of objects beyond relations in his own project of an object-oriented ontology.

Find this resource:

Geography

The late Jonathan Murdoch has done much to popularize ANT with geographers in the mid-1990s through a series of articles in which he plumbs the relevance of ANT for geography ([Murdoch 1997](#), [Murdoch 1998](#)). With clear inspiration from Latour's "We Have Never Been Modern," [Bingham 1996](#) makes the case for a material semiotics that eschews the drawing of boundaries between the material and the social. [Bosco 2015](#) gives a solid introduction to debates aimed more at a student audience. Other overviews that focus exclusively on ANT from a geographic perspective are rare and form usually part of larger textbooks (see [Textbooks](#)).

- **Bingham, Nick. "Object-ions: From Technological Determinism Towards Geographies of Relations." *Environment and Planning D: Society and Space* 14.6 (1996): 635–657.**
DOI: [10.1068/d140635](#)[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
An introduction to "material semiotics," Bingham reaches far beyond Latour, drawing on Serres, Deleuze and Guattari, and Haraway with remarkable theoretical bravura.
Find this resource:
- **Bosco, Fernando J. "Actor-Network Theory, Networks, and Relational Geographies." In *Approaches to Human Geography*. 2d ed. Edited by Stuart C. Aitken and Gill Valentine, 150–162. London: SAGE, 2015.**
[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
A well-written introduction and one of the few squarely aimed at a student audience. It places an emphasis on early ANT but also mentions the shift toward fleeting and emergent understandings of actor-networks that is evident from the "ANT and after" literature.
Find this resource:
- **Murdoch, Jonathan. "Inhuman/Nonhuman/Human: Actor-Network Theory and the Prospects for a Nondualistic and Symmetrical Perspective on Nature and Society." *Environment and Planning D: Society and Space* 15 (1997): 731–756.**
DOI: [10.1068/d150731](#)[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
A plea against an anthropocentric social science, enrolling the help of ANT to raze dualisms between humans and nature/technology. The superb introduction (and not just for geographers) also considers critiques of ANT and how to respond to them.
Find this resource:
- **Murdoch, Jonathan. "The Spaces of Actor-Network Theory." *Geoforum* 29 (1998): 357–374.**
DOI: [10.1016/S0016-7185\(98\)00011-6](#)[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
Asking what implications ANT has for space and scale, this piece works toward a topological view of space. It distinguishes between stable "spaces of prescription" (p. 358) and more fluid "spaces of negotiation" (p. 358).
Find this resource:

Textbooks

ANT scholars would probably claim that there cannot be a textbook on ANT: ANT needs to be practiced in concrete contexts, and thus having one textbook would defeat the purpose. That said, [Latour 2005](#) is as close as it gets to formulating an ANT agenda for beginners. [Law 2004](#) draws on ANT to distill injunctions for methodology. [Murdoch 2006](#) is the best general introduction available for geographers. [Hinchliffe 2007](#) mobilizes ANT as one element of a textbook on nature.

- **Hinchliffe, Steve. *Geographies of Nature*. London: SAGE, 2007.**
[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
Traversing different understandings of nature, this book culminates in a plea for adopting a Latour-style view of hybrid natures, or multinaturalisms. A counterweight to social constructivist understandings of nature (which it also covers). Suitable for advanced undergrads.
Find this resource:
- **Latour, Bruno. *Reassembling the Social: An Introduction to Actor-Network Theory*. Oxford: Oxford University Press, 2005.**
[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
Ambitious if somewhat verbose attempt at summarizing the “ANT and after” state of the art. Places an emphasis on uncertainty and the provisionality of relations through such concepts as the oligopticon and plasma. Suitable for graduate students with some prior knowledge of ANT.
Find this resource:
- **Law, John. *After Method: Mess in Social Science Research*. London: Routledge, 2004.**
[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
The ultimate methodological textbook for ANT scholars. It is a resolute recognition of the multiple and ephemeral character of many phenomena that what Law calls “method assemblages” need to account for. It argues for more experimentation and ambiguity in social sciences, rather than prematurely closing off questions. Provides a broad range of examples. Suitable for students with solid training in qualitative methods.
Find this resource:
- **Murdoch, Jonathan. *Poststructuralist Geography*. London: SAGE, 2006.**
[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
Probably the most accessible account of ANT and the most relevant for geographers. It is particularly valuable because Murdoch puts ANT in a lineage from Foucault (governmentality and discipline) to Deleuze (multiplicity and assemblage) and thus places it in a pedigree of philosophers that have become dear to geographers. Suitable for advanced undergrads.
Find this resource:

Anthologies

To date, there are no anthologies of ANT in English and that feature the most essential ANT texts. [Belliger and Krieger 2006](#), however, is a collection in German and [Akrich, et al. 2006](#) in French. These only cover the early ANT years.

- **Akrich, Madeleine, Michel Callon, and Bruno Latour, eds. *Sociologie de la traduction: Textes fondateurs*. Paris: Presses de l’Ecole des Mines, 2006.**
[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
Assembling texts by Akrich, Callon, and Latour, this rather limited collection covers the early ANT years from 1981 to 2001. It contains some texts that were translated into French for the first time.
Find this resource:
- **Belliger, Andréa, and David J. Krieger. *ANThology: Ein einführendes Handbuch zur Akteur-Netzwerk-Theorie*. Bielefeld, Germany: Transcript, 2006.**
[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »
A collection of texts by Akrich, Callon, Latour, and Law between 1980 and 1999 in chronological order, many translated into German for the first time.
Find this resource:

Journals

There are no journals that are dedicated to the intersection of ANT and geography per se. Among geography journals, [Environment and Planning A](#), [Environment and Planning D: Society & Space](#), [Geoforum](#) and [Cultural Geographies](#) carry much ANT work. Outside geography, major outlets are [Social Studies of Science](#) and [Economy and Society](#).

- **Cultural Geographies.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Perhaps the geography journal with the strongest sustained focus on the body, materiality, and everyday practices. ANT is certainly not the only game in town.

Find this resource:

- **Economy and Society.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

With a distinct social-theory spin on the economy and economics, this journal has covered much of the debate on the performativity of markets, in which Callon has been a major player.

Find this resource:

- **Environment and Planning A.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A generalist journal, EPA has carried some influential ANT papers.

Find this resource:

- **Environment and Planning D: Society & Space.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A journal with a strong theoretical orientation, EPD has shown an openness to ANT and related approaches such as assemblage thinking. It has published several special issues featuring key ANT thinkers.

Find this resource:

- **Geoforum.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

With a strong focus on nature (a theme ANT has been highly influential on), *Geoforum* also publishes ANT-inspired work.

Find this resource:

- **Social Studies of Science.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Carrying mostly work from science and technology studies, this journal has also published geographers working on cognate issues.

Find this resource:

Key Works

ANT has produced a number of empirical studies that have become important inspirations for geographers. Precursors of ANT that do not yet make use of the term “ANT” include [Latour and Woolgar 1979](#), a study of how objectivity and facticity in science are achieved, and [Callon and Latour 1981](#), which questions the micro/macro distinction in sociology. Popularizing the notion of “translation” as enrollment of entities through aligning interests and arguing for a generalized symmetry between humans and nonhumans, [Callon 1986](#) is a much-discussed landmark paper. Along similar lines, [Latour 1986](#) rethinks the concept of power, and [Latour 1993](#) continues the principle of generalized symmetry to argue that the modern binary dividing line between nature and culture is artificial. [Law 1994](#) develops the notion of a relational materialism that is at the heart of ANT and, while a research monograph, also exemplifies key ANT concepts in an accessible fashion. In ANT and after literature, authors start to center on different thematic interests. [Callon 1998](#), for example, shows a concern with the construction of markets and the discipline of economics, whereas [Moi 2002](#) demonstrates the idea of how things can become multiple, using the example of the diagnosis and treatment of atherosclerosis.

- **Callon, Michel.** “Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Briec Bay.” In *Power, Action and Belief: A New Sociology of Knowledge?* Edited by John Law, 196–233. London: Routledge, 1986.

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A landmark paper that introduces symmetry and the four moments of translation (problematization, intersement, enrollment, mobilization) around the now-classic example of scallop fishing in the St. Brieuc Bay. Much cited, but also much critiqued.

Find this resource:

- **Callon, Michel, ed. *The Laws of the Markets*. Oxford: Wiley-Blackwell, 1998.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Explores how markets are built and stabilized. A crucial building block in Callon's notion of the performativity of economics, in which the model of the world becomes the world of the model.

Find this resource:

- **Callon, Michel, and Bruno Latour. "Unscrewing the Big Leviathan: How Actors Macrostructure Reality and How Sociologists Help Them to Do so." In *Advances in Social Theory and Methodology: Toward an Integration of Micro- and Macro-Sociologies*. Edited by Karin Knorr and Aaron V. Cicourel, 277–303. Boston: Routledge and Kegan Paul, 1981.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Of relevance to anyone studying large collectives. Argues that macro-actors are nothing else but micro-actors who have translated other actors into a single will to form somewhat durable wholes. Advocates studying "the large" and "the small" with the same vocabulary.

Find this resource:

- **Latour, Bruno. "The Powers of Association." In *Power, Action and Belief: A New Sociology of Knowledge?* Edited by John Law, 264–280. London: Routledge, 1986.**

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Power is not pre-given and a property of actors but the result of translating many entities to form alliances. An account of power not as cause but as effect, challenging conventional accounts of power.

Find this resource:

- **Latour, Bruno. *We Have Never Been Modern*. Translated by Catherine Porter. Cambridge, MA: Harvard University Press, 1993.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A manifesto for hybridity. Latour challenges the neat division of nature and culture: the basis of modern thought arising from a process of purification. Arguing that we have never been modern, he advocates recognizing the continuous enmeshment of nature and culture through hybrid networks and the creation of quasi-objects that draw these networks together.

Find this resource:

- **Latour, Bruno, and Steve Woolgar. *Laboratory Life: The Social Construction of Scientific Facts*. London: SAGE, 1979.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Perhaps the earliest precursor of ANT, key terms (such as translation, inscription devices, network) already play important roles here. The book examines the process through which scientific facts are made durable and order is created from disorder through the gathering of allies.

Find this resource:

- **Law, John. *Organizing Modernity*. Oxford: Blackwell, 1994.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

This highly accessible book examines in great empirical detail how action is achieved, coordinated, and delegated through socio-material networks in an organization. Along the way, it presents key concepts of ANT and thus makes for a good introduction as well.

Find this resource:

- **Mol, Annemarie. *The Body Multiple: Ontology in Medical Practice*. Durham, NC: Duke University Press, 2002.**

DOI: [10.1215/9780822384151](https://doi.org/10.1215/9780822384151) [Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

One of the best empirical studies on multiplicity. Mol persuasively shows how ostensibly quantifiable, scientific phenomena can take on multiple forms when we examine the practices that bring different versions of them into being.

Find this resource:

Topological Space

From the start, ANT has been a key inspiration for a relational view of space in which distance is a function of the intensity of a relation. This has resulted in conceptual alternatives to the dominant understandings of Euclidean space and pre-given scales. [Amin 2002](#) and [Latham 2002](#) link topological space with globalization, whereas [Allen 2003](#) and [Law and Hetherington 2000](#), both much-cited classics, mobilize it for conceptualizing governing and acting at a distance. [Whatmore and Thorne 1997](#) is notable for its exposition of key ANT ideas, linking them to a compelling empirical demonstration of acting at a distance in the food sector. Going a step further than the other references, [Law and Mol 2001](#) pushes to break up stable network relations and move toward more fluid notions of space.

- **Allen, John. *Lost Geographies of Power*. Oxford: Blackwell, 2003.**
DOI: [10.1002/9780470773321](#)[Save Citation »Export Citation »E-mail Citation »](#)
Allen draws on Latour to fashion a novel account of power as mediated across space. It allows governing at a distance through the successive enrollment of elements. What results is a topological reconstitution of space and distance, where distant others are drawn into close reach.
Find this resource:
- **Amin, Ash. “Spatialities of Globalisation.” *Environment and Planning A* 34 (2002): 385–399.**
DOI: [10.1068/a3439](#)[Save Citation »Export Citation »E-mail Citation »](#)
Considers how a topological understanding of space is becoming more apposite in the face of globalization, where raised global connectivity challenges notions of proximity and distance.
Find this resource:
- **Latham, Alan. “Retheorizing the Scale of Globalization: Topologies, Actor-Networks, and Cosmopolitanism.” In *Geographies of Power: Placing Scale*. Edited by Andy Herod and Melissa Wright, 115–144. Oxford: Blackwell, 2002.**
DOI: [10.1002/9780470773406](#)[Save Citation »Export Citation »E-mail Citation »](#)
Argues against taking scale for granted and instead looking at how it is recomposed in different situations through networked association.
Find this resource:
- **Law, John, and Kevin Hetherington. “Materialities, Spatialities, Globalities.” In *Space, Economy, Knowledge*. Edited by John R. Bryson, Peter W. Daniels, Nick Henry, and Jane Pollard, 34–49. London: Routledge, 2000.**
[Save Citation »Export Citation »E-mail Citation »](#)
Argues that space is an outcome of relations rather than pre-given. The paper focuses on the material production of relations and the effort required to maintain relations over metric distance.
Find this resource:
- **Law, John, and Annemarie Mol. “Situating Technoscience: An Inquiry into Spatialities.” *Environment and Planning D: Society & Space* 19 (2001): 609–621.**
DOI: [10.1068/d243t](#)[Save Citation »Export Citation »E-mail Citation »](#)
Of particular relevance to geographers, Law and Mol propose four notions of space: from space as a Euclidean region and space as relational networks, they move to two new variants: fluid spatiality, in which objects hold their form while shifting relations, and fire, which is constituted through oscillation between presence and absence.
Find this resource:
- **Whatmore, Sarah, and Lorraine Thorne. “Nourishing Networks: Alternative Geographies of Food.” In *Globalising Food: Agrarian Questions and Global Restructuring*. Edited by David Goodman and Michael Watts, 287–304. London: Routledge, 1997.**
[Save Citation »Export Citation »E-mail Citation »](#)
In this classic and pioneering study, Whatmore and Thorne bring ideas from early ANT together with empirical work. Looking at how the fair trade coffee network established global reach, the authors illustrate key ANT terms and show how the building of network relations requires work and has a hybrid, situated, and partial character.
Find this resource:

The Material World

ANT has fallen on fertile ground in geography for its attention to all things material: objects, technologies, nature, buildings, and so on. It has been in the vanguard of a rematerializing of geography, as evidenced in [Bakker and Bridge 2006](#) and [Whatmore 2006](#), sharing pride of place with other approaches such as assemblage thinking and more-than-representational theories, discussed

in [Anderson and Wylie 2009](#). The revalorization of the material world also raised critical questions about its agency, which [Sayes 2014](#) clarifies.

- **Anderson, Ben, and John Wylie. “On Geography and Materiality.” *Environment and Planning A* 41 (2009): 318–335.**
DOI: [10.1068/a3940Save Citation »Export Citation »E-mail Citation »](#)
Anderson and Wylie discuss how the call for a rematerialization of geography can be differently understood, considering ANT, post-phenomenology, vital materialism, and the work of Deleuze. The authors come out against a rematerialization of geography if that means a search for firm grounding in the supposed invariability of matter. Instead, they stress that matter is always multiple.
Find this resource:
- **Bakker, Karen, and Gavin Bridge. “Material Worlds? Resource Geographies and the ‘Matter of Nature.’” *Progress in Human Geography* 30.1 (2006): 5–27.**
DOI: [10.1191/0309132506ph588oaSave Citation »Export Citation »E-mail Citation »](#)
A review of the role of materiality for resource geographies, urging to move beyond an understanding of the material world as socially constructed and produced. Makes much of Latour’s hybridity argument in *We Have Never Been Modern* but also remains wary of the blind spots of ANT.
Find this resource:
- **Sayes, Edwin. “Actor–Network Theory and Methodology: Just What Does It Mean to Say That Nonhumans Have Agency?” *Social Studies of Science* 44.1 (2014): 134–149.**
DOI: [10.1177/0306312713511867Save Citation »Export Citation »E-mail Citation »](#)
Reviews the different senses in which the material world can gain agency in ANT. Explains ANT’s minimal understanding of agency as whether an entity makes a difference in action. Useful as a primer to this heated and often too simplistic debate, which runs as a fault line dividing ANT supporters and critics.
Find this resource:
- **Whatmore, Sarah. “Materialist Returns: Practising Cultural Geography in and for a More-than-Human World.” *Cultural Geographies* 13 (2006): 600–609.**
DOI: [10.1191/1474474006cgj377oaSave Citation »Export Citation »E-mail Citation »](#)
A short and crisp intervention, not so much focusing on ANT per se, but rather on the implications of a turn toward materiality in human geography.
Find this resource:

Nature

Nature has always occupied a privileged place in geography, not least because of the subject’s history and interest in charting the earth. One of the first ways in which ANT influenced geography was to act as an inspiration for redefining the relationship between humans and nature. As such, it moves away from using “nature” as a catch-all term and directs attention toward the specific roles of entities: animals, bacteria, plants, and so on. [Demeritt 2002](#) situates ANT’s understanding of nature against several others, making for a helpful comparison. The most influential monograph in this area is probably [Whatmore 2002](#), which aims to put the relationship between humans and nature on new foundations. [Robbins 2007](#) and [Ogden 2011](#) are resolutely empirical, with their focus on two different environments—the American lawn and the Everglades and how they shapes subjectivities—and [Hitchings 2003](#) focuses on the pleasures derived from the private garden. [Burgess, et al. 2000](#) presents a convincing case of different understandings of nature in action and the attempts to align them.

- **Burgess, Jacquelin, Judy Clark, and Carolyn M. Harrison. “Knowledges in Action: An Actor Network Analysis of a Wetland Agri-Environment Scheme.” *Ecological Economics* 35.1 (2000): 119–132.**
DOI: [10.1016/S0921-8009\(00\)00172-5Save Citation »Export Citation »E-mail Citation »](#)
Traces the conflicting understandings of scientists and farmers about wetland management and conservation and the often-failed attempts to enroll farmers into the scientific worldview. The paper makes a compelling if somewhat human-centered case for a *Dingpolitik* that accepts different, diverging claims to knowledge.
Find this resource:
- **Demeritt, David. “What Is the ‘Social Construction of Nature’? A Typology and Sympathetic Critique.” *Progress in Human Geography* 26 (2002): 767–790.**

DOI: [10.1191/0309132502ph402oa](https://doi.org/10.1191/0309132502ph402oa)[Save Citation »Export Citation »E-mail Citation »](#)

Covers ANT as one of five different approaches to the social construction of nature. The comparative perspective is particularly useful because it illuminates the differences between ANT and other approaches.

Find this resource:

- **Hitchings, Russell.** “People, Plants and Performance: On Actor Network Theory and the Material Pleasures of the Private Garden.” *Social and Cultural Geography* 4.1 (2003): 99–114.

DOI: [10.1080/1464936032000049333](https://doi.org/10.1080/1464936032000049333)[Save Citation »Export Citation »E-mail Citation »](#)

An important paper that answers the critique of early ANT as Machiavellian in examining the pleasures and emotions connected to people’s private gardens. It shows how the locus of power oscillates between gardeners and plants.

Find this resource:

- **Ogden, Laura A.** *Swamplife: People, Gators, and Mangroves Entangled in the Everglades*. Minneapolis: University of Minnesota Press, 2011.

[Save Citation »Export Citation »E-mail Citation »](#)

Though for the most part casting humans as the protagonists, Ogden’s is a compelling tale of how life in the Everglades has been negotiated between people, animals, and swamp. Ogden mixes Haraway, Latour, and Deleuze and Guattari to conceptualize landscapes as coevolving, multispecies communities. The leitmotif is Deleuze’s rhizome: rather apt, considering the ubiquity of mangroves in her research area.

Find this resource:

- **Robbins, Paul.** *Lawn People: How Grasses, Weeds, and Chemicals Make Us Who We Are*. Philadelphia: Temple University Press, 2007.

[Save Citation »Export Citation »E-mail Citation »](#)

A gripping read, Robbins’s book not only covers an environmental “hot topic” in amazing empirical breadth and depth but also deploys ANT to understand how lawns help to bring lawn people as specific subjects into being. Lawns and their maintenance, he argues, shape personal economies, tastes, and people’s relations with each other.

Find this resource:

- **Whatmore, Sarah.** *Hybrid Geographies: Natures, Cultures, Spaces*. London: SAGE, 2002.

[Save Citation »Export Citation »E-mail Citation »](#)

A pioneering text for reconceptualizing the relationship between humans and nature. Working toward a more-than-human geography, Whatmore evokes how nature (animals in particular) and humans are intertwined in multiple ways. The focus on open-endedness, on becoming, is also mirrored in the style of the book, which departs from conventional monographs. ANT serves as an important inspiration with its notions of hybridity and distributed agency.

Find this resource:

Cities

As conglomerates of built environment, cities offer a particularly rich stock of materials. ANT’s interest in cities was initially limited and ephemeral; and while Latour (see [Latour 2005](#), cited under [Textbooks](#).) called Cronon’s monograph a “masterpiece of ANT” (p. 11), Cronon did not engage with ANT in it. Explicit ANT work on cities had to wait until the publication of the photographic essay on Paris ([Latour and Hermant 2004](#)). The situation changed in the early 2000s, when work on ANT and cities underwent an uptick. [Amin and Thrift 2002](#) marked a rethinking of the city along multiplicities, which was taken up in [Fariás and Bender 2009](#). [Graham and Marvin 2001](#) focused on the connective and divisive effects of infrastructure networks, whereas [Smith 2003](#) set out to advocate a paradigm shift in world city research. [Gandy 2005](#) critically considers the usefulness of ANT in the face of an increasing mixing of bodies and technologies in cities, something he calls “cyborg urbanization” but criticizes the absence of political clout in Latour’s thought. [Swyngedouw 2004](#) stands out with the attempt of a synthesis between Marxism and insights from ANT, in which he comes down on the side of the former.

- **Amin, Ash, and Nigel Thrift.** *Cities: Reimagining the Urban*. Cambridge, MA: Polity, 2002.

[Save Citation »Export Citation »E-mail Citation »](#)

A critique of “big picture” urban theory, advocating attention to “the little things” that make up the urban. Though ANT is not prominent, Amin and Thrift’s book fits the bill of ANT thought, wherein it focuses on connections in and between cities and cities as machinelike, ever-changing entities. However, it also

goes beyond ANT in its focus on affective practices and spontaneous creativity. Important, but not uncontested.

Find this resource:

- **Cronon, William. *Nature's Metropolis: Chicago and the Great West*. New York: W. W. Norton, 1991.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A history of the evolution of Chicago as a city. Cronon's monograph was called a "masterpiece of ANT" (p.11) by Latour (see [Latour 2005](#), cited under [Textbooks](#)), even though Cronon never mentions ANT. The book's main thesis is that Chicago grew out of a natural-cultural symbiosis that transformed its hinterland to the West. In ANT fashion, the book is organized around commodity flows (grain, lumber, meat) and demonstrates how city and nature impressed themselves on each other.

Find this resource:

- **Fariás, Ignacio, and Thomas Bender, eds. *Urban Assemblages: How Actor-Network Theory Changes Urban Studies*. London: Routledge, 2009.**

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The edited collection positions itself as a contender to most of the conceptual orthodoxies in urban studies: neo-liberalism, Marxism and neo-Marxism, the Chicago School, regime theory, political ecology. It conceives of cities as urban assemblages: heterogeneous associations of human and nonhuman elements that turn cities into processual, emergent entities. Case studies range from an analysis of public transport in Bogotá to the prose of Jules Verne in 19th-century France.

Find this resource:

- **Gandy, Matthew. "Cyborg Urbanization: Complexity and Monstrosity in the Contemporary City." *International Journal of Urban and Regional Research* 29.1 (2005): 26–49.**

DOI: [10.1111/j.1468-2427.2005.00568.x](https://doi.org/10.1111/j.1468-2427.2005.00568.x) [Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Traversing a vast theoretical terrain, Gandy explores how the concept of the cyborg can help scholars come to terms with the increasing salience of the body-technology nexus in cities. He engages with Latour but also finds his thought wanting, due to the absence of conceptual resources to inspire a political critique of the cyborg city.

Find this resource:

- **Graham, Stephen, and Simon Marvin. *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*. London: Routledge, 2001.**

DOI: [10.4324/9780203452202](https://doi.org/10.4324/9780203452202) [Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Dealing with infrastructure networks, Graham and Marvin unravel the simultaneous connectivity and disconnectivity arising from them. A book that compellingly demonstrates the juxtaposition of hyperconnectivity and isolation in modern cities and the intertwining of cities and infrastructure.

Find this resource:

- **Latour, Bruno, and Emilie Hermant. [Paris: Invisible City](#). *Paris: Ville invisible*. Paris: La Découverte, 2004.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

In this photographic essay, Latour has teamed up with a photographer to make the invisible objects that keep Paris as a city working and functioning visible. Introduces the important notion of "plasma" as the unformatted realm outside relations.

Find this resource:

- **Smith, Richard G. "World City Actor-Networks." *Progress in Human Geography* 27 (2003): 25–44.**

DOI: [10.1191/0309132503ph411oa](https://doi.org/10.1191/0309132503ph411oa) [Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Bringing ANT to research on world cities (i.e., cities that act as command and control centers in the global economy). Smith urges to consider the people and materials that connect world cities across distance and thus to recognize movements between cities, for example, in the form of immutable mobiles. He links ANT's concern with associations to nonrepresentational theory and a focus on practices.

Find this resource:

- **Swyngedouw, Erik. *Social Power and the Urbanization of Water: Flows of Power*. Oxford: Oxford University Press, 2004.**

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

In a deft mix of Marxism and ANT, Swyngedouw analyzes the failure to provide clean water to much of the population in the city of Guayaquil, Ecuador. He draws on ideas from Latour on hybridity to conceptualize socio-natures as a process of perpetual metabolism, all the while retaining a strong concern with the social forces that shape it.

Find this resource:

Economy

It was Michel Callon (see [Callon 1998](#), cited under [Key Works](#)) who fleshed out the implications of ANT for analyzing the economy. Economic geographers have taken this up, most notably in questioning how organizational coordination works across distance, as in [Amin and Cohendet 2004](#). A different literature has begun to cover the contested processes through which markets come into being ([Berndt and Boeckler 2011](#); [MacKenzie 2009](#)). [Barnes 2002](#) works with a whole range of ANT concepts to examine how certain approaches and ideas became influential in economic geography. [Müller 2015](#) is a critical intervention, taking issue with how some aspects of ANT have been read in economic geography and setting out a new agenda for future research.

- **Amin, Ash, and Paul Cohendet. *Architectures of Knowledge: Firms, Capabilities, and Communities*. Oxford: Oxford University Press, 2004.**

DOI: [10.1093/acprof:oso/9780199253326.001.0001](#)[Save Citation »Export Citation »E-mail Citation »](#)

The authors use ANT to argue that knowledge is not necessarily fixed to particular sites but that knowing can involve diverse kinds of spatial mobilizations through global networks held together by travel, virtual communication, symbolic rituals, and so on. This “distanced learning” can, for example, be found in communities of practice. A great inspiration for scholars working on forms of organizational coordination at a distance.

Find this resource:

- **Barnes, Trevor J. “Performing Economic Geography: Two Men, Two Books, and a Cast of Thousands.” *Environment and Planning A* 34 (2002): 487–512.**

DOI: [10.1068/a3440](#)[Save Citation »Export Citation »E-mail Citation »](#)

Turning ANT on the field of economic geography, Barnes works with a whole range of ANT concepts to show how the circulation of books as immutable mobiles produced particular ways of doing economic geography. Notable for combining disciplinary history with an empirical application of key ANT terms, ranging from “translation” to “performance” and “obligatory passage points.”

Find this resource:

- **Berndt, Christian, and Marc Boeckler. “Performative Regional (dis)integration: Transnational Markets, Mobile Commodities, and Bordered North-South Differences.” *Environment and Planning A* 43 (2011): 1057–1078.**

DOI: [10.1068/a4381](#)[Save Citation »Export Citation »E-mail Citation »](#)

Departing from an approach that sees markets as practical performative achievements, the two authors follow the global commodity chains of tomato production and trade. They show how the tomato is held stable as an object while crossing multiple borders and how and when borders become permeable or impermeable. A great empirical example of an ANT perspective on markets and commodity chains.

Find this resource:

- **MacKenzie, Donald. *Material Markets: How Economic Agents Are Constructed*. Oxford: Oxford University Press, 2009.**

[Save Citation »Export Citation »E-mail Citation »](#)

Outlining an approach for the social studies of science, sociologist MacKenzie follows Callon and others in conceptualizing markets as socio-technical arrangements. Chapter 2 is of particular interest, where he sets out ten precepts of his socio-material perspective on finance, among them that “equipment matters” and “agency is distributed” (chapter 2).

Find this resource:

- **Müller, Martin. “A Half-Hearted Romance? A Diagnosis and Agenda of the Relationship between Economic Geography and Actor-Network Theory (ANT).” *Progress in Human Geography* 39.1 (2015): 65–86.**

DOI: [10.1177/0309132513518833](#)[Save Citation »Export Citation »E-mail Citation »](#)

The article sets out a research agenda for economic geography’s engagement with ANT. It starts from a critique of the readings of “network” and “power” in some ANT-inspired economic geography and then outlines three future avenues of research around the themes of “hybridity,” “desire,” and “fluidity.”

Find this resource:

Politics

Proponents of ANT have linked it with politics in two principal ways. One is to ask how the material world comes to matter differently in particular situations. [Braun and Whatmore 2010](#) brings together particularly fine examples of this latter work. The term “ontological politics,” coined in [Mol 1999](#), describes that there is no objective world, no universe, but that we all partake in enacting multiple realities: a pluriverse. This, she argues, places responsibility for how the world is and could be also with researchers. [Barry 2013](#) compellingly demonstrates how these multiple realities take shape in the case of knowledge controversies around an oil pipeline going through the Republic of Georgia. What this means for the conduct of politics is best crystallized in [Latour 2005](#) with proposal of a *Dingpolitik*: the incorporation of diverse materials and diverse forms of knowledge in the process of politics. [Hinchliffe, et al. 2005](#) considers this politics in practice for the question of how to relate to urban natures, in their case the water vole. A second strand of work on ANT and politics has been concerned with how socio-material ordering takes place, often across distances. [Allen and Cochrane 2010](#), for example, considers the reach of state power, and [Müller 2012](#) examines how organizations become powerful actors. [Rutland and Aylett 2008](#) is an empirical study of the constitution of local environmental governance in Portland, Oregon, mixing governmentality and ANT as approaches.

- **Allen, John, and Allan Cochrane. “Assemblages of State Power: Topological Shifts in the Organization of Government and Politics.” *Antipode* 42.5 (2010): 1071–1089.**
DOI: [10.1111/j.1467-8330.2010.00794.x](#)[Save Citation »Export Citation »E-mail Citation »](#)
Proposes a topological account of how state power works across space, drawing the distant close: Allen and Cochrane speak of “powers of reach” (p. 1073). The case study is the southeast of England, but one can imagine applying this analysis to a plethora of settings.
Find this resource:
- **Barry, Andrew. *Material Politics: Disputes Along the Pipeline*. Oxford: Blackwell, 2013.**
DOI: [10.1002/9781118529065](#)[Save Citation »Export Citation »E-mail Citation »](#)
This is one of the best accounts in geography of how objects change shape. Far from being a stable, unified actor, the pipeline Barry studied in the Republic of Georgia assumed different forms and spatial boundaries, transforming what issues could be bound up with it and what could be contested, making it almost impossible to be regulated and governed.
Find this resource:
- **Braun, Bruce, and Sarah Whatmore, eds. *Political Matter: Technoscience, Democracy, and Public Life*. Minneapolis: University of Minnesota Press, 2010.**
[Save Citation »Export Citation »E-mail Citation »](#)
A landmark collection, this collected work traverses a wide terrain, well beyond ANT, to also reach into the metaphysics of materialism. It showcases different approaches to how the material intervenes in politics. The contributions of Barry, Stengers, Marres, and Disch are of most immediate relevance to those looking for ANT.
Find this resource:
- **Hinchliffe, Steve, Matthew B. Kearnes, Monica Degen, and Sarah Whatmore. “Urban Wild Things: A Cosmopolitical Experiment.” *Environment and Planning D: Society and Space* 23.5 (2005): 643–658.**
DOI: [10.1068/d351t](#)[Save Citation »Export Citation »E-mail Citation »](#)
One of the most compelling empirical demonstrations of an ANT-inspired politics in geography but somewhat challenging to read. Traces knowledge controversies around the presence/absence of water voles in an urban area and asks in what ways one can speak of and for water voles and make them present in politics.
Find this resource:
- **Latour, Bruno. “From Realpolitik to Dingpolitik: Or How to Make Things Public.” In *Making Things Public: Atmospheres of Democracy*. Edited by Bruno Latour and Werner Weibel, 14–41. Cambridge, MA: MIT Press, 2005.**
[Save Citation »Export Citation »E-mail Citation »](#)
Inspired by Stengers’s cosmopolitics, Latour proposes his *Dingpolitik*: a parliament of things. It is oriented not so much around values and beliefs as a basis for politics but around matters of concern (big data, stem cells, epidemics, nature) in which everyone, expert or layperson, has the right to speak.
Find this resource:
- **Mol, Annemarie. “Ontological Politics. A Word and Some Questions.” *Sociological Review* 47.S1 (1999): 74–89.**
DOI: [10.1111/j.1467-954X.1999.tb03483.x](#)[Save Citation »Export Citation »E-mail Citation »](#)

Coins the important concept of “ontological politics” and opens up avenues for a political agenda for ANT. The article makes the important point that reality is not one but multiple and performed in a variety of practices. Politics thus can be seen as choosing which reality to perform.

Find this resource:

- **Müller, Martin.** “Opening the Black Box of the Organization: Socio-Material Practices of Geopolitical Ordering.” *Political Geography* 31.6 (2012): 379–388.

DOI: [10.1016/j.polgeo.2012.06.001](https://doi.org/10.1016/j.polgeo.2012.06.001)[Save Citation »Export Citation »E-mail Citation »](#)

Taking aim at geographers’ work on organizations, this article advocates viewing them not as unified black boxes but as precarious wholes assembled from different materials that produce agency. It encourages geographers to look at processes of organizational ordering in four areas: the circulation of geopolitical ideas, the production of geopolitics, governance at a distance, and technologies of ordering.

Find this resource:

- **Rutland, Ted, and Alexander Aylett.** “The Work of Policy: Actor Networks, Governmentality, and Local Action on Climate Change in Portland, Oregon.” *Environment and Planning D: Society & Space* 26 (2008): 627–646.

DOI: [10.1068/d6907](https://doi.org/10.1068/d6907)[Save Citation »Export Citation »E-mail Citation »](#)

How do new policies come into being? Rutland and Aylett combine ANT with governmentality to study the process of enrolling people, nature, and measuring techniques into local climate-change policy. A key insight is that the object of policy, in this case energy efficiency, needs to become stabilized and measurable first before it can be acted upon.

Find this resource:

Critiques

From the beginning, ANT has been the target of a fair share of criticism. From within science and technology studies, [Collins and Yearley 1992](#) accuses it of playing “epistemological chicken” (p. 301) (i.e., of making excessively bold epistemological claims about the co-constitution of humans and nonhumans). [Castree 2002](#) assesses ANT from a Marxist perspective and, like some others (see [Swyngedouw 2004](#), cited in [Cities](#).), suggests a productive synthesis for analyzing nature-society relations, whereas [Fine 2005](#), also from a Marxist perspective, discerns little of value to be retained. Using the empirical case of translocal activism, [Routledge 2008](#) demonstrates the limits of ANT’s refusal to acknowledge a priori power inequalities. [Haraway 1992](#), coming from a feminist perspective, is one among many who takes issue with ANT’s neglect of how social differences—race, class, gender, ethnicity, and so on—structure network building, and [Star 1991](#) provides a critique of early ANT’s focus on the strong and mighty. In a critique of relational economic geography, [Sunley 2008](#) sees ANT as a key influence in the promiscuous use of concepts and the excessive focus on flux.

- **Castree, Noel.** “False Antitheses? Marxism, Nature and Actor-Networks.” *Antipode* 34 (2002): 111–146.

DOI: [10.1111/1467-8330.00228](https://doi.org/10.1111/1467-8330.00228)[Save Citation »Export Citation »E-mail Citation »](#)

Setting out to create a synthesis between ANT and Marxism, Castree critiques the strong version of ANT for ignoring the differential potential of actants to shape actor-networks and disavowing explanation and abstraction from concrete cases. His synthesis is attractive to all those who find value in ANT claims but reject the wholesale flattening of the world.

Find this resource:

- **Collins, Harry M., and Steve Yearley.** “Epistemological Chicken.” In *Science as Practice and Culture*. Edited by Andrew Pickering, 301–326. Chicago: University of Chicago Press, 1992.

DOI: [10.7208/chicago/9780226668208.001.0001](https://doi.org/10.7208/chicago/9780226668208.001.0001)[Save Citation »Export Citation »E-mail Citation »](#)

Collins and Yearley claim that while ANT’s philosophy, particularly its principle of general symmetry, may sound radical, its implications are conservative and regressive in granting a constitutive role to nature. They point out that ANT focuses on description at the expense of explanation and fails to explain why certain knowledge claims prevail over others.

Find this resource:

- **Fine, Ben.** “From Actor-Network Theory to Political Economy.” *Capitalism Nature Socialism* 16.4 (2005): 91–108.

DOI: [10.1080/10455750500376057](https://doi.org/10.1080/10455750500376057)[Save Citation »Export Citation »E-mail Citation »](#)

One of the most vociferous critics of ANT, Fine here pleads for an outright rejection of ANT. He takes issue with a number of ANT claims, particularly that it just brushes the forces of capitalism under the carpet.

Find this resource:

- Haraway, Donna. "The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others." In *Cultural Studies*. Edited by Lawrence Grosberg, Cary Nelson, and Paula Treichler, 295–337. London: Routledge, 1992.

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Although on the same page with Latour in her interest in the co-construction among humans and nonhumans, Haraway critiques him for his disavowal of gender, race, or class as social inequalities that shape actor-networks.

Find this resource:

- Routledge, Paul. "Acting in the Network: ANT and the Politics of Generating Associations." *Environment and Planning D: Society and Space* 26 (2008): 199–217.

DOI: [10.1068/d001p](https://doi.org/10.1068/d001p)[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

While sympathetic to ANT's concerns with associations, traveling and organizing across space, Routledge argues that it neglects how different actants have different capacities of shaping networks. He comes down in favor of recognizing a priori power asymmetries and intentionality as important forces shaping actor-networks and thus of giving humans greater importance than things. A compelling case to supplement the more conceptual readings in this section.

Find this resource:

- Star, Susan Leigh. "Power, Technologies and the Phenomenology of Conventions: On Being Allergic to Onions." In *A Sociology of Monsters: Essays on Power, Technology and Domination*. Edited by John Law, 26–56. London: Routledge, 1991.

[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

In this early piece, Star takes issue with the preoccupation of ANT with empire builders, with the great men of history. Taking up feminist thoughts, she urges to devote more attention to those who end up standing at the margins and to multiplicities.

Find this resource:

- Sunley, Peter. "Relational Economic Geography: A Partial Understanding or a New Paradigm?" *Economic Geography* 84 (2008): 1–26.

DOI: [10.1111/j.1944-8287.2008.tb00389.x](https://doi.org/10.1111/j.1944-8287.2008.tb00389.x)[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

A critique of relational approaches to economic geography in general, Sunley's article identifies the popularity of ANT as one problematic aspect. He is concerned about too loose a definition of networks and relations, an overemphasis on flux, and the neglect of the influence of social structure.

Find this resource:

Future Paths

ANT's openness makes it particularly susceptible to cross-breeding with other approaches. The parallels between Foucault's work and ANT are many, and [Lemke 2015](#) set out to explore some of them. The concept of the vitality of matter discussed in [Bennett 2005](#) references ANT, although it goes beyond it in attributing something like a primordial force to things. [Bennett 2005](#) also suggests openings of ANT toward assemblage thinking, which is becoming increasingly popular in geography. [Thrift 2000](#) starts from a critique of ANT and then moves on to outline a nonrepresentational approach, with greater attention paid to the capacities of the human body. Putting practices first, [Schatzki 2010](#) nevertheless gestures to ANT and its sensitivity to the material world in his "site ontology."

- Bennett, Jane. "The Agency of Assemblages and the North American Blackout." *Public Culture* 17 (2005): 445–465.

DOI: [10.1215/08992363-17-3-445](https://doi.org/10.1215/08992363-17-3-445)[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Viewing agency as distributed, Bennett approvingly cites ANT in her analysis of the North American blackout. A major difference between her view and ANT is that she attributes something of a metaphysical force to things. She also enrolls Derrida and Deleuze in her project, opening up parallels and differences, not least with the project of assemblage thinking and the thought of Deleuze and Guattari.

Find this resource:

- Lemke, Thomas. "New Materialisms: Foucault and the 'Government of Things.'" *Theory, Culture & Society* 32.4 (2015): 3–25.

DOI: [10.1177/0263276413519340](https://doi.org/10.1177/0263276413519340)[Save Citation](#) » [Export Citation](#) » [E-mail Citation](#) »

Answering a critique by Karen Barad, Lemke retrieves Foucault's work for a reading that concedes a more active part to the material world. He sees potential in bringing together the Foucauldian analytics of government with ANT.

Find this resource:

- **Schatzki, Theodore. "Materiality and Social Life." *Nature and Culture* 5 (2010): 123–149.**

DOI: [10.3167/nc.2010.050202](https://doi.org/10.3167/nc.2010.050202)[Save Citation »](#)[Export Citation »](#)[E-mail Citation »](#)

Schatzki is sympathetic to ANT for its attention to materiality and his "arrangements" are close relatives of ANT's "actor-networks." He parts company, however, in the primacy he accords to practices, which as human activity presuppose the human agent and attribute a greater role to humans.

Find this resource:

- **Thrift, Nigel. "Afterwords." *Environment and Planning D: Society and Space* 18 (2000): 213–255.**

DOI: [10.1068/d214t](https://doi.org/10.1068/d214t)[Save Citation »](#)[Export Citation »](#)[E-mail Citation »](#)

An erstwhile supporter of ANT, in this piece Thrift outlines his misgivings about the approach. He faults it for its lack of sensitivity to the affective entanglements of human bodies and to the fleeting and unexpected. For him, ANT "is much more able to describe steely accumulation than lightning strikes" (p. 214). He continues to outline his own project of a nonrepresentational theory, attuned to the event and to affect.