

DEPARTMENT OF GEOGRAPHY
UNIVERSITY OF WISCONSIN-MADISON

THE HISTORY OF GEOGRAPHIC THOUGHT

GEOG566
FALL 2016
TIME: WEDS, 3:30-6PM, SCIENCE HALL 388
3 CREDITS
PREREQ: JR STANDING

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DESCRIPTION

The breadth contemporary geographic thought is the product of many renegotiations of disciplinary boundaries and trajectories during the past century. In today's geography departments, it is not uncommon to find a geomorphologist describing fluvial migrations across Belizean floodplains while – in the next classroom – a social theorist lectures on the politics of gendered power in public spaces. And again, the topic under discussion in the *next* room may radically differ from both; it might concern glaciology, cartography, ethnography, information science, ecology, climatology, history, or activism. This rich diversity introduces its own peculiar challenges to the discipline. What sense can we make, for example, of a notion like 'geographic thought' when its practitioners often undertake and value their scholarship in very different ways? How might we understand these differences in light of the analytic and/or scientific objects that we nevertheless share? When researchers from different backgrounds invoke Earth, space, place, the environment, and so on, are they talking about the same *things*? Do their (sub)disciplinary assumptions engender perspectives whose differences are ultimately insurmountable? Or, are these sites through which we might forge fruitful connections from disparate viewpoints? Might such endeavors discover a more unified disciplinary history or point us toward new geographic futures?

Seeking to explore these questions, this course surveys the major traditions of geographic thought from the early 20th century to the present. Attending to both 'human' and 'physical' perspectives in the discipline - as well as those that blur the lines between the social and natural sciences - we will explore the changing, contested nature of geographic knowledge in terms of its situated, historical contexts and its numerous reformulations in contemporary practice. In so doing, the course provides students with the background for understanding their research in terms of the philosophies and methods, and the convergences and departures that constitute the intellectual history of the discipline in general, and Geography at Madison in particular.

Mindful of how we understand ourselves as geographers *today*, it will avoid dwelling upon 'dead ideas' in favor of mining a 'history of the present'. That is, we will look to the past century to explore the ways that knowledges, practices and discourses that today seem natural or obvious were 'constructed' during earlier periods through key disciplinary debates. Accordingly, we will mostly focus on the primary texts in which these exchanges took place. This enables us to understand our labors in their broader contexts, but further, it reveals how today's taken-for-granted notions were at one time heavily contested. This conditional nature of our knowledge should serve as a caution against putting up the theoretical blinders of scientific bias that too often threaten to make us – to paraphrase Tom Waits – the innocent victims of our own blinded alleys. Finally, exploring the braiding - and occasionally fraying - paths of earlier traditions, it helps us to locate (or, at least invites us to speculate about) new routes for collaboration and innovation between our different subfields.

One final note: the texts we will be covering in this class represent lines leading up to the texts that you will have read in many of your other courses in geography at Madison. This is a practical decision in consideration of the amount of reading we have to cover and the constraints of the semester. Thus it will often be up to all of us to draw upon past classes and speculate about current research questions at Madison and elsewhere.

WHAT I EXPECT FROM YOU

The success of this course depends upon our collective participation. Either a research collective or I will open each class meeting with a short discussion and questions to situate the literature. I expect that everyone will come to each class with the week's material handy, having read it and prepared to discuss it.

I understand that we all have different scholarly backgrounds, embrace different scientific and theoretical positions, and entertain different personal interests. However, I expect that you will participate throughout the semester and actively engage the varying topics and literatures from week to week.

Finally, I recognize that jumping into new theoretical and scientific areas can be intimidating and unnerving, particularly in a course populated by both graduates and undergraduates, 'humans,' 'physicals,' and 'p-e's'. I propose that we recognize that, in discussion, we are a reading 'collective', that is, a group that draws upon its members diverse backgrounds so as to collectively develop understanding of some, at times, complicated texts. Naturally, if we happen to be covering one of your areas of specialization that week, those of us who are less familiar with that area will no doubt benefit from your expertise. At the same time, it is just as crucial that you give voice to questions, complications, uncertainties, problems, and so on.

WHAT YOU CAN EXPECT FROM ME

I will provide a number of introductory lectures on the material that explain its larger contexts and draw out several of its key theoretical contributions and implications.

I will make myself available during office hours for further discussion of the course topics and course assignments.

I will participate as a member of the collective and, recognizing the differences in power relations that inhere in the academic institution and our professional relation, will endeavor to approach our work on as equal a footing as possible.

BY THE END OF THIS COURSE,

You will be familiar with many of the key figures, debates, concepts, objects and problems that have driven the development of contemporary geographic thought.

You will be aware of key debates and discourses in the discipline.

You will be capable of critically engaging several theoretical, practical and scientific dimensions of the discipline from the perspective of the history of its ideas.

REQUIREMENTS

GRADUATE STUDENTS will write FIVE papers (FIVE pages each) addressing the readings on weeks of your choice, to be turned in on the week those readings are discussed, or no later than a week thereafter. I expect these papers to be critical assessments (not just reviews or impressions). I will hand out a separate sheet listing several possible discussion topics and paper approaches. Each paper is worth 16% of the final grade. Students will also LEAD one discussion as a member of a research collective (10%), and PARTICIPATE weekly (10%).

Further, as graduate students with an enriched and growing understanding of current practices in the discipline, I expect you to take a guiding role in addressing the readings and topics for each week. This not only helps those who are sometimes less familiar with its assumptions and routine practices, it also helps you become more comfortable with 'running' a classroom.

UNDERGRADUATE STUDENTS will write THREE papers (FIVE pages each) addressing the readings on weeks of your choice, to be turned in on the week those readings are discussed, or no later than a week thereafter. I expect these papers to be critical assessments (not just reviews or impressions). I will hand out a separate sheet listing several possible discussion topics and paper approaches. Each paper is worth 26% of the final grade. Students will also LEAD one discussion as a member of a research collective (10%), and PARTICIPATE weekly (10%).

Or, UNDERGRADUATE STUDENTS taking the course for CAPSTONE CREDIT will write ONE 15-PAGE RESEARCH PAPER addressing the a major geographic theme or area, due at the end of the semester. These papers will be well-researched, critical engagements. I will hand out a separate sheet listing several possible discussion topics and paper approaches. This paper is worth 75% of the final grade. Students will also submit a paper PROPOSAL (5%), LEAD one discussion as a member of a research collective (10%), and PARTICIPATE weekly (10%).

ALL STUDENTS will take turns introducing the material with a short summary discussion and key questions at the beginning of class. This will be done as 'research collectives' containing undergraduate and graduate students. Participation in the collectives is required, failure to do so will negatively impact your final course grade by 10%. We will determine collectives, and the graduate and undergraduate roles, in the coming weeks.

I expect everyone to come to class having read all the assigned material and ready to discuss it.

Any more than two absences will result in a failing grade.

BACKGROUND READING

Below is a list of resources for background reading. For those with limited background in geography and those preparing a classroom presentation, I suggest reading one or another of the following books alongside our required readings. All should be available in the Geography Library.

Livingstone, D. 1993. *The Geographical Tradition*. Oxford: Blackwell.

Cresswell, T. 2013. *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell.

Cloke, P., Philo, C. and Sadler, D. 1991. *Approaching Human Geography*. New York: Guilford.

- Earle, C., Mathewson, K. and Kenzer, M.S., eds. 1996. *Concepts in Human Geography*. Lanham, MD: Rowman and Littlefield.
- Clifford, N.J., and Valentine, G. 2003. *Key Methods in Geography*. London: Sage.
- Gregory, D., Martin, R., and Smith, G., eds. 1994. *Human Geography: Society, Space, and Social Science*. Minneapolis: University of Minnesota Press.
- Hubbard, P., Kitchin, R. and Valentine, G., eds. 2008. *Key Texts in Human Geography*. London: Sage.
- Johnston, R.J. 1991. *Geography and Geographers*, 4th Edition. London: Edward Arnold.
- Peet, R. 1998. *Modern Geographical Thought*. Oxford: Blackwell.
- Inkpen, R. 2005. *Science, Philosophy and Physical Geography*. New York: Routledge.
- Johnston, R.J., Gregory, D., Pratt, G., Watts, M.J. and Whatmore, S., eds. 2009. *The Dictionary of Human Geography*, 5th Edition. Oxford: Blackwell.
- Thomas, D.S. and Goudie, A., eds. 2000. *The Dictionary of Physical Geography*. Oxford: Blackwell.

SCHEDULE

Generally, the assigned readings for each week will consist of primary sources. These will be on electronic library reserve at 'Learn@UW'. In the event that we decide to change certain readings during the semester, I will remind you via email.

September	7 th	Wk 1	Introduction: Human Geography's Biogeographical Roots
	14 th	Wk 2	Environmental Determinism
	21 st	Wk 3	Cultural Geography
	28 th	Wk 4	Regional Geography
October	5 th	Wk 5	Spatial Science
	12 th	Wk 6	Behavioral and Humanistic Geography
	19 th	Wk 7	Social Relevance and Radical Geography
	26 th	Wk 8	Feminism and Geographies of Difference
November	2 nd	Wk 9	Structure/Agency, Poststructuralism, and the Critique of Rep.
	9 th	Wk 10	Deconstructing the Map
	16 th	Wk 11	Soil, Ecology, and Scientific Methodology
	23 rd	Wk 12	<i>Thanksgiving Recess</i>
	30 th	Wk 13	Cultural and Political Ecology
December	7 th	Wk 14	Bridging the Human-Physical Divide
	14 th	Wk 15	Something Truly Amazing

REQUIRED READINGS

Subject to change as the course progresses

Environmental Determinism

- Semple, Ellen Churchill, 1911. *Influences of Geographic Environment*. New York, Henry Holt: v-viii (“Preface”); 1-31 (Chapter 1, “The Operation of Geographic Factors in History”).
- Davis, William Morris, 1909. *Geographical Essays*, D. W. Johnson, ed. Boston, Ginn and Co: 3-22 (“An Inductive Study of the Content of Geography”) [Reprinted from *Bulletin of the American Geographical Society of New York*, 1906. 38: 67-84]
- Barrows, Harlan H., 1923. Geography as Human Ecology. *Annals of the Association of American Geographers* 13(1): 1-14.
- Platt, Robert S., 1948. Environmentalism Versus Geography. *American Journal of Sociology* 53(5): 351-358.
- Peet, Richard, 1985. The Social Origins of Environmental Determinism. *Annals of the Association of American Geographers* 75(3): 309-333.

SUPPLEMENTAL:

- Cresswell, T. 2013. The Emergence of Modern Geography. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 35-57.
- Livingstone, D.N. 1992. A ‘Sternly Practical’ Pursuit: Geography, Race and Empire. In *The Geographical Tradition*. Cambridge, MA: Blackwell, pp. 216-59.

Cultural Geography

- Sauer, Carl Ortwin, 1963. *Land and Life*. Berkeley, University of California Press: 315-379; 389-404. Including Chapter 16, “The Morphology of Landscape” [Reprinted from *University of California Publications in Geography*, Vol. 2, No. 2, 1925, pp. 19-54]; Chapter 17, “Foreword to Historical Geography” [Reprinted from *Annals of the Association of American Geographers*, Vol. 31, No. 1, 1941, pp. 1-24]; Chapter 19, “The Education of a Geographer” [Reprinted from *Annals of the Association of American Geographers*, Vol. 46, 1956, pp. 287-299].
- Duncan, James S., 1980. The Superorganic in American Cultural Geography. *Annals of the Association of American Geographers* 70(2): 181-198.
- Price, Marie, and Lewis, Martin, 1993. The Reinvention of Cultural Geography. *Annals of the Association of American Geographers* 83(1): 1-17.
- SUPPLEMENTAL: commentary and reply by Denis Cosgrove, James Duncan, Peter Jackson, and Price and Lewis, 1993. *Annals of the Association of American Geographers* 83(3): 515-520.
- Mitchell, Donald, 1996. There’s no such Thing as Culture: Towards a Reconceptualization of the Idea of Culture in Geography. *Transactions of the Institute of British Geographers* 20(1): 102-116.
- SUPPLEMENTAL: Commentary and reply: *Transactions of the Institute of British Geographers* 21(3): 572-582.

SUPPLEMENTAL:

Livingstone, D.N. 1992. The Regionalizing Ritual: Geography, Place, and Particularity. In *The Geographical Tradition*. Cambridge, MA: Blackwell, pp. 260-303.

Mikesell, Marvin W., 1978. Tradition and Innovation in Cultural Geography. *Annals of the Association of American Geographers* 68(1): 1-16.

Regional Geography

Fenneman, Nevin M., 1919. The Circumference of Geography. *Annals of the Association of American Geographers* 9: 3-11.

Hartshorne, Richard, 1939. *The Nature of Geography*. Lancaster, PA, Association of American Geographers: 366-397; (Chapter XI, "What Kind of a Science is Geography?"); 460-469 (Chapter XII, "Conclusion: The Nature of Geography"). SUPPLEMENTAL: pp. 436-459

James, Preston, 1952. Toward a Fuller Understanding of the Regional Concept. *Annals of the Association of American Geographers* 42(3): 195-222.

Pudup, Mary Beth, 1988. Arguments within Regional Geography. *Progress in Human Geography* 12(3): 369-390.

SUPPLEMENTAL:

Cresswell, T. 2013. Thinking about Regions. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 58-78.

Livingstone, D.N. 1992. The Regionalizing Ritual: Geography, Place, and Particularity. In *The Geographical Tradition*. Cambridge, MA: Blackwell, pp. 260-303.

Hart, John Fraser, 1982. The Highest Form of the Geographer's Art. *Annals of the Association of American Geographers* 72(1): 1-29. With subsequent commentary and reply: *Annals of the Association of American Geographers*, 1982. 72(4): 557-558.

Spatial Science

Schaefer, Fred K., 1953. Exceptionalism in Geography: A Methodological Examination. *Annals of the Association of American Geographers* 43(3): 226-249.

Burton, Ian, 1963. The Quantitative Revolution and Theoretical Geography. *Canadian Geographer* 7: 151-162.

Nystuen, John D., 1963. Identification of Some Fundamental Spatial Concepts. *Papers of the Academy of the Michigan Academy of Science, Arts and Letters* 48: 373-84. [Reprinted in Brian J. L. Berry and Duane Marble, eds., 1968) *Spatial Analysis*. Englewood Cliffs, NJ, Prentice Hall: 35-41].

Berry, Brian J. L., 1964. Approaches to Regional Analysis: A Synthesis. *Annals of the Association of American Geographers* 54: 2-11.

Taaffe, Edward J., 1974. The Spatial View in Context. *Annals of the Association of American Geographers* 64: 1-16.

Gould, Peter, 1979. Geography 1957-1977: The Augean Period, *Annals of the Association of American Geographers* 69: 139-150.

SUPPLEMENTAL:

Cresswell, T. 2013. Spatial Science and the Quantitative Revolution. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 79-102.

Livingstone, D.N. 1992. Statistics Don't Bleed: Quantification and its Detractors. In *The Geographical Tradition*. Cambridge, MA: Blackwell, pp. 304-46.

Behavioral and Humanistic Geography

Bunting, Trudi, and Guelke, Leonard, 1979. Behavioral and Perception Geography: A Critical Appraisal. *Annals of the Association of American Geographers* 69(3): 448-462.

Couclelis, Helen and Reginald G. Golledge, 1983. Analytical Research, Positivism, and Behavioral Geography. *Annals of the Association of American Geographers* 73(3): 331-339.

Relph, Edward, 1970. An Inquiry into the Relations between Phenomenology and Geography. *Canadian Geographer* 14(3): 193-201.

Tuan, Yi Fu, 1976. Humanistic Geography. *Annals of the Association of American Geographers* 66(2): 266-76.

Buttimer, Anne, 1976. Grasping the Dynamism of the Lifeworld. *Annals of the Association of American Geographers* 66(2): 277-292.

Entrikin, J. Nicholas, 1976. Contemporary Humanism in Geography. *Annals of the Association of American Geographers* 66(4): 615-632.

Cox, Kevin R., 1981. Bourgeois thought and the Behavioral Geography Debate. In *Behavioural Geography Revisited*, Kevin R. Cox and Reginald G. Golledge, eds. New York, Methuen: 256-279.

SUPPLEMENTAL:

Cresswell, T. 2013. Humanistic Geographies. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 103-21.

Livingstone, D.N. 1992. Statistics Don't Bleed: Quantification and its Detractors. In *The Geographical Tradition*. Cambridge, MA: Blackwell, pp. 304-46.

Social Relevance and Radical Geography

Peet, Richard, 1977. The Development of Radical Geography in the United States. *Progress in Human Geography* 1(2): 6-30.

Harvey, David, 1974. What Kind of Geography for What Kind of Public Policy? *Transactions of the Institute of British Geographers* 63(1): 240-263.

Breitbart, M. 1975. Impressions of an Anarchist Landscape. *Antipode* 7(2): 44-49.

Breitbart, M. 1978. Anarchist Decentralism in Rural Spain, 1936-1939: The Integration of Community and Environment. *Antipode* 10-11(3-1): 83-98.

Slater, David, 1975. The Poverty of Modern Geographical Enquiry. *Pacific Viewpoint* 16: 159-176. (Reprinted

in *Radical Geography*, R. Peet, ed.)

Soja, Edward, 1980. The Socio-Spatial Dialectic. *Annals of the Association of American Geographers* 70(2): 207-225.

SUPPLEMENTAL:

Cresswell, T. 2013. Marxist Geographies. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 122-46.

Livingstone, D.N. 1992. Statistics Don't Bleed: Quantification and its Detractors. In *The Geographical Tradition*. Cambridge, MA: Blackwell, pp. 304-46.

Bunge, William, 1922. *Fitzgerald: Geography of a Revolution*. Athens: University of Georgia Press.

Feminism and Geographies of Difference

Monk, Jan, and Hanson, Susan, 1982. On Not Excluding Half of the Human in Human Geography. *Professional Geographer* 34(1): 11-23.

Foord, Jo, and Gregson, Nicky, 1986. Patriarchy: Towards a Reconceptualization. *Antipode* 18(2): 186-211. *With commentaries:* McDowell, Linda, 1986 Beyond Patriarchy: A Class- Based Explanation of Women's Subordination. *Antipode* 18(3): 311-321; Knopp, Larry, and Lauria, Mickey, 1987. Gender Relations and Social Relations. *Antipode* 19(1): 48-53; and reply Gregson, Nicky, and Foord, Jo, 1987. Patriarchy: Comments on Critics. *Antipode* 19(3): 371-375.

Duetsche, Rosalyn, 1991. Boy's Town. *Environment and Planning D: Society and Space* 9(1): 5-31.

Rose, Gillian, 1993. *Feminism and Geography*. London, Polity Press: 137-160 (Chapter 7).

Massey, Doreen, 1994. The Politics of Space/Time. In *Space, Place, and Gender*. Minneapolis, University of Minnesota Press: 249-272.

Kobayashi, Audrey, 1994. Coloring the Field: Gender, 'Race,' and the Politics of Fieldwork. *Professional Geographer* 46(1): 73-80.

SUPPLEMENTAL:

Cresswell, T. 2013. Feminist Geographies. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 147-69.

Cresswell, T. 2013. Geography's Exclusions. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 260-74.

Structure/Agency, Poststructuralism and the Critique of Representation

Thrift, Nigel J., 1983. On the Determination of Social Action in Space and Time. *Environment and Planning D: Society and Space* 1(1): 23-58.

Sayer, Andrew, 1991. Behind the Locality Debate: Deconstructing Geography's Dualisms. *Environment and Planning A* 23(2): 283-308.

Dixon, Deborah, and Jones III, John Paul, 1998. My Dinner with Derrida, or Spatial Analysis and

Poststructuralism do Lunch. *Environment and Planning A* 30: 247-260.

Dewsbury, John David, Harrison, Paul, Rose, Mitch, and Wylie, John, 2002. Enacting Geographies. *Geoforum* 33: 437-40.

Marston, Sallie A., Jones, John Paul III, and Woodward, Keith, 2005. Human Geography without Scale. *Transactions of the Institute of British Geographers* 30(4): 416-432.

SUPPLEMENTAL:

Cresswell, T. 2013. Postmodernism and Beyond. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 170-95.

Cresswell, T. 2013. Toward Poststructuralist Geographies. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 196-217.

Cresswell, T. 2013. Relational Geographies. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 218-38.

Dixon, Deborah P., Woodward, Keith, and Jones, John Paul, III, 2009. Poststructuralism/Poststructuralist Geographies. In *International Encyclopedia of Human Geography, Volume 8*, R. Kitchen and N. Thrift (eds.) Oxford: Elsevier, 396-407.

Deconstructing the Map

Harley, J. Brian, 1989. Deconstructing the Map. *Cartographica*, 26(2): 1-20. [Reprinted in Barnes, Trevor and Duncan, James S., eds., 1992 *Writing Worlds*. London, Routledge,]

Pickles, John, 1995. Representations in an Electronic Age: Geography, GIS, and Democracy. In *Ground Truth*. New York: The Guilford Press, pp. 1-31

Forum - GIS: Tool or Science?, 1997. *Annals of the Association of American Geographers*, 87(2):346-373.

Schuurman, Nadine, 2000. Trouble in the heartland: GIS and its critics in the 1990s. *Progress in Human Geography* 24(4): 569-590.

Elwood, Sarah, 2006. Negotiating knowledge production: The everyday inclusions, exclusions, and contradictions of participatory GIS research. *Professional Geographer* 58(2): 197-208.

Soil, Ecology, and Scientific Methodology

Jenny, Hans, "Derivation of state factor equations of soils and ecosystems," *Proceedings, Soil Science Society of America*, Vol. 25, 1961, pp. 385-388.

Amundson, R. and Jenny, H., 1997. On a state factor model of ecosystems. *BioScience* 47(8): 536-43.

Tosi, Joseph A., "Climatic control of terrestrial ecosystems: A report on the Holdridge model," *Economic Geography*, 1964, pp. 173-181.

Phillips, Jonathan D., "Methodology, scale and the field of dreams," *Annals of the Association of American Geographers*, Vol. 89, 1999, pp. 754-760.

Perry, George L. W., "Landscape, space, and equilibrium: Shifting viewpoints," *Progress in Physical Geography*, Vol. 26, No. 3, 2002, pp. 339-359.

Gregory, K. J., Gurnell, A. M., and Petts, G. E., "Restructuring physical geography," *Transactions of the Institute of British Geography*, Vol. 27, 2002, pp. 136-154.

Cultural and Political Ecology

Bryant, Raymond L., 1992. Political Ecology: An Emerging Research Agenda in Third-World Studies. *Political Geography* 11(1): 12-36.

Carney, Judith, and Watts, Michael J., 1991. Disciplining Women? Rice, Mechanization, and the Evolution of Mandinka Gender Relations in Senegambia. *Signs* 16(4): 651-681.

Demeritt, David, 1994. Ecology, Objectivity, and Critique in Writings on Nature and Human Societies. *Journal of Historical Geography* 20(1): 22-37.

Turner, Billie Lee, 1989. The Specialist-Synthesis Approach to the Revival of Geography: The Case of Cultural Ecology. *Annals of the Association of American Geographers* 79(1): 88-100.

Vayda, Andrew P., and Walters, Bradley B., 1999. Against Political Ecology. *Human Ecology* 27(1): 167-179.

Willems-Braun, Bruce, 1997. Buried Epistemologies: The Politics of Nature in (Post)colonial British Columbia. *Annals of the Association of American Geographers* 87(3): 3-31.

Shaw, Ian Graham Ronald, Robbins, Paul F., and Jones, John Paul, III, 2010. A Bug's Life and the Spatial Ontologies of Mosquito Management. *Annals of the Association of American Geographers*. 100(2): 373-92.

Bridging the Human Physical Divide

Demeritt, David, 2001. The construction of global warming and the politics of science. *Annals of the Association of American Geographers* 91.2: 307-337. With subsequent response from Schneider, S.H., 2001. *Annals of the Association of American Geographers* 91(2): 338-348.

Liverman, Diana M., 1999. Geography and the global environment. *Annals of the Association of American Geographers*. 89(1): 107-124.

Massey, Doreen, 1999. Space-time, 'science,' and the relationship between physical geography and human geography. *Transactions of the Institute of British Geographers* 24: 261-276.

Responses to Massey:

Raper, Jonathan and Livingstone, David, 2001. Let's get real: Spatio-temporal identity and geographic entities. *Transactions of the Institute of British Geographers* 26: 237-242.

Lane, Stuart N., 2001. Constructive comments on D Massey: Space-time, 'science,' and the relationship between physical geography and human geography. *Transactions of the Institute of British Geographers* 26: 243-256.

Massey, Doreen, 2001. Talking of space-time. *Transactions of the Institute of British Geographers* 26: 257-261.

Hulme, Mike, Dessai, Suraje, Lorenzoni, Irene, and Nelson, Donald R., 2009. Unstable Climates: Exploring

the Statistical and Social Constructions of 'Normal' Climate. *Geoforum* 40: 197-206.

Whatmore, Sarah, 2002. *Hybrid Geographies*. London: Sage, chs. 1&7 (pp.1-7, 146-67).

Yusoff, Katherine. 2009. Excess, Catastrophe and Climate Change. *Environment and Planning D: Society and Space* 27: 1010-29.

SUPPLEMENTAL:

Cresswell, T. 2013. More-than-Human Geographies. In *Geographic Thought: A Critical Introduction*. Malden, MA: Wiley-Blackwell, pp. 239-60.