

Chapter 1

Histories of Medical Geography

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Like would-be claimants arguing over a family inheritance, different disciplines have created different genealogies of medical geography, even as they share an interest in capturing its riches. Over the course of the twentieth century, historians of medicine and geographers have each created their own histories of the relations between health and environment.¹ Yet for both historians and geographers, medical geography has offered the tantalizing possibility for linking historical insight with the concerns of current practice. Again and again, this imperative has structured historical narratives, even as the details differ according to allegiance.

The founders of the modern discipline of the history of medicine in Europe and the United States imbued the young field with a profound sense of the importance of geographic understanding. In the 1930s and 1940s, as the “polymathic Leipzig students”, the German-trained cadre of Henry Sigerist, George Rosen, and Erwin Ackerknecht, along with the American Fielding H Garrison, fanned out across the American academic world, they were united not only by an energetic interest in the history of medicine, but by an enduring fascination for the relations between history,

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¹Histories of medical geography include ‘Changing Attitudes toward History and Geography of Disease’, chapter 1 in Erwin H Ackerknecht, *History and Geography of the Most Important Diseases*, New York, Hafner, 1972, pp. 1–6; Arne Barkhuus, ‘Medical Geographies’, *Ciba Symposia*, 1944–45, 6: 1997–2016; Mirko Drazen Grmek, ‘Géographie Médicale et Histoire Des Civilisations’, *Annales: Economies, Sociétés, Civilisations*, 1963, 18 (6): 1071–97; Caroline Hannaway, ‘Environment and Miasmata’, in W F Bynum and Roy Porter (eds), *Companion Encyclopedia of the History of Medicine*, London and New York, Routledge, 1993, pp. 292–308; and Bimal Kanti Paul, ‘Approaches to Medical Geography: An Historical Perspective’ (with Commentaries by David R Phillips, A T A Learmonth, and R W Armstrong and a Rejoinder by Paul), *Social Science and Medicine*, 1985, 20 (4): 399–409. A popularly-oriented (and un-footnoted) review is Ronald Rees, ‘Under the Weather: Climate and Disease, 1700–1900’, *History Today*, January 1996, 46 (1): 35–41.

Much of this history has been developed in discussions at the conference ‘Medical Geography in Historical Perspective’, convened June 1996 by Nicolaas A Rupke, at Georg-August-Universität, Göttingen. My gratitude goes to those participants for expanding my understanding of the field. I would also like to thank Warwick Anderson, Alix Cooper, and Lisa M Herschbach for thought-provoking discussions of the historical understandings of health and place. My great thanks also to Wilbert M Gesler for his extremely helpful guidance into some of the crucial issues of contemporary medical geography, as well as to Michael Dorn for additional citations. I very much appreciate Warwick Anderson’s and Alix Cooper’s detailed and thoughtful commentaries on earlier drafts of this essay. These excellent colleagues may not agree with every aspect of this history, but their comments, suggestions, references, and arguments have immeasurably strengthened it.

geography, and disease.² Each of these figures—founding fathers of a field that was so strenuously to resist a historiography of founding fathers—worked to trace how diseases had spread through time, and how practitioners had understood the shifting location and environmental dependence of disease.³

These leading historians of medicine in the United States advocated medical geography as a form of social analysis, proclaiming historical medical geography as both historical tool and social critique. Their scholarship was impelled by a progressive vision of enlightened humanism (and in the case of Sigerist, a more formal socialism). Attention to the environmental dimensions of health and disease, they argued, bore with it the possibility for cross-cultural analysis and better understanding of different peoples through time. It was tied with the project of social medicine in both theory and practice.⁴

In these decades of the early twentieth century, medicine was undergoing one of its periodic transformations. New models for disease; new machines, drugs, and therapies; and newly-powerful institutions made a decisive break from the accretive, syncretic medical understanding of much of the nineteenth century. “Germ theory” became therapeutically efficacious as well as theoretically energizing: “modern medicine” had emerged. As Allan M Brandt has observed, many medical writings became, quite suddenly, texts in the *history* of medicine, rather than guides to its practice.⁵ The discipline of the history of medicine largely emerged out this disjuncture. Yet for this singularly influential group of German clinician/historians of early- and mid-century, medical geography came to serve as a bridge over the growing gap between medical history and medical practice.⁶ Medical geography was a way to recapture the long history of medicine as a vital inspiration for contemporary theory and practice, rather than as a dusty attic in which ageing practitioners could indulgently rummage.

² The phrase is Christopher Lawrence’s: see his review essay, ‘Democratic, divine and heroic: the history and historiography of surgery’, in Christopher Lawrence (ed.), *Medical Theory, Surgical Practice: Studies in the History of Surgery*, London and New York, Routledge, 1992, pp. 35–47, p. 13.

³ Richard S Shryock is also a major figure, though one based in somewhat different traditions. In addition to the works by these scholars cited elsewhere in this review, see Fielding H Garrison, ‘Medical Geography and Geographic Medicine’, *Bulletin of the New York Academy of Medicine*, 1932, 8 (10): 593–612; and idem, ‘Persian Medicine and Medicine in Persia: A Geomedical Survey’, *Bulletin of the Institute of the History of Medicine*, 1933, 1 (4): 129–73.

⁴ Contemporary scholarship elsewhere points to other possible meanings for a location-specific medicine. Also writing in the early 1930s, the German scholar Heinz Zeiss offered a vision of medical geography informed by nationalistic sentiments and a deep suspicion of the Soviet Union (see, *inter alia*, Heinz Zeiss, ‘Die Notwendigkeit einer deutschen Geomedizin’, *Zeitschrift für Geopolitik*, 1932, 9 (8): 474–83). Zeiss cited Nazi theorists as he pushed for greater attention to *Geomedizin*. His work offers one avenue of research into the problematic connections in the modern world between ideas of medical localism and national identity (interested readers are recommended to Warwick Anderson for future work in this area).

⁵ On this shift, see Allan M Brandt, ‘Emerging Themes in the History of Medicine’, *The Millbank Quarterly*, 1991, 69 (2): 199–214.

⁶ In the same way that, as Michael Osborne has observed of the nineteenth-century French experience, Hippocratic medicine and medical geography “appeared as a sort of bridge—one of the few—between the metropolitan world of their medical training and the new world of sand and fevers encountered in Egypt and Algeria”. (Michael A Osborne, ‘Resurrecting Hippocrates: Hygienic Sciences and the French Scientific Expeditions to Egypt, Morea and Algeria’, in David Arnold (ed.), *Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500–1900*, *Clio Medica*, no. 35, Amsterdam and Atlanta, Rodopi, 1996, pp. 80–98, p. 86.

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The first issue of the *Bulletin of the History of Medicine* reveals the agenda of these forebears of contemporary history of medicine.⁷ The inaugural issue of what was to become a flagship journal featured introductions by Garrison and Sigerist to the history and geography of disease.⁸ The central question of such scholarship is how elements in an environment—including climate, vegetation, miasmas, weather, moisture, heat, winds, disease-carrying organisms, precipitation, or urban pollution—affect the health of the local population. From this study derives medical topography, which has come to use mapping as a central conceptual tool in discussing the health/environment relationships in a given area.⁹

The scholarship of this influential group was at once an effort to preserve a history and to create a future. In one 1946 article, George Rosen sought to establish Leonhard Ludwig Finke as a pivotal figure, commending the late-eighteenth-century scientist as the author of “the first comprehensive medical geography”.¹⁰ Rosen later emphasized in his preface to Ackerknecht’s *History and Geography of the Most Important Diseases* that “the geography and the history of disease” merits study for its “practical” applications.¹¹ Piece by piece, he attempted to recreate a history that might inform clinical concerns. Rosen’s and his peers’ interest in medical geography as a field of historical research and simultaneously of contemporary practice was to be foundational, though not without contest. In 1993, Frank Barrett celebrated in *Social Science and Medicine* the 200th anniversary of the publication of Finke’s major work.¹² In so doing, Barrett criticized Rosen’s translation and historical account of Finke, and he also urged medical geographers to claim their own historical roots.¹³ Finke’s work was a validating resource for Barrett; he found a usable ancestor by rejecting, in part, an older tradition of scholarship represented by Rosen in favour of an analysis Barrett regarded as more oriented toward the needs of contemporary medical geographers.

The last third of the twentieth century continued to link medical geography with

⁷ Thanks to Warwick Anderson for this observation. See his ‘Disease, Race, and Empire’, *Bulletin of the History of Medicine*, 1996, 70: 62–7. This journal was originally titled *Bulletin of the Institute of the History of Medicine*.

⁸ Fielding H Garrison, ‘Geomedicine: A Science in Gestation’, *Bulletin of the Institute of the History of Medicine*, 1993, 1 (1): 2–9; and Henry E Sigerist, ‘Problems of Historical-Geographical Pathology’, *Bulletin of the Institute of the History of Medicine*, 1933, 1 (1): 10–18.

⁹ These definitions are hardly stable: Michael Osborne, for instance, cites maps as central to the project of medical geography (see Chapter 2, p. 32).

¹⁰ George Rosen, in *Bulletin of the History of Medicine*, 1946, 20 (4): 527–31, p. 27, in the Introduction to his translation of Leonhard Ludwig Finke’s *Versuch einer allgemeinen medicinisch-praktischen Geographie, worin der historische Theil der einheimischen Völker- und Staaten-Arzeneykunde vorgetragen wird, 1792–1795*. See also his ‘Leonhard Ludwig Finke and the First Medical Geography’, in E Ashworth Underwood (ed.), *Science, Medicine and History*, New York, Arno Press, 1975, pp. 186–93; Barkhuus, op. cit. note 1 above, pp. 1998–2004; and Frank A Barrett, ‘Finke’s 1792 Map of Human Diseases: The First World Disease Map?’, *Social Science and Medicine*, 2000, 50: 915–21.

¹¹ George Rosen, Preface to Ackerknecht, op. cit., note 1 above, v–ix, p. ix.

¹² Frank A Barrett, ‘A Medical Geography Anniversary’, *Social Science and Medicine*, 1993, 37 (6): 701–10; see also Barrett, ‘Finke’s 1792 Map’, note 10 above.

¹³ Barrett, ‘A Medical Geography Anniversary’, note 12 above, p. 709, note 7. Barrett also suggests James Lind as an important and unrecognized source for medical geography and an important source for Finke: Frank A Barrett, ‘“Scurvy” Lind’s Medical Geography’, *Social Science and Medicine*, 1991, 33 (4): 347–53.

concerns of current practice, but this time largely through the efforts of geographers.¹⁴ Bench-marking and review articles again mark medical geography as a lively and self-conscious field in recent years,¹⁵ while survey texts on medical geography appearing since the 1970s attest to broad interest in these questions.¹⁶ During the publishing lifetimes of the founders of the history of medicine in the United States, geographers and epidemiologists enmeshed in the intricacies of bio-medical research rediscovered a discipline which Rosen argued had first flourished in the Enlightenment.¹⁷

The history told or implied in such works emphasizes the links between historical practice and current concerns, between older investigations and those of the present day. Yet the history told by geographers in their debates with one another connects only hesitantly with the histories forwarded by historians and practitioners of medicine. Whether historical scholarship or practice-oriented calls to action, whether works by medical historians or by historical geographers, the last century's writing on medical geography has in common an appeal to a historiography that itself remains largely unknown. We have been drawing up family histories without talking with our cousins.

This essay offers a sprawling and many-branched family tree to these two disciplines. It reviews the history of how Western societies have understood the relationships between environments and human health, in order to account for the stories told

¹⁴ In addition to material cited elsewhere, see any of the many articles in the numerous "special issues" on medical geography of the journal *Social Science and Medicine* (these include 1977, 11: 14–16; 1978, 12 (3/4 D); 1979, 13D (4); 1980, 14D (1); 1981, 15D (1); 1986, 23 (10); 1988, 26 (1); 1991, 33 (4); 1990, 30 (1); 1993, 37 (6); 1998, 46 (6); and 2000, 50 (7–8)).

¹⁵ These include: Robert Earickson, 'Geographic Research at the End of the Century: Papers from the Eighth International Symposium on Medical Geography', *Social Science and Medicine*, 2000, 50: 911–13; John A Gigg, 'Introduction [to a special issue on Medical Geography]', *Social Science and Medicine*, 1986, 23 (10): 913–18; Andrew Learmonth, 'Geographers and Health and Disease Studies, 1972–1980', *Social Science and Medicine*, 1981, 15D: 9–19; Jonathan D Mayer, 'Medical Geography: An Emerging Discipline', *Journal of the American Medical Association*, 1984, 251: 2680–3; Graham Moon, Myles Gould and Kelvyn Jones, 'Seven Up—Refreshing Medical Geography: An Introduction to Selected Papers from the Seventh International Symposium in Medical Geography, Portsmouth, U.K.', *Social Science and Medicine*, 1998, 47 (6): 627–9; Gerald F Pyle, 'Expanding North American Perspectives on Medical Geography', *Social Science and Medicine*, 1979, 13D: 205–7; idem, 'International Communication and Medical Geography', *Social Science and Medicine*, 1977, 11: 679–82. See also articles urging medical geographers to tackle new challenges or try different methodological frameworks: Charles M Good, 'Traditional Medicine: An Agenda for Medical Geography', *Social Science and Medicine*, 1977, 11: 705–13; Robin A Kearns and Alun E Joseph, 'Space in Its Place: Developing the Link in Medical Geography', *Social Science and Medicine*, 1993, 37 (6): 711–17; Vincent J Del Casino, Jr. and Michael L Dorn, 'Doubting Dualisms: A Genealogical Reading of Medical Geographies', in *Proceedings of the Eighth International Symposium in Medical Geography*, Baltimore, MD, by the Symposium, 13–17 July 1998: 89–101.

¹⁶ See, for example, G M Howe (ed.), *A World Geography of Human Diseases*, London, Academic Press, 1977; J M Hunter, *The Geography of Health and Disease*, Studies in Geography No. 6, Chapel Hill, University of North Carolina, Department of Geography, 1974; A T A Learmonth, *Patterns of Disease and Hunger*, Newton Abbot, David & Charles, 1978; or Gerald F Pyle (ed.), *Applied Medical Geography*, Winston, Washington and New York, Wiley, 1979.

¹⁷ Gary W Shannon, 'Editorial Comment: The Utility of Medical Geography Research', *Social Science and Medicine*, 1980, 14D: 1–2.

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by historians and geographers.¹⁸ This chapter provides a basic introduction to some of the movements and texts identified by existing scholarship in history and in geography as important, and it identifies areas that current scholarship fails to address. It is an attempt to bring together some of the forbears claimed by historians and by geographers, but not always shared, and often differently regarded.¹⁹

Search for Ancestors

The history of medical geography, whether told by historians or by geographers, is marked by a search for ancestors, specific historical figures whose works can be seen as creating, summing up, or radically rejuvenating the study of the relations between health and environment.²⁰ Almost all historical pieces—and a good many casual references—trace the genesis of the study of health and environment to the Hippocratic treatise *On Airs, Waters, and Places*.²¹

A historical figure of the fifth to fourth centuries before the common era, the Greek physician Hippocrates is the symbolic author of a set of texts written largely by practitioners associated with the school of medicine on the island of Cos. The treatise *On Airs, Waters, and Places* is an argument for close observation of local characteristics, based on the premise that disease is a product of specific locales. It treats elements of the environment—changes in season, direction and force of wind, the type and source of waters, the level of heat, the directions toward which towns face and the overall climate of an area—as important factors in human illness and well-being. The work is deeply based in humoral theory, assuming a fundamental linkage between the humours (the fluids of the body's interior) which regulated overall health and well-being, and the external forces capable of influencing the body's humoral balance. Much of the work is a practical manual of treatment for travelling healers who would be confronted by patients in a variety of regions. It was to become an important intellectual resource for later healers wishing to claim a historic foundation for their work on environment and disease.

¹⁸ Calling the field “medical geography” has the virtue of clarity—and of emphasizing the many connections with the field of geography. A broader conception of “relationships between environments and human health”, however, draws connections with scholarship pre-dating the term “medical geography”.

¹⁹ Because of restrictions of both language and space, this paper does not address a large literature from Eastern Europe, Asia, and the former Soviet Union on medical geography. Learmonth, ‘Geographers and Health’, note 15 above, provides some comparative analysis of work on medical geography in North America and in the (then-) USSR.

²⁰ For a telling critique of this search for ancestors, see Kari S McLeod, ‘Our Sense of Snow: The Myth of John Snow in Medical Geography’, *Social Science and Medicine*, 2000, 50: 923–35. One of the more intriguing possible pantheon members is Michel Foucault: see the thoughtful review by Chris Philo, ‘The Birth of the Clinic: an Unknown Work of Medical Geography’, *Area*, 2000, 32 (1): 11–19.

²¹ *Airs, Waters and Places*, in *Hippocratic Writings*, trans. J Chadwick and W N Mann, edited and with an Introduction by G E R Lloyd, Harmondsworth, Middlesex and New York, Penguin Books, 1978. Indeed, Michael Osborne takes the combination of geography and interest in Hippocrates as a definition of the field of medical geography (see his chapter in this book). On the legacy of Hippocratic thought in Western thought more broadly, see Clarence J Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*, Berkeley, University of California Press, 1967. For typical references to the Hippocratic origins of medical geography, see Anthony J Dzik, ‘Looking for Dangerous Places: Some Aspects of Medical Geography and Disease Mapping’, *West Virginia Medical Journal*, September/October 1997, 93: 250–3, p. 250.

In most versions of the history of understandings of health and environment, Hippocrates' text floats like a numerical constant, unchanged from era to era. The commentaries on the Hippocratic texts written by the Roman healer Galen in the second century of the common era helped keep them current in medical thinking; indeed, Galen based his own physiological thinking on the Hippocratic conception of health as founded on sets of four basic properties (hot, cold, wet, dry), and corresponding elements (earth, air, fire, water). Galen's prolific writings became foundational to later eras: his imposing set of works, and the figure of Hippocrates looming behind them, dominate much of subsequent Western medical scholarship for centuries.²²

In most accounts, the transmission of Hippocratic influence has been tied to the history of the document itself. The re-translation from Arabic sources of the Hippocratic collection thus provided thinkers—in this view of history—with the opportunity to knit back into the fabric of medical thinking a strand in danger of being permanently dropped.²³ Renewed interest in investigating and defining health/environment relationships beginning in the late seventeenth century, with the investigations of scholars in Italy, France and Britain, are therefore seen as continuing the impetus of the ancient Greeks. The investigations of Thomas Sydenham into epidemics in London during the period 1661–1675 are cast in many works as particularly important for the development of a quantitative approach to the study of the environmental factors of illness. Sydenham's work inspired Enlightenment physicians and scientists to develop the empirical study of relationships between climate, topography, weather, geography, and disease. A new science of medical meteorology emerged from this revitalization of medical environmental thinking.²⁴ In the several traditions of medical geography that followed in the late eighteenth through the nineteenth century, Hippocratic influence (or imprimatur) remained an important element: Kenneth Thompson, for instance, cites the translation into English of Hippocrates in 1737 as a key ingredient of the “refurbished” environmental therapeutics operating in the American West in the nineteenth century.²⁵

A continuing pantheon is credited with furthering Hippocrates' investigations—though some of these figures explicitly rejected the Hippocratic mantle. Leonhard L Finke's *Versuch einer allgemeinen medicinisch-praktischen Geographie* of 1792–5 has been identified by many historians as summing up the current state of knowledge at the end of the eighteenth century and beginning the modern history of medical geography.²⁶ August Hirsch's ambitious *Handbook of Geographical and Historical*

²² Lloyd, Introduction to *Hippocratic Writings*, op. cit., note 21 above, pp. 9–60, on pp. 51–9. For a brief account of medical geography between Hippocrates and the late Renaissance, see Grmek, op. cit., note 1 above, pp. 1074–5.

²³ Hannaway, op. cit., note 1 above, summarizes this standard story of the history of medical geography (on the Hippocratic textual tradition, see p. 296).

²⁴ On Sydenham and seventeenth- and eighteenth-century medical meteorology, see, for example, Hannaway, op. cit., note 1 above, pp. 296–300.

²⁵ Kenneth Thompson, 'Climatotherapy in California', *California Historical Quarterly*, 1971, 50 (2): 111–30, pp. 114–18.

²⁶ On Finke, see Barrett, 'Finke's 1792 Map', 'A Medical Geography Anniversary', and "'Scurvy" Lind's Medical Geography', notes 10, 12, and 13 above; and Rosen, 'Introduction' and 'First Medical Geography', both note 10 above.

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Pathology, originally published in Germany in the late nineteenth century and soon translated abroad, is frequently regarded as representing the epitome of nineteenth-century understanding of the interactions of health and environment.²⁷ Frank A Barrett and Michael Dorn have similarly called attention to Daniel Drake as a prolific and conceptually important medical geographer within the American context.²⁸

Though ideas about how environments shape bodies have changed radically over several millennia, Hippocrates is portrayed as first laying out the crucial questions in the field. Several historians have investigated the reasons for this perception of continuity, which at disparate historical moments has brought the legitimation of antiquity and the sheen of Greek learning to contemporary endeavours.

Genevieve Miller argues that the Hippocratic treatise was influential in providing the authority and stability of a classic text for ideas about environment and health that did, in fact, change greatly over time. She observes that

Each age before the present one read into “Airs, Waters, and Places” what it wanted to find there, using it as an authority for current medical hypotheses by accommodating it to recent views. It was always possible to discount particular sections too divergent from contemporary thought while extolling others.²⁹

The Hippocratic account of the relationship of environment and health provided a relatively flexible framework for a belief in the relationship of place to health, one to which practitioners from the fifteenth century to the present aver allegiance.

The “Hippocratic heritage” (used specifically as the title of one work on the history of ideas about weather and health) also had more historically particular uses.³⁰ In several different national contexts, commitment to Hippocratic medicine was rhetorically and intellectually connected with a medicine of forthright, empirical, *use*-oriented investigation. Michael Osborne has outlined what he terms a “resurrection of Hippocratic medical theory” among the investigations undertaken by French army

²⁷ August Hirsch, *Handbook of Geographical and Historical Pathology*, trans. Charles Creighton, 3 vols, London, The New Sydenham Society, 1883 (vol. 1 orig. publ. Germany, 1881). See also Barrett, this volume, Chapter 6.

²⁸ Daniel Drake, *A Systematic Treatise, Historical, Etiological and Practical, on the Principal Diseases of the interior Valley of North America, as They appear in the Caucasian, African, Indian, and Esquimaux Varieties of its Population*, Cincinnati, W B Smith; New York, Mason & Law, 1850 and 1854; on Drake, see Frank A Barrett, ‘Daniel Drake’s Medical Geography’, *Social Science and Medicine*, 1996, 42 (6): 791–800; and Michael Dorn, ‘(In)temperate Zones: Daniel Drake’s Medico-moral Geographies of Urban Life in the Trans-Appalachian American West,’ *Journal of the History of Medicine and Allied Sciences*, 2000, 55 (3): 256–91. See also Erwin H Ackerknecht, *Malaria in the Upper Mississippi Valley, 1760–1900*, Baltimore, Johns Hopkins Press, 1945 (Supplement No. 4 to the *Bulletin of the History of Medicine*).

²⁹ Genevieve Miller, ‘“Airs, Waters, and Places” in History’, *Journal of the History of Medicine and Allied Sciences*, 1962, 8 (1): 129–40, p. 140.

³⁰ Frederick Sargent, II, *Hippocratic Heritage: A History of Ideas About Weather and Human Health*, New York and Oxford, Pergamon Press, 1982. On weather and well-being, see also James Rodger Fleming, *Meteorology in America, 1800–1870*, Baltimore and London, Johns Hopkins University Press, 1990, especially chapter 3, ‘Observational Horizons in the 1830s and 1840s’, pp. 55–74; Karen Ordahl Kupperman, ‘The Puzzle of the American Climate in the Early Colonial Period’, *American Historical Review*, 1982, 87 (5): 1262–89; and Egill Snorrason, ‘Early History of Medical Climatology’, in Sidney Licht (ed.), *Medical Climatology*, Baltimore, Waverly Press, 1964, pp. 594–612.

physicians in the early nineteenth century.³¹ Medical professionals in expeditions to Egypt, parts of Greece, and Algeria found in a renewed Hippocratism a way of coming to terms with “a new world of sand and fevers” made accessible by France’s colonial expansion. The classicist and armchair colonialist Émile Littré popularized the Hippocratic writings to a generation of military medical officers, for whom, Osborne argues, Hippocrates’ attention to the characteristics of fever and the salubrity of environments “functioned as the progressive symbol of common sense and resonated with the utilitarian sensibilities of the scientists who worked on the periphery of empire”.³²

A similar conceptual grouping occurred among American physicians of the same period. Medical geography became a widespread preoccupation of medicine in the United States in the early and middle nineteenth century.³³ Discussing the fevers, diseases, and tendencies which proceeded from “new” lands to their new white inhabitants was a frequent theme of both social and medical works. Even back-country physicians investigated medical geographic questions; indeed, defining the medical geography of regions in the hinterlands was seen as integral to both the political and the social growth of the expanding republic.³⁴ Medical geographies and medical topographies began to comprise a substantial literature, and articles on the relations between health and environment in regions of the United States filled the journals of local medical societies.³⁵

Early-nineteenth-century American thinkers had at their disposal a set of concepts about medical geography influenced by contemporary research by French, British, and German investigators. Despite these diverse influences, however, the practice of writing medical topographies and making observations about local disease environments was seen at the time as a continuation of the Hippocratic tradition. Hippocrates was frequently and proudly cited in American medical topographies,³⁶

³¹ Osborne, *op. cit.*, note 6 above, p. 80. On French medical geography, see also Nigel M W T Allan, ‘Gustave Alexandre Liétard, Orientalist and Physician’, *Medical History*, 1981, 25: 85–8.

³² Osborne, *op. cit.*, note 6 above, p. 86.

³³ See, for instance, William Currie, *An Historical Account of the Climates and Diseases of the United States of America; and of the Remedies and Methods of Treatment, Which Have Been Found Most Useful and Efficacious, Particularly in Those Diseases Which Depend Upon Climate and Situation. Collected Principally from Personal Observation, and the Communications of Physicians of Talents and Experience, Residing in the Several States*, reprinted in facsimile from the 1792 edition, Philadelphia, T Dobson; New York, Arno Press and the *New York Times*, 1972.

³⁴ My article in this volume discusses these themes, and I address them in more depth in a chapter on ‘Local Knowledge’ in my PhD thesis: Conevery A Bolton, ‘“The Health of the Country”: Body and Environment in the Making of the American West, 1800–1860’, Department of the History of Science, Harvard University, 1998.

³⁵ John Harley Warner, *The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820–1885*, Cambridge, MA, Harvard University Press, 1986, pp. 75–6.

³⁶ “From the days of Hippocrates, the records of medical philosophy demonstrate that the phenomena of life are not the result of original organization only; but that the moral, intellectual, and physical capacities of man are subject to the influences of those causes, the aggregate of which constitutes climate”. Quotation from a review of Samuel Forry, *The Climate of the United States and its Endemic Influences. Based on the Records of the Medical Department and Adjutant General’s Office, United States Army* (New York, 1842), by ‘CC’ for *The Western Journal of Medicine and Surgery*, 1843, 7: 142–53, p. 146. Forry’s was a major work: see Fleming, *op. cit.*, note 30 above, pp. 68–70.

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and physicians still read *On Airs, Waters, and Places* as an active resource (it was reprinted until well after the American Civil War).³⁷

These self-perceived connections with Hippocratic thought have an important bearing upon the professional dynamics of American medicine in the first two-thirds of the nineteenth century.³⁸ Medical practice at the time was a highly agonistic field, in which a variety of schools competed for income, for recognition, and for intellectual validity.³⁹ As John Harley Warner has argued, the Hippocratic canon was used as an important professional—and professionalizing—resource by “regular” physicians, especially those influenced by or trained in European medical centres. “Regular” physicians cited Hippocrates as part of a rhetorical strategy contrasting their “rational” practice with the unnecessarily “ornate” explanatory systems of competing practitioners. Knowing the local environment according to the Hippocratic imperative was portrayed as empirical and a-theoretical—and therefore boldly democratic.⁴⁰ Allegiance to a medical geography inspired by and continuous with Hippocratic tradition was thus part of the professional as well as intellectual contestation characterizing early American medicine.⁴¹ Warner’s article, however, points out the tensions inhering in such recruitment of heroes. He notes that both supporters *and* opponents of “regular” medicine used Hippocrates as a rhetorical resource: historical ancestors are easier to raise up than to control.

Environment and Agency

Medical geography was for American physicians of the nineteenth century a mode of self-assertion. Other aspects of the history of medical geographical thinking may be similarly read as the history of efforts to assert control over territory both intellectual and physical. Concurrent with explicitly Hippocratic thought, the development and expansion of agency—of the individual and of the state—is a crucial element in many histories of medical geography.

In the early modern period, emerging European states’ need to define and strengthen

³⁷ “The last reprinting of ‘Airs, Waters, and Places’ for purely medical, and not medico-historical or philosophical, purposes took place in 1874”. Miller, *op. cit.*, note 29 above, p. 139.

³⁸ That is, while early-twenty-first-century historians might not want to write world history as a hero-story proceeding from the intellectual giants of ancient Greece, it is important to understand why nineteenth-century Americans—among other investigators—did so.

³⁹ See Barbara Gutman Rosenkrantz, ‘The Search for Professional Order in Nineteenth-Century Medicine’, chapter 3 in Judith Walzer Leavitt and Ronald L Numbers (eds), *Sickness and Health in America: Readings in the History of Medicine and Public Health*, 2nd ed., Madison, University of Wisconsin Press, 1985, pp. 219–32, for a thoughtful treatment of early-nineteenth-century professional dynamics. For a broad history of the period, see Paul Starr, *The Social Transformation of American Medicine*, New York, BasicBooks, 1982.

⁴⁰ Although Warner does not make this argument, Hippocrates was part of a larger set of ancient Greek texts (including the Oath of Athens) used to link American democracy with that of classical Greece.

⁴¹ John Harley Warner, ‘The Idea of Southern Medical Distinctiveness: Medical Knowledge and Practice in the Old South’, in Ronald L Numbers and Todd L Savitt (eds), *Science and Medicine in the Old South*, Baton Rouge and London, Louisiana State University Press, 1989, pp. 206–25. On medical geography and the dynamics of the American medical profession in the nineteenth century, see also the forthcoming dissertation by Michael Dorn, ‘(In)temperate Zones: Professional Power and Medical-Geographic Knowledge in the Ohio Valley, 1790–1850’, PhD dissertation, Department of Geography, University of Kentucky.

their own power laid the groundwork for an attention to local environments fundamental to later researches in “medical geography”. As recent work by Alix Cooper has demonstrated, European texts, especially the increasingly popular “local botanies”, began in the seventeenth century to identify the immediate environs as a critical locus of analysis.⁴² Much as statistical thinking would be propelled by the increasingly complex bureaucratic demands of central European states in the late Enlightenment, intense interest in the properties and resources of individual states fostered a broad range of investigations into local environments in the seventeenth century. Mercantilist thought spurred these concerns: nation-states of the early modern period had an increasing stake in understanding their own environments as well as foreign climes. The seventeenth and eighteenth centuries saw a rise in European interest in “the local” as empires of trade brought the exotic in.⁴³ Ties between the emerging conceptions of localism, state self-definition, and medical ideas present a rich area of work for those interested in the histories of medical/environmental thinking, one which could build on an existing scholarship documenting growth in nationally-specific trends in medical geography in the eighteenth century.⁴⁴

Several historians have identified a second important conceptual shift on which later investigations into health and environment would be predicated. In the late eighteenth century, they have argued, medical and scientific thinkers began to imagine themselves as having the power not simply to research local environments, but to change or improve them. This approach to the environment lay the foundation for the confident assertions of knowledge of the natural world which would take place in the prolific medical geographic work of the nineteenth century.

James C Riley, in *The Eighteenth-Century Campaign to Avoid Disease*, argues for a crucial shift in thinking about health and the environment.⁴⁵ Riley maintains that in the eighteenth century—specifically, in the 1740s—a renewed interest in Hippocratic notions of environment and disease combined with the tools of mathematical prediction, statistical analysis, and meteorological observation to produce an environmentalist medicine concerned with proactive measures to alter the environment’s

⁴² Mary Alexandra Cooper, ‘Inventing the Indigenous: Local Knowledge and Natural History in the Early Modern German Territories’, PhD dissertation, Department of the History of Science, Harvard University, 1998.

⁴³ Cooper, op. cit., note 42 above; and Lisbet Koerner, *Linnaeus: nature and nation*, Cambridge, MA, Harvard University Press, 1999, especially “Should Coconuts Chance to Come into My Hands”: Acclimatization Experiments’, pp. 113–39.

⁴⁴ Caroline Hannaway also uses this framework of analysis, observing that medical topographies, which formed a substantial European literature by the eighteenth century, were closely tied to view of “the local”. (Hannaway, op. cit., note 1 above, p. 301). Work on nationally-defined medical geography in the eighteenth century includes Christophe Duhamelle, ‘La Petite Enfance en Allemagne fin XVIIIe–début XIXe s.: La Vision des topographies médicales’, *Revue d’Histoire Moderne et Contemporaine*, October–December 1990, 37: 657–71; James C Riley, ‘The Medicine of the Environment in Eighteenth-Century Germany’, *Clio Medica*, 1983, 18: 167–78; and Gerhard Voigt, ‘Die medizinischen Topographien in Deutschland bis zum Ende des 18. Jahrhunderts’, Berlin, Rudolph Pfau, 1939 (my thanks to Alix Cooper for this source).

⁴⁵ James C Riley, *The Eighteenth-Century Campaign to Avoid Disease*, New York, St Martin’s Press, 1987. See also the thoughtful review essay by Matthew Ramsey: ‘Environment, Health, and Medicine in the Old Regime’, *Journal of Interdisciplinary History*, Spring 1989, 19 (4): 611–19.

salubrity. He asserts a connection between medical geography and an increased confidence on the part of European intellectuals and scientists in their ability to understand and alter their environments.

Riley further contends that these environmental measures account in part for the fall in mortality in Europe from the late eighteenth century, although they were effective for reasons other than those put forward by their proponents. Eighteenth-century physicians attacked disease “indirectly and unwittingly”, he argues, but they did so effectively.⁴⁶ His account restores both medicine and human agency to explanations of mortality decline. Historian Ludmilla Jordanova offers an account similar in its emphasis on power over the natural world. She contends that the 1790s witnessed a meshing of a number of approaches to the problem of the relationship between organism and environment. These concerns led to the melding of what had previously been aspects variously of the earth or the life sciences. Jordanova argues that this synthesis of earth science and environmental medicine was “embedded in all aspects of the life of the late Enlightenment”, and that it is reflected in the discussions about colonization of the Americas as well as in philosophical writings of the time. Through this synthesis, skills relating to the physical sciences entered the practices of medicine: the genre of medical cartography was born. Support for medical environmentalism, moreover, came easily from physicians eager to shore up a scientific rationale for their increased authority as arbiters of place as well as disease.⁴⁷ As in John Harley Warner’s account, dynamics of the medical profession play a significant role in shaping understanding of health and place.

Fundamental to the changes that Jordanova documents, moreover, is a shift in the evaluation of the importance of human agency with respect to the natural environment. She argues that “the new sciences of life and those of the environment contained within them theories which opened up the possibility of manipulating and managing the relationship between human beings and their surroundings”.⁴⁸ Earth science is in Jordanova’s account what alchemical ideas are in Francis Yates’ influential treatise on the Renaissance: that which empowered thinkers to view themselves as creative agents in the world.⁴⁹ Man as magus or physician as manipulator of the natural world: in these accounts, changes in ideas about human agency are the central narrative.⁵⁰

⁴⁶ Riley specifically cites “epidemiological action—drainage, lavation, ventilation, reinterment, and other similar measures” as “reducing human contact with disease-causing pathogens in the environment”. Riley, *op. cit.*, note 45 above, xiii–xiv.

⁴⁷ L J Jordanova, ‘Earth Science and Environmental Medicine: The Synthesis of the Late Enlightenment’, in L J Jordanova and Roy S Porter (eds), *Images of the Earth: Essays in the History of the Environmental Sciences*, BSHS Monographs 1, Chalfont St Giles, The British Society for the History of Science, 1979, pp. 119–46, p. 123. Interestingly, Heinz Zeiss made a similar point in an article in 1932: he too regarded *Geomedin* as uniting the earth and life sciences, Zeiss, *op. cit.*, note 4 above, p. 477.

⁴⁸ Jordanova, *op. cit.*, note 47 above, p. 137.

⁴⁹ For the classic statement of the “Yates thesis”, see Francis A Yates, ‘Renaissance Magic and Science’, in her *Giordano Bruno and the Hermetic Tradition*, Chicago and London, University of Chicago Press, 1964.

⁵⁰ On the playing out of these ideas of environmental manipulation in the United States, see Kenneth Thompson, ‘Trees as a Theme in Medical Geography and Public Health’, *Bulletin of the New York Academy of Medicine*, 1978, 54 (5): 517–31 and *idem*, ‘Forests and Climate Change in America: Some Early Views’, *Climatic Change*, 1980, 3: 47–64.

Other accounts of the history of relations between medicine and environment sharpen the focus on tools of exact measurement as that which granted authority over and knowledge of the natural world. Such a history of medical geography mirrors conventional understandings of the scientific revolution: in the European seventeenth century, crucial changes in the organization, the techniques, and the apparatus of the sciences fomented a fundamental change in the status of scientific observers, outfitting them skilfully to unravel the underlying truths of nature. In this history, measurement is central.

Many accounts of professional interest in health and natural surroundings portray developments in the ability quantitatively to measure aspects of the environment as pivotal. In the seventeenth century, improved techniques and technologies allowed more numerous, more precise, and a greater variety of measurements of the natural world. Bolstered by more sophisticated statistical analysis, these developments equipped observers of nature to make quantitatively-based conclusions and expanded the realm of individuals involved in the study of health and environment. Emerging statistical understanding called for large sets of measurements, often obtained by painstaking effort over long periods of time. The demand for voluminous and precise data led to the involvement of a broad spectrum of observers in the details of scientific measurement, and had the important secondary effect of giving rise to co-ordination of European national organizations in the eighteenth century, particularly in France and Germany.⁵¹ Medical geography became a kind of early “big science”.

By the early nineteenth century, techniques and assumptions of measurement, analysis and argument had been brought together into a set of practices centred around investigations of how environment determined human health. “Medical geography” had been articulated as a discipline encompassing elements of geography, meteorology, medicine, cartography, and geology. As Michael Osborne has noted, medical geography and medical topography were characterized above all by numerical, tabular, and cartographic display.⁵² Reports of the medical geography of particular areas in the United States throughout the nineteenth century, for instance, included detailed charts of wind direction and strength, humidity and daily temperature, rainfall, and other aspects of the measurable natural world.⁵³ James Cassedy’s work on quantification as a central aspect of medical practice and professionalization during the decades before the American Civil War points toward

⁵¹ Hannaway, *op. cit.*, note 1 above, p. 298. As Martin S Staum argues, this measurement was too much for some potential enthusiasts: the geography section of the Class of Moral and Political Sciences of the French National Institute at the end of the eighteenth century never coalesced as a research institution in part because of the tremendous demands for consistent and painstaking observational reports demanded by current conceptions of human geography. Martin S Staum, ‘Human Geography in the French Institute: New Discipline or Missed Opportunity?’, *The Journal of the History of the Behavioral Sciences*, 1987, 23: 332–9.

⁵² See Osborne’s essay, Chapter 2 in this volume. Mark Harrison, however, has drawn a distinction between medical geography and medical topography on these grounds, asserting that medical geography has a statistical basis that medical topography lacks (this came up in discussions at the conference ‘Medical Geography in Historical Perspective’.)

⁵³ For an account of medical/environmental studies in one region of the United States in the mid- and late nineteenth century, see Earl E Kleinschmidt, ‘Meteorological, Topographical, and Climatological Studies of Early Michigan Sanitarians’, *Bulletin of the History of Medicine*, 1942, 11: 161–73. See also ‘Local Knowledge’, in Bolton, *op. cit.*, note 34 above.

these connections. Further work could be done to assess the role that concern for the health of environments played in the rise of quantification and measurement more generally.⁵⁴

A further area of emerging scholarship has to do with European territorial expansion. The mastery over environment implied in the increasingly bold claims of medical geographers is intimately linked with the development of state consciousness and state power, and was profoundly influenced by the demands of European colonization.⁵⁵ A number of historians have emphasized the fear of hot climates in the European experience of colonial settlement from the seventeenth to the nineteenth centuries.⁵⁶ The very organization of medical geography was shaped by its colonial context: medical geography was created as a field primarily by military physicians and those connected with militarily-enforced settlement. Priorities reflected the demands of troop deployment and military expansion.⁵⁷

European colonial ventures were intimately connected with theories of race. Medical geography, as enunciated in the late eighteenth and nineteenth centuries,

⁵⁴ James Cassedy's brief survey text, *Medicine in America: A Short History*, Baltimore, Johns Hopkins University Press, 1991, takes as its theme environment and medicine; it provides a useful beginning for such works and suggests the fruitfulness for the history of medicine of attention to environment as an organizing principle. In other works, Cassedy has detailed the efforts of American physicians in the colonial period to use often-undependable scientific instruments to make climatic and meteorological measurements (see James H Cassedy, *Medicine and American Growth, 1800–1860*, Madison, University of Wisconsin Press, 1986, especially chapter 3, 'Medical Geography of a Growing Nation', pp. 33–59, and his 'Meteorology and Medicine in Colonial America: Beginnings of the Experimental Approach', *Journal of the History of Medicine and Allied Sciences*, 1969, 24 (2): 193–204). Genevieve Miller (op. cit., note 29 above) also emphasizes the significant change in the reception of medical environmental theories during the seventeenth century, when physicians began actively to test and further ancient theories using new scientific tools and techniques.

⁵⁵ On European colonial endeavours and environmental fears, see Philip D Curtin, 'The Promise and the Terror of a Tropical Environment', in idem, *The Image of Africa: British Ideas in Action, 1780–1850*, Madison, University of Wisconsin Press, 1964, pp. 58–87; Carville V Earle, 'Environment, Disease, and Mortality in Early Virginia', in Thad W Tate and David L Ammerman (eds), *The Chesapeake in the Seventeenth Century: Essays on Anglo-American Society*, Chapel Hill, University of North Carolina, 1979, pp. 96–125; Frank Hansford-Miller, 'A New Theory to Explain the Settlement of Western Australia in 1829—Climate and Health', Part 1 of 12 in *A History of Medicine in Western Australia 1829–1870*, Willetton, Western Australia, Abcado, 1988; Dane Kennedy, 'A Climate of Concern', in idem, *Islands of White: Settler Society and Culture in Kenya and Southern Rhodesia*, Durham, Duke University Press, 1987, pp. 109–27; Annemarie de Knecht-van Eekelen, this volume, Chapter 4; H Roy Merrens and George D Terry, 'Dying in Paradise: Malaria, Mortality, and the Perceptual Environment in Colonial South Carolina', *The Journal of Southern History*, 1984, 50 (4): 533–50; H Roy Merrens, 'The Physical Environment of Early America: Images and Image Makers in Colonial South Carolina', *Geographical Review*, October 1969, 59: 530–56; Gary Puckrein, 'Climate, Health and Black Labor in the English Americas', *Journal of American Studies*, 1979, 13: 179–93; and Darrett B Rutman and Anita H Rutman, 'Of Agues and Fevers: Malaria in the Early Chesapeake,' *William and Mary Quarterly*, 1976, 33: 31–60.

⁵⁶ Dane Kennedy, 'The Perils of the Midday Sun: Climatic Anxieties in the Colonial Tropics', in John M MacKenzie (ed.), *Imperialism and the Natural World*, Manchester and New York, University of Manchester Press, 1990, pp. 118–40; and Karen Ordahl Kupperman, 'Fear of Hot Climates in the Anglo-American Colonial Experience', *William and Mary Quarterly*, 1984, 41: 213–40. Elaborate equipment to shield Europeans' heads and spines was still in use in the First World War; see E T Renbourn, 'Life and Death of the Solar Topi: A Chapter in the History of Sunstroke', *Journal of Tropical Medicine and Hygiene*, 1962, 65 (8): 203–18.

⁵⁷ Osborne and Harrison, both in this volume, and others have noted the strong connections between medical geography and military projects; James Cassedy's work on demography in American medicine touches on these connections (Cassedy, *Medicine and American Growth*, note 54 above).

provided formal structure for an environmental discourse on race and racial difference. Professional publications buttressed widespread American and European perceptions that races were fitted for certain environments, and those environments only.⁵⁸ The different climates of exotic sites came in colonizers' perception to represent a danger at once moral, physical, and racial. Hot climates threatened individual Europeans' bodies: they might perish with unaccustomed diseases, the fat in their bodies might melt or burst into flames, and their brains could become unaccountably addled. The looseness and laxity associated with the torpor of hot environments—from New Orleans to Bangalore—similarly heralded dangers to moral self-discipline. These changes, moreover, threatened to deform racial identity: Europeans out of their God-given (or evolutionarily-appropriate) environment would become degenerate, more primitive and less civilized, like the native peoples from whom they sought to differentiate themselves. Degeneration, eighteenth- and nineteenth-century observers feared, would pass itself along a racial line—especially one weakened by the “miscegenation” which Europeans saw taking place in “frontier” regions, watering down and diluting original racial stock.⁵⁹

Such ideas about “otherness”, race, and environment express complicated aspects of European and American states' colonial ventures. While much of the work on colonial and state expansionist medical geography focuses on the ways in which explorers or settlers saw land as *different* from that to which they were accustomed, Mark Harrison's work on the colonial medical geographies of British India points out that medical geography could be used to frame environments as essentially *similar*—different “in degree”, rather than in kind.⁶⁰ Harrison's discussion also highlights ways in which research on medical geography contributes to an expanding study of colonialism: medical geography as colonial knowledge in India, he argues, was heterogeneous and changed over time, often because of shifting degrees of pessimism about the military and cultural success of the British colonial venture in India. Medical geography in his account expresses the

⁵⁸ Both before and after modern concepts of species evolution.

⁵⁹ On degeneration within European culture, see Daniel Pick, *Faces of Degeneration: A European Disorder, c.1848–c.1918*, Ideas in Context, Cambridge, Cambridge University Press, 1993; and Kennedy, ‘The Perils of the Midday Sun’, note 56 above; in the American context, Nancy Stepan, ‘Biological Degeneration: Races and Proper Places,’ in J Edward Chamberlain and Sander L Gilman (eds), *Degeneration: The Dark Side of Progress*, New York, Columbia University Press, 1985, pp. 97–116; and on the feared degeneration of Americans and Europeans in the colonial tropics, Warwick Anderson, op. cit., note 7 above; idem, ‘Immunities of Empire: Race, Disease, and the New Tropical Medicine, 1900–1920’, *Bulletin of the History of Medicine*, 1996, 70: 94–118; and idem, ‘The Trespass Speaks: White Masculinity and Colonial Breakdown’, *American Historical Review*, December 1997, 102 (5): 1343–70. Not all investigators took this negative view: as Michael Osborne points out, in the 1830s the French army physician J A N Périer viewed intermarriage as an important adaptive strategy for the French colonial regime (though by the 1860s his views would shift against intermarriage). Osborne, op. cit., note 6 above, pp. 92–3.

⁶⁰ Mark Harrison's article appears as Chapter 3 in this volume; see also his *Climates and Constitutions: Health, Race, Environment and British Imperialism in India, 1600–1850*, New Delhi and New York, Oxford University Press, 1999. For observations of radical difference from accustomed environments, see also my and Michael Osborne's contributions to this volume.

vulnerability and changeability as well as the confidence and hegemony of European territorial expansion.⁶¹

This emphasis on Europeans' experience and interpretation of "hot" colonized regions gives a compelling insight into Europeans' experiences of the natural world beyond their borders. Alan Bewell has recently reversed these questions, offering a thoughtful discussion of the ways in which European environmental fears shaped not simply colonial interactions, but British cultural self-perceptions.⁶² More work remains to be done on interactions of notions of environment between Europeans and the inhabitants of places where European ships landed.

A recent conference on the history of polar expeditions also offers a potentially rich vein of research: what were the governing conceptions of *cold* and *coldness* of the European eighteenth and nineteenth centuries?⁶³ How was fear of heat tied to the valorization of cold? And how did this shift in environments in which cold itself became threatening? Harriet Deacon, among others, has begun to explore how the perceived healthfulness of places could change with political and social imperatives.⁶⁴ Such local studies can help shape further directions in the field of climatological experience.

Medical geography thus held an important place in medical understanding during the post-Enlightenment period of European territorial expansion. It informed European and American concepts of race and empire, it provided a framework for medical investigation, and it underlay popular understanding of places and peoples during a period of intense settlement by Europeans and North Americans.⁶⁵ Particular technologies, moreover, developed medical geography further as a discourse of state and race.

In the nineteenth-century German states, under the aegis of the geographer and explorer Alexander von Humboldt, medical geography became an exercise in mapping, cartography, and charting diseases and peoples.⁶⁶ Nicolaas A Rupke has identified a "Humboldtian medicine" which "expanded the scope of the Humboldtian programme to include a systematic study of the global variable of human diseases, making use of the concepts, terminology and representational forms of the new

⁶¹ On such vulnerability, closer to home, see Alan Bewell, 'Jane Eyre and Victorian Medical Geography', *ELH*, 1996, 63 (3): 773–808, and idem, *Romanticism and Colonial Disease*, Baltimore and London, Johns Hopkins University Press, 1999.

⁶² Bewell, *Romanticism and Colonial Disease*, note 61 above.

⁶³ 'Collective Memory & Heroic Science', 29–30 August 1997, University of Oslo, organized by Robert Marc Friedman. On fears for the effects of cold climates in the seventeenth century, see Z S Fink, 'Milton and the Theory of Climatic Influence', *Modern Language Quarterly*, 1941, 2: 67–80.

⁶⁴ Harriet Deacon, 'The Politics of Medical Topography: Seeking Healthiness at the Cape during the Nineteenth Century', in Richard Wrigley and George Revill (eds), *Pathologies of Travel*, Amsterdam and Atlanta, Rodopi, 2000, pp. 279–98.

⁶⁵ On medical geography in the British imagination of the late eighteenth to the mid-nineteenth centuries, see 'Romantic Medical Geography: Empire, Disease, and the Construction of Pathogenic Environments', in Bewell, *Romanticism and Colonial Disease*, note 61 above, pp. 27–65.

⁶⁶ On the broader history of medical cartography and mapping, see Frank A Barrett, 'Alfred Haviland's Nineteenth-Century Map Analysis of the Geographical Distribution of Diseases in England and Wales', *Social Science and Medicine*, 1998, 46 (6): 767–81; Barrett, 'Finke's 1792 Map', note 10 above; Saul Jarcho, 'Yellow Fever, Cholera, and the Beginnings of Medical Cartography', *Journal of the History of Medicine and Allied Sciences*, April 1970, 25 (2): 131–42, and McLeod, op. cit., note 20 above.

plant geography”.⁶⁷ Several essays in this volume discuss the work of a Humboldtian cadre including Adolf Mühy, Friedrich Schnurrer, and Heinrich Berghaus.⁶⁸ Cartography was an important dimension of their work: the Humboldtian medical geographers created disease maps modelled after the plant/temperature/altitude correlative maps of Humboldt and shaped by the overall project of assessing large-scale correlations between physical and topographic phenomena.⁶⁹

The style of disease map pioneered by these investigators held powerful consequences. Nations and populations were soldered to specific climates and regions in their visually powerful and intellectually persuasive mappings. The era of the disease map marked the success of large-scale theoretical systems relating degrees and types of civilizations to types of peoples. Further, the elaborate, richly detailed maps enmeshed plants, diseases, animals, human races and topography in a holistic understanding of environment, conveyed with a visual immediacy and even elegance which furthered their impact—among both professional and popular audiences.⁷⁰

This proscriptive mapping of peoples performed the work not only of making known, but of making know-able foreign peoples and climes.⁷¹ “A good map”, Michael Osborne has observed of the French nineteenth-century medical topography, “showed the bureaucracy of colonization, soldier and settlers how to avoid disease, the key for Europeans operating in the colonies”.⁷² The disease maps of the Humboldtian medical geographers, like the descriptive medical geographies they often accompanied, were to constitute empire no less than scientific knowledge.

In the context of the United States, the dynamics of colonial engagement similarly tied medical geography to the development and exercise of state power. Gilbert Chinard, in a perceptive but little-noticed article, calls attention to the political use of geographically- and environmentally-related medical and scientific arguments in the conflict between the former eastern American colonies and European colonial powers.⁷³ Chinard analyses the disputes between American Federalists and French

⁶⁷ Nicolaas A Rupke, ‘Humboldtian Medicine’, *Medical History*, 1996, 40: 293–310, p. 297.

⁶⁸ See essays by Nicolaas A Rupke and Karen E Wonders, and Rainer Brömer, Chapters 9 and 10 in this volume. Jane R Camerini, in contrast, cautions that not all nineteenth-century medical cartography partook of these “Humboldtian” characteristics and argues for a closer and more detailed examination of the details of specific maps and of the political contexts in which early-nineteenth-century mapmaking took place. See Chapter 11 in this volume.

⁶⁹ Rupke, *op. cit.*, note 67 above.

⁷⁰ Though much of the “Humboldtian medical geography” here described took place in the professional scientific literature, it was not confined to that venue: Rainer Brömer has observed that an important 1820s article by Schnurrer was forgotten because it was published in a popular source (this volume, Chapter 10, p. 183). Brömer also calls attention to the commercial success of popularly-oriented work by Schnurrer (p. 185).

⁷¹ I draw here on Benedict Anderson’s work on mapping as a colonial discourse (*Imagined Communities: Reflections on the Origin and Spread of Nationalism*, rev. ed., London and New York, Verso, 1991 (first published 1983)).

⁷² Osborne, *op. cit.*, note 6 above, p. 82.

⁷³ Gilbert Chinard, ‘Eighteenth Century Theories on America as a Human Habitat’, *Proceedings of the American Philosophical Society*, 1947, 91 (1): 27–57. My thanks to Warwick Anderson for sharing with me this source—along with many others that have similarly sparked my thinking and our conversation. On the broader history of the environmental arguments about North America, see Antonello Gerbi, *The Dispute of the New World: The History of a Polemic, 1750–1900*, trans. Jeremy Moyle, revised and enlarged ed., Pittsburgh, University of Pittsburgh Press, 1973 (originally published 1955).

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monarchists in the late eighteenth century over the nature of North America as a human habitat. French observers—both political figures and scientists—argued that plants, animals, and humans would necessarily degenerate in the New World. Representatives of the U.S. took issue with the specific scientific measurements offered by their French antagonists, but—as Chinard emphasizes—they failed to challenge the fundamental conception of American identity that underlay the French criticisms. Both French and American thinkers accepted the idea of the States as a young people, one experiencing the problems of a youthful civilization. In this sense, the French established the terms of the debate even as they failed to press home specific points of their arguments to patriotic American emissaries.

Medical geography in the nineteenth-century United States also played an important role in the development of the rhetoric of division between North and South. John Harley Warner and John Duffy, among others, have developed this theme.⁷⁴ Duffy argues that physicians' interest in the medical geography of the late eighteenth and early nineteenth centuries had a particular valence in the American South. In the context of growing political tensions over slavery, the attention to environment and health led many Southern physicians to argue, first, that blacks were fundamentally different from whites (and, by extension, could be accorded different political rights and privileges), and second, that Southern diseases were peculiar to the South and required distinctively Southern medical training and care. If the underlying argument of Chinard's article is that medical geography in the Revolutionary period was shaped by and expressed the real action of international politics and diplomacy, Duffy's contention is that conceptions of medical geography themselves shaped politics and political debates.

Medical geography, a set of practices based around the understanding of how humans—or what kinds of humans—could live and thrive in various environments, was part of the conceptual and material underpinning of the colonialism created by European powers, and was one aspect of the process of self-definition engaged in by a United States at once increasingly powerful and increasingly riven over the course of the nineteenth century. The different courses of colonial endeavours would have a strong effect on the subsequent course of medical geography.

Twentieth-Century Shifts

Shifts in the field mark the opening decades of the twentieth century. Historians concur that medical geography quickly faded as a concern of the popular realm. As Dane Kennedy details, the concept of the innate harmfulness of the sun's rays became discredited by the mid-twentieth century: “heat” began to lose its potency for a public increasingly concerned with “germs”.⁷⁵ As Warwick Anderson has argued, “tropical neurasthenia” became for many white colonial administrators a

⁷⁴ John Duffy, ‘A Note on Ante-Bellum Southern Nationalism and Medical Practice’, *Journal of Southern History*, 1968, 34 (2): 266–76. See also John Harley Warner, ‘The Idea of Southern Medical Distinctiveness’, and Margaret Humphreys Warner, ‘Public Health in the Old South’, both in Numbers and Savitt (eds), *op. cit.*, note 41 above, pp. 206–25 and pp. 226–55.

⁷⁵ Kennedy, ‘The Perils of the Midday Sun’, note 56 above.

vehicle for the attribution of environmentally-based harm—but one which allowed for both social and etiological flexibility. Freudian analysis of sexual repression began in the early twentieth century to replace concerns for moist heat as the perceived cause of the nervousness and debility of American colonial administrators in the Philippines, but the radical nature of that explanatory shift was to some degree smoothed over by the common currency accorded “tropical neurasthenia”.⁷⁶

In the early part of the twentieth century, the older language and concerns of medical geography were taken up by those interested in diseases of hot climates, but with a fundamentally different epistemic basis. “Tropical medicine”, rather than “medical geography”, became the rubric under which to investigate diseases of “whites” in “dark” lands.⁷⁷ The concept of “environment” lost much of its holistic embrace, becoming instead of a unified set of influences a more narrow harbourer of pathogens.

Recent accounts provide more nuance to our understanding of the extent and nature of this shift. Warwick Anderson, in his work on Australian medicine and national identity, contends that the opening decades of the twentieth century witnessed a change in white Australians’ perception of the locus of infection. In-sanitary native bodies, rather than a hostile tropical environment, became pathologized in an Australian literature dominated by concern over white settlement. In this transformation, older frameworks of acclimatization fell by the wayside: disease became mobile, no longer tied to a static environmental or racial identity. These changes had important consequences for ideas of race. “[W]hite Australia”, Anderson argues, “could be represented as a medical necessity, not just a national goal”.⁷⁸ In Anderson’s account, the successful challenge to medical geographic thinking raised by economic and social arguments for white settlement of the Australian North marked both the triumph of laboratory science over a hoary environmental determinism and a concomitant revitalization of human agency over a once-powerful environment. “[M]edicine was not just a means of knowing a territory”, Anderson argues, “it offered . . . an opportunity to reshape it”.⁷⁹

Other accounts point toward the co-existence of concepts of environmental determinism and medical geography and newer ideas of laboratory pathology and germ theory.⁸⁰ W F Bynum, for example, has observed that the identification of mosquitoes as the vector for malaria “simply reinforced the sense of place for malaria”

⁷⁶ Anderson, ‘The Trespass Speaks’, note 59 above.

⁷⁷ Ackerknecht, *Malaria in the Upper Mississippi Valley*, note 28 above. Warwick Anderson argues for the creation of tropical medicine out of an older framework based around acclimatization in his ‘Immunities of Empire’, note 59 above. On the “pre-history” of tropical medicine, see Arnold (ed.), op. cit., note 6 above.

⁷⁸ See Anderson’s article in this volume, p. 159.

⁷⁹ Anderson, this volume, p. 159. He has made a parallel argument with respect to the ending of environmentally determinative thinking, the increasing power of laboratory science, and the growing strength of a “more interventionist approach to the tropical environment” in “‘Where Every Prospect Pleases and Only Man is Vile’: Laboratory Medicine as Colonial Discourse’, in Vicente L Rafael (ed.), *Discrepant Histories: Translocal Essays on Filipino Cultures*, Philadelphia, Temple University Press, 1995, 83–112, p. 90 (first published in *Critical Inquiry*, 1992, 16 (3): 591–611).

⁸⁰ Thompson, op. cit., note 25 above, p. 125.

in India.⁸¹ Michael Osborne similarly discusses the ways in which Hippocratic doctrine accommodated germ theory in late-nineteenth-century France.⁸²

Recent scholarship also identifies disciplinary changes, rather than strictly scientific developments, as one important element in the decline of medical environmentalism in the early twentieth century. In Germany, as Nicolaas Rupke has observed, the field faded by the turn of the century, victim less of the bacteriological revolution than of failure to become associated with a vision of humanist reform.⁸³ Michael Osborne has noted that in the French tradition, medical geography, which had emerged from concerns of French military ventures, largely disappeared back into the field of military hygiene in the early twentieth century. Medical geography failed not because of epistemological rift, but because of the failure of hygiene as a discipline.⁸⁴ While no one story of shifts in medical geography may coalesce from these accounts, they bring to the forefront the deeply context-dependent nature of interpretations of health and environment.

In the early twentieth century, scientific and medical practices shifted focus away from the older pursuits of medical environmentalism. That which characterized “environment” changed: the laboratory, rather than the romantic frontiers of Humboldt, increasingly became the site of understanding.⁸⁵ The contrast between country practitioners doggedly measuring rainfall in St Louis in the mid-nineteenth century with white-coated scientists in portable lab tents in the early twentieth speaks volumes for changes in visions of environment and disease. Yet some historical work suggests that the language and fears of medical environmentalism often persisted. An old suspicion of environment as a potentially menacing whole creeps into bacteriologically-based reports; older racial hierarchies and fears of white degeneration remain, explained in somewhat different terms.

Out of multiple possibilities of the Second World War emerged a world in which research priorities set by the Anglo/European countries held disproportionate influence. Studies in medical geography—like much else—were transformed after the war. From the perspective of many contemporary health geographers, the immediate post-war period proved a time of re-grouping and renewed focus.⁸⁶ The early 1950s saw an invigoration of the discourse of medical geography, spurred by the institutional recognition of the field granted by the International Geographic

⁸¹ W F Bynum, “‘Reasons for Contentment’: Malaria in India, 1900–1920”, *Parassitologia*, 1998, 40: 19–27, p. 23.

⁸² This volume, Chapter 2, p. 43.

⁸³ Rupke, *op. cit.*, note 67 above, pp. 307–9.

⁸⁴ This volume, Chapter 2, pp. 43–50.

⁸⁵ For one exception, which presages much subsequent work in medical geography, see Edgar Sydenstricker, *Health and Environment*, New York and London, McGraw-Hill, 1933.

⁸⁶ Paul, *op. cit.*, note 1 above, is typical of recent practitioners who cast the history of medical geography as experiencing a rebirth because of the Second World War. This marks a difference in periodization: historian Mirko Grmek, in contrast, insisted that the First World War was a defining moment in the history of medical geography because of the vast numbers of soldiers who were shipped to various parts of the world, Grmek, *op. cit.*, note 1 above, p. 1087.

Union.⁸⁷ A 1951 article by the French geographer Jacques May, in particular, is credited by later medical geographers as setting the agenda for the subsequent development of the field.⁸⁸ In this and subsequent works, May alerted geographers to the possibilities of studying relations between health and environments.⁸⁹ In 1977, the journal *Social Science and Medicine*—one important venue for the publication of works dealing with issues of medical geography—re-published May’s groundbreaking article.⁹⁰ The journal also printed in 1978 the never-before-published report to a quadrennial Congress of the International Geographical Union in 1952.⁹¹ In the introduction to this publication, Andrew Learmonth cited the “current wave of interest in medical geography” and argued that these texts are “historic documents of the evolution of our field of study at the crucial post-war renaissance stage”.⁹²

The professional orientation of the field given renewed emphasis by May followed his lead. As Bimal Kanti Paul’s historical account in *Social Science and Medicine* notes, “it was the physician, not the geographer, who contributed solely to the early development of medical geography. In contrast, the current development of the discipline is being widely contributed to by the geographer”.⁹³ A geographic view of medicine and health pervades much recent work.⁹⁴ This shift is particularly evident in two major themes of the last half century in medical geography: disease ecology and health care delivery.⁹⁵ From the early 1970s, one trend in Anglo and North American medical geography has been the study of health services and the cultural

⁸⁷ Arthur Geddes, ‘Report to the Commission on Medical Geography’, *Social Science and Medicine*, 1978, 12D: 227–37 (originally written 1952); A T A Learmonth, ‘Introduction to the First Report of the Commission on Medical Geography (Ecology) of Health and Disease of the International Geographical Union XVIIth International Congress, 1952’, *ibid.*, pp. 207–50; for the continued efforts of a related group in the late 1970s, see A V Chaklin, ‘Some Results and Prospects of the Activities of the Working Group on “The Geography of Health” Under the Aegis of the International Geographical Union’, *Social Science and Medicine*, 1981, 15D: 50–7.

⁸⁸ Jacques M May, ‘Medical Geography: Its Methods and Objectives’, *Social Science and Medicine*, 1977, 11: 715–30 (reprinted from *Geographical Review*, 1951, 51 (9)); on May’s influence, see, for example, Paul, *op. cit.*, note 1 above, p. 399; and Grmek, *op. cit.*, note 1 above, p. 1090.

⁸⁹ See, for example, Jacques M May, ‘Medical Geography: A Theory of Medicine’, *Journal of Biosocial Science*, 1974, 6 (2): 187–92.

⁹⁰ May, ‘Medical Geography: Its Methods and Objectives’, note 88 above. Other mid-century works were similarly republished: see Jacques May, ‘History, Definition, and Problems of Medical Geography: A General Review’, *Social Science and Medicine*, 1978, 12D: 211–19; and Max Sorre, ‘Principes de Cartographie Appliqués à l’Ecologie Humaine’, *Social Science and Medicine*, 1978, 12D: 238–50.

⁹¹ Learmonth, ‘Introduction’, note 87 above.

⁹² Learmonth, ‘Introduction’, note 87 above, p. 207.

⁹³ Paul, *op. cit.*, note 1 above, p. 402.

⁹⁴ On this shift, see Learmonth, ‘Geographers and Health’, note 15 above; for examples of such work, see W B Fisher, ‘Proceedings: Aspects of Medical Geography. Geography and the Organization of Medical Services’, *Journal of Biosocial Science*, 1974, 6 (2): 261–6; or P L Knox, ‘The Geography of Health Care: An Historical Perspective’, *Geoforum*, 1982, 12: 245–50.

⁹⁵ My understanding of recent trends—as well as these and many of the following citations to current work—is greatly indebted to Wil Gesler. My thanks for his interest and generosity: our correspondence leaves me hopeful about the possibilities for cross-disciplinary conversation that this essay attempts to promote. For attempts to bring these two fields together, see J Mayer, ‘Relations between Two Traditions in Medical Geography: Health Systems Planning and Geographical Epidemiology’, *Progress in Human Geography*, 1982, 6: 216–30; and G F Pyle and B M Lauer, ‘Comparing Spatial Configurations: Hospital Service Areas and Disease Rates’, *Economic Geography*, 1975, 51: 50–68.

geography of healthcare provision.⁹⁶ Disease studies have further broadened to include mental health under the rubric of medical geography.⁹⁷ Older themes, however, still emerge: the influence of geography has deepened the reliance of medical geography on increasingly elaborate techniques of measurement, quantification, and visualization, with the development of Global Information Systems in recent years.⁹⁸

Another element of recent medical geographical scholarship has been the mapping of the so-called “emerging diseases”—especially AIDS—of the last ten years.⁹⁹ Such work, however, carries with it implicit assumptions about both environments and disease. The very notion of “emerging disease” implicates a global geography cast as aggressively and threateningly modern. Highly-developed systems of transport and commerce—as well as increasingly porous national boundaries and interconnected economic relations—are seen as integral to the “success” of these ills. Characterizations of human geography are thus central to the concept of “emerging diseases” which crystallizes a set of cultural fears in the contemporary industrial world. The language surrounding emerging diseases is only now beginning to be critiqued and historically situated. Such historical work may illuminate more fully how the notion of “emergence” itself implies a sense of space as much cultural as it is medical.¹⁰⁰

In other ways, historians’ work reflects some of the same priorities as geographers’.¹⁰¹ Chris Philo’s “‘Fit localities for an asylum’: The Historical Geography of the Nineteenth-century ‘Mad-business’ in England as Viewed through the Pages of the *Asylum Journal*” attends to the geography of institutions in the past in a way which mirrors current attention to the geography of institutions, health services, and

⁹⁶ Much of this work appears in the journal *Health Services Delivery*. For recent work on the geography of health care delivery, see M Meade, et al., *Medical Geography*, New York, Guildford, 1988; A E Joseph and D R Phillips, *Accessibility and Utilization: Geographical Perspectives on Health Care Delivery*, New York, Harper and Row, 1984; W M Gesler and T C Ricketts (eds), *Health in Rural North America*, New Brunswick, Rutgers University Press, 1992; and T C Ricketts, et al. (eds), *Geographic Methods for Health Services Research*, Lanham, MD, University Press of America, 1994.

⁹⁷ See, for instance, C J Smith and J A Gigg (eds), *Location and Stigma: Perspectives on Mental Health and Mental Health Care*, Boston, Unwin Hyman, 1988; M Dear and S M Taylor, *Not on Our Street*, London, Pion, 1982; and M Dear and J R Wolch, *Landscapes of Despair: From Deinstitutionalization to Homelessness*, Princeton, Princeton University Press, 1987.

⁹⁸ A W Hightower and R E Klein, ‘Building a Geographic Information System (GIS) Public Health Infrastructure for Research and Control of Tropical Diseases’, news article in *Emerging Infectious Disease*, October–December 1995, 1 (4): 156–7.

⁹⁹ See, for example, Gary W Shannon and Gerald F Pyle, ‘The Origin and Diffusion of AIDS: A View from Medical Geography’, *Annals of the Association of American Geographers*, 1989, 79 (1): 1–24.

¹⁰⁰ Heather Schell, ‘Outburst! A Chilling True Story about Emerging-Virus Narratives and Pandemic Social Change’, *Configurations*, 1997, 5: 93–133. I am also drawing on recent work-in-progress by Nick King, particularly his “‘Emerging Diseases’ and Twentieth-Century Geographies of Disease”, presentation at the session ‘Race, Body, Region’, Conference of the American Society for Environmental History, 16–19 March, 2000, Tacoma, Washington.

¹⁰¹ Essays like ‘Disease Ecologies of North America’, in a section detailing ‘The Geography of Human Disease’ in different world-zones in a recent encyclopedia on the history of medicine, would be at home in either field (Frank C Innes, ‘Disease Ecologies of North America’, in Kenneth Kiple (ed.), *Cambridge World History of Human Disease*, Cambridge, Cambridge University Press, 1993, pp. 519–35). For cautious objections to the increasing interdisciplinarity of medical geography, from within its ranks, see Kearns and Joseph, op. cit., note 15 above.

health delivery.¹⁰² Moreover, other recent historical work has followed trends in geography toward understanding the historical geography of insanity and mental health.¹⁰³ Philo's article was published in a journal devoted to historical geography: even the history of the field, as well as its practice, has in recent years shifted in the direction of geography. Much as in the 1930s and 1940s, practice and history-making once again converge.

Conclusion: Current Possibilities

This search for ancestors has uncovered some skeletal, others already fleshed out and clothed in the garments of historical scholarship. Such a genealogy can be in many ways instructive—encouraging, for instance, comparisons between the medical geography of different national contexts—but it carries within it the source of its own bafflement. Hippocrates, pliable indeed, recurs throughout medical geographical scholarship, but with more enthusiasm than exactitude. His followers in early-nineteenth-century France or North America might not recognize a shared heritage with the earnestly historically-minded geographers of the early twenty-first century who also call attention to their links with the “Father of Medicine”.

“Medical geography” preoccupied many medical practitioners' energies throughout the nineteenth century, yet works of medical geography or topography of different countries or national traditions proceed from fundamentally disparate influences. One can discover a family resemblance but not a shared history. Connecting the dots between major figures—as Ackerknecht or Sigerist would wisely have admonished—creates some interesting configurations, but one drawn only with thin lines. Future work may well focus on the spaces between, around, and among the lines traced in this kind of family tree.

Almost all the work in the field to date—and much of that reviewed thus far—relates to the history of professional or elite ideas.¹⁰⁴ Work on the broader popular understandings of environmental health in early modern and nineteenth-century England indicates the rich possibilities for research on *lay* perspectives on health and geography.¹⁰⁵ Karen Ordahl Kupperman's essay on English fears of the sun in colonial settings is representative of the strengths of this kind of analysis.¹⁰⁶

¹⁰² Chris Philo, “‘Fit localities for an asylum’: The Historical Geography of the Nineteenth-century ‘Mad-business’ in England as Viewed through the Pages of the *Asylum Journal*”, *Journal of Historical Geography*, 1987, 13 (4): 398–415.

¹⁰³ Jonathan Andrews, ‘Letting Madness Range: travel and mental disorder c. 1700–1900’, in Wrigley and Revill (eds), op. cit., note 64 above, 25–88; Chris Philo, ‘Across the Water: Reviewing Geographical Studies of Asylums and other Mental Health Facilities’, *Health and Place*, 1997, 3: 73–89 (my thanks to Michael Dorn for this citation); Thompson, ‘Climotherapy’, note 25 above, p. 121; also Kennedy, ‘A Climate of Concern’, note 55 above.

¹⁰⁴ Caroline Hannaway's work (note 1 above) is one exception.

¹⁰⁵ See Mary J Dobson's magisterial *Contours of Death and Disease in Early Modern England*, Cambridge Studies in Population, Economy and Society in Past Time 29, Cambridge, Cambridge University Press, 1997; as well as idem, “‘Marsh Fever’—The Geography of Malaria in England”, *Journal of Historical Geography*, 1980, 6 (4): 357–89; Andrew Wear, ‘Making Sense of Health and the Environment in Early Modern England’, in Andrew Wear (ed.), *Medicine in Society: Historical Essays*, Cambridge, Cambridge University Press, 1992, pp. 119–47; and Bewell, op. cit., note 61 above.

¹⁰⁶ Kupperman, op. cit., note 56 above.

Kupperman explores seventeenth- and eighteenth-century Anglo-American colonists' perceptions of the sun. Kupperman uses European colonists' own frameworks of the relationship of health and place to discuss the ways in which they responded to an environment they perceived as deceptively threatening. At the same time, Kupperman uses modern medical frameworks which draw on an understanding of the geography of diseases and the differing impacts of different climates in her explication of historical texts. Her work thus offers a nuanced account of past conceptions as well as present knowledge. It provides a opening into both popular perceptions and professional discourse which other scholarship could fruitfully follow.

Scholarship on the American scene also offers engaging possibilities for the cultural history of medical geographic thinking. Historians have argued not only for the impact of environmentalist thinking on professional medicine, but for its influence on the broader culture, contending, for instance, that widespread belief in the interrelationship of health and location had important effects on the movements of populations. John Baur, for example, has observed of the American nineteenth century that "The search for health play[ed] an important secondary role in the movement of population to the Far West", and Sheila Rothman's detailed study of travel as a treatment for consumption in the nineteenth century reinforces his claim.¹⁰⁷ Beneath this quest for well-being lay a fundamental conviction that health was indeed tied to place.¹⁰⁸ Travellers since the American colonial period employed what Michael Owen Jones terms "a rudimentary concept of medical geography", one that was reflected in travel advice literature.¹⁰⁹ My own work on the cultural geography of health in the American West reveals that ideas about health and environment formed part of a widely-held "common sense" of the American nineteenth century. A popular geography of health shaped Americans' interactions with their environments in ways that held not only demographic, but political and economic consequences.¹¹⁰

Travel itself emerges as a touchpoint in many works, but has only recently been identified both as organizing principle and as itself a locus of pathology. Work such as the recent volume *Pathologies of Travel* promises to expand the insights of the history of medical geography better to comprehend the dangers experienced in travel itself and—as, for instance, Tim Cresswell undertakes—the ways in which popular and professional understanding agreed on seeing ill-health as residing in explicitly travelling "bodies".¹¹¹

¹⁰⁷ John E Baur, 'The Health Seeker in the Westward Movement, 1830–1900', *The Mississippi Valley Historical Review*, 1959, 46 (1): 91–110, p. 92; Sheila M Rothman, *Living in the Shadow of Death: Tuberculosis and the Social Experience of Illness in American History*, New York, BasicBooks, 1994. See also Barton H Barbour, 'Westward to Health: Gentlemen Health-Seekers on the Santa Fe Trail', *Journal of the West*, 1989, 28 (2): 39–44; and Esmond R Long, 'Weak Lungs on the Santa Fe Trail', *Bulletin of the History of Medicine*, 1940, 8 (7): 1040–54.

¹⁰⁸ M H Dunlop, *Sixty Miles from Contentment: Traveling the Nineteenth-Century American Interior*, New York, BasicBooks, 1995, pp. 182–4; and Thompson, 'Climotherapy', note 25 above.

¹⁰⁹ Michael Owen Jones, 'Climate and Disease: The Traveler Describes America', *Bulletin of the History of Medicine*, 1967, 41(3): 254–66, p. 254; see also E W Gilbert, 'Pioneer Maps of Health and Disease in England', *Geographical Journal*, 1958, 124: 172–83; and Roger A Winsor, 'Environmental Imagery of the Wet Prairie of East Central Illinois, 1820–1920', *Journal of Historical Geography*, 1987, 13 (4): 375–97, for other examples of work on medical geography in travel guides and settlement literature.

Moreover, historians of medicine have recently begun to re-examine the history of occupational health, extending “environment” into interior spaces and the workplace.¹¹² Recent work by Michelle Murphy on Sick Building Syndrome and Multiple Chemical Sensitivity pushes further into the interstices of relations between selves and surroundings.¹¹³ Examining what she terms the “gendered mutual embrace between bodies and the built environment”, Murphy investigates environments as they are created by and in the reactions and responses of the human form.¹¹⁴ Her examination, however, does not stop at the safe walls of a constructed environment. Bodies themselves, she continues, are constructed by the gendered and class-defined spaces and regimes of work: the task of inhabitants of late-capitalist American culture is to “build yourself a body in a safe space”.¹¹⁵

These cultural dimensions of medical geographic thinking have been taken up in recent years not only by historians, but by geographers.¹¹⁶ A recent “cultural turn” among some geographers involved in medical geography has highlighted the symbolic and socially-mediated aspects of health and place. Geographers like Wilbert M Gesler have begun to explore why and how certain places are perceived to be therapeutic, focusing on the ways in which different places serve to reflect and

¹¹⁰ On the diverse effects of health geographies in American territorial expansion, see ‘Savagedom, Destiny, and the Isothermal Zodiac’ in Jeffrey S Adler, *Yankee Merchants and the Making of the Urban West: The Rise and Fall of Antebellum St. Louis*, Interdisciplinary Perspectives on Modern History, Cambridge, Cambridge University Press, 1991, 43–60; Chinard, op. cit., note 73 above; ‘White Nationalism: “Free Soil” and the Ideal of Racial Homogeneity’, in George M Fredrickson, *The Black Image in the White Mind: The Debate on Afro-American Character and Destiny, 1817–1914*, New York, Harper & Row, 1971, pp. 130–64; Book I, ‘Passage to India,’ in Henry Nash Smith, *Virgin Land: the American West as Symbol and Myth*, Cambridge, MA, Harvard University Press, 1978 (first published 1950); George Rosen, ‘Political Order and Human Health in Jeffersonian Thought’, *Bulletin of the History of Medicine*, 1952, 26: 32–44; Kenneth Thompson, ‘Climatotherapy’, note 25 above; idem, ‘Wilderness and Health in the Nineteenth Century’, *Journal of Historical Geography*, 1976, 2 (2): 145–61, and my chapter in this volume.

¹¹¹ Wrigley and Revill (eds), op. cit., note 64 above: see especially Andrews, op. cit., note 103 above; Chloe Chard, ‘Lassitude and Revival in the Warm South: Relaxing and Exciting Travel (1750–1830)’, pp. 175–202; Tim Cresswell, ‘Mobility, Syphilis, and Democracy: Pathologizing the Mobile Body’, pp. 261–78; Deacon, op. cit., note 64 above; Ralph Harrington, ‘The Railway Journey and the Neuroses of Modernity’, pp. 229–60; and Richard Wrigley, ‘Pathological Topographies and Cultural Itineraries: Mapping “mal’aria” in Eighteenth- and Nineteenth-Century Rome’, pp. 203–28. Other work on travel and understanding of health includes Max J Okenfuss, ‘Russia, the Northern Grand Tour and the End of Classicism’, manuscript prepared for the Sixth International Conference, Study Group on Eighteenth-Century Russia, Leiden, July, 1999. My thanks to Max Okenfuss for sharing with me his work in progress.

¹¹² See Christopher C Sellers, *Hazards of the Job: From Industrial Disease to Environmental Health Science*, Chapel Hill and London, University of North Carolina Press, 1997.

¹¹³ Michelle Murphy, ‘The “Elsewhere within Here” and Environmental Illness; or, How to Build Yourself a Body in a Safe Space’, *Configurations*, 2000, 8: 87–120; and idem, ‘Toxicity in the Details: The History of the Women’s Office Worker Movement and Occupational Health in the Late-Capitalist Office’, *Labor History*, 2000, 41 (2): 189–213.

¹¹⁴ Murphy, ‘The “Elsewhere within Here”’, note 113 above, p. 99.

¹¹⁵ From the title of Murphy, ‘The “Elsewhere within Here”’, note 113 above.

¹¹⁶ A recent session on ‘Geographies of Health, Healing, and Medical Practice’, organized by Michael L Dorn, Rebecca Dobbs, Rob Bartram, and Sarah Shobrook at the Association of American Geographers’ Annual Meeting, 23–27 March 1999, is one indication of the vitality of this interest. See also Henri E Picheral, ‘Editorial: Place, Space and Health’, *Social Science and Medicine*, 1994, 39 (12): 1589–90.

construct notions of well-being.¹¹⁷ Spas and healing springs in particular have emerged as a locus of interest not only for geographers, but for historians of health and medicine.¹¹⁸ Symbolic and perceptual environments, as well as material ones, invite both historians and geographers.¹¹⁹

Many other areas remain unexplored. Though connections with military medicine have been noted, historians of military endeavours could do more to draw out the ways in which concepts of health and environment affected other colonial and military practices. Further work on the problematic relations between tropical medicine and medical geography has the potential to expand an understanding of how changing etiological conceptions of the late nineteenth and early twentieth centuries played themselves out in practice and in popular discourse.

Additionally, much historical work remains to be done on the interaction of Anglo/European ideas of medical environmentalism with those of other cultures, notably the Islamic countries, and on the development of Soviet medical geography in the twentieth century. Future scholarship may well allow a more broadly connective approach in subsequent surveys of the field.

Within contemporary medical geographic circles, debate over future directions is both fierce and, perhaps, historically resonant. During the 1990s, advocates of a turn to a more social-theory oriented medical geography—notably Robin Kearns—have issued calls to “reform” within the field.¹²⁰ Kearns and other advocates of change emphasize the perceptual meanings with which people shape environments, and the meanings which places give the people within them. Opponents have argued that existing frameworks in medical geography allow ample scope to factors in the social realm, and have stressed the need for medical geography to remain close to its roots in exact measurement and statistical analysis.¹²¹ This tension—broadly

¹¹⁷ Wilbert M Gesler, ‘Therapeutic Landscapes: Medical Issues in Light of the New Cultural Geography’, *Social Science and Medicine*, 1992, 34 (7): 735–46; Robin A Kearns and Wilbert M Gesler, Introduction to their *Putting Health into Place: Landscape, Identity, and Well-being*, Syracuse, Syracuse University Press, 1998, pp. 1–16. Medical practitioners and architects are also increasingly interested in the therapeutic aspects of place design (see, for instance, Carol Stocker, ‘The Healing Landscape’, At Home section, *The Boston Globe*, 15 October 1998) as well as in older notions of climatic zones of health (William K Stevens, ‘Warmer, Wetter, Sicker: Linking Climate to Health’, *New York Times*, p. A1, 10 August 1998).

¹¹⁸ Wilbert N Gesler, ‘Bath’s Reputation as a Healing Place’, in Kearns and Gesler (eds), op. cit., note 117 above, pp. 17–35; idem, ‘Lourdes: Healing in a Place of Pilgrimage’, *Health and Place*, 1996, 2 (2): 95–105; and Martha E Geores, ‘Surviving on Metaphor: How “Health = Hot Springs” Created and Sustained a Town’, in Kearns and Gesler (eds), op. cit., note 117 above, pp. 36–52.

¹¹⁹ For other works on perceptual environment, see also the works of Curtin, Kennedy, Merrens and Terry, and Puckrein, notes 55 and 56 above. The recently-founded journal *Health and Place* promises much from geographers along this line of inquiry.

¹²⁰ Robin Kearns, ‘Place and Health: Toward a Reformed Medical Geography’, *Professional Geographer*, 1993, 45: 139–47. Again, my thanks to Wil Gesler for sharing his thoughts on this debate.

¹²¹ Jonathan D Mayer and Melinda S Meade, ‘A Reformed Medical Geography Reconsidered’, *Professional Geographer*, 1994, 46: 103–6, formed the main opposing reply; in contrast, Michael Dorn and Glenda Laws, ‘Social Theory, Body Politics, and Medical Geography: Extending Kearns’s Invitation’, *ibid.*, pp. 106–10, pushed medical geographers even more in the direction of “reform” (for a further response, see Robin A Kearns, ‘Putting Health and Health Care into Place: An Invitation Accepted and Declined’, *ibid.*, pp. 111–15). On this debate, also see A Litva and J Eyles, ‘Coming Out: Exposing Social Theory in Medical Geography’, *Health and Place*, 1995, 1: 5–14; and Wilbert M Gesler, Sheryl Thorburn Bird, and Stephen A Oljeski, ‘Disease Ecology and a Reformist Alternative: The Case of Infant Mortality’, *Social Science and Medicine*, 1997, 44 (5): 657–71.

speaking, between those seeking to locate and prevent disease, and those seeking to trace its social geography—marks publications within the field as well as struggles over the symbolism of nomenclature within it.¹²² The power of history comes into play, as one set of voices within current work calls on the strength of an enduring historical tradition, and another clamours for bold new directions.¹²³ History-making is under dispute in this conflict: the perceived history of the field is mobilized both to give energy to calls for change and renewal, and to support the venerable strengths of a discipline worth preserving. Hippocrates, however guardedly, resurfaces, as historical ancestors come up once more for review.

Yet are those who would challenge the history of medical geography striking off in a direction so new? In many ways, calls in the 1990s for a social geography of health and for the place of humanism within medical geography are reminiscent both in scholarly purpose and in political aims of those who first forwarded “geographical medicine” as an avenue of study within medical history. The leaders who pushed for social medicine in the United States of the 1930s had in mind both a historical sensibility and a set of political objectives when they focused on the geographic factors of illness across time. Though Sigerist’s or Ackerknecht’s attention to the movements of peoples and politics which shaped diseases in past eras lacked the theoretical vocabulary of today’s “political ecology” and “cultural geography”, today’s calls for “reform” among medical geographers may have historical roots as deep as those of the voices of “tradition” they oppose. Time remains to prove, however, which set of perspectives gains the advantage in allocating precious organizational and publishing resources in the future—and whose sense of history will determine the latest in the field’s historical figurings.

This essay has rehearsed some squabbles between kin, brushed the dust off several ancestral portraits, and searched out a few distant relations who might also fit under a shared roof. Though no one family chart may satisfy all claimants, perhaps this work will help some cousins discover in each other shared traits inherited from a forgotten forebear. May the work of this entire volume invite more family stories, as well as more descendants to share—however fractiously—in an inheritance which seems likely to grow.

¹²² Recent meetings of the Medical Geography Specialty Group of the Association of American Geographers have been the site of conflict between those wishing to retain the historical power of “Medical Geography” and those wishing to push the field into new directions under the rubric of “Health Geography”. My thanks to Wil Gesler for sharing his thoughts on these matters.

¹²³ For recent work on the social forces shaping the geography of health, see J Eyles and K J Woods, *The Social Geography of Medicine and Health*, London, Croom Helm, 1983; K Jones and G Moon, *Health, Disease, and Society*, London, Routledge and Kegan Paul, 1987; J Scarpaci (ed.), *Health Service Privatization in Industrial Societies*, New Brunswick, NJ, Rutgers University Press, 1996; and S Washburn, ‘Political Ecology of Malaria in Eastern North Carolina’, MA thesis, Department of Geography, University of North Carolina at Chapel Hill, 1996. For the impact of cultural study upon recent medical geography, see Wilbert M Gesler, *The Cultural Geography of Health*, Pittsburgh, University of Pittsburgh Press, 1991, and Kearns and Gesler (eds), *op. cit.*, note 117 above.