

Chapter 13

Medical Science before Scientific Medicine: Reflections on the History of Medical Geography

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Historians of medicine frequently recount the heroic late-nineteenth-century birth of scientific medicine, commonly characterized by laboratories and bacteriology.¹ Contemporaries such as William Osler believed that scientific medicine constituted “a new school of medicine”, fundamentally different from the pre-scientific sects of the preceding period.² Although no one, then or now, has denied the existence of medical science before the advent of the germ theory, the conventional narrative has led many unwary students—and not a few scholars—into believing that little medical science existed before the rise of “scientific medicine”. Such a view is not only Whiggish, in that it measures past theories and practices by current standards, but wrong, in that it fails to recognize the range of medically related scientific activities that did take place: in the classroom, in the field, and at the bedside.³ Unquestionably, the pace of medical research quickened in the late nineteenth century, but, as the preceding essays compellingly illustrate, there was considerable research in the medical community before the rise of the experimental laboratory. During the first two-thirds of the nineteenth century, medical geography, broadly conceived, reigned as the queen of the medical sciences.⁴

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¹ For the American scene, see, e.g., W G Rothstein, *American Physicians in the Nineteenth Century: From Sects to Science*, Baltimore, Johns Hopkins University Press, 1972, especially pp. 298–326; P Starr, *The Social Transformation of American Medicine*, New York, Basic Books, 1982, especially pp. 79–142; and W B Fye, *The Development of American Physiology: Scientific Medicine in the Nineteenth Century*, Baltimore, Johns Hopkins University Press, 1987.

² W Osler, *Aequanimitas*, Philadelphia, Blakiston's Son, 1932, pp. 254–55, quoted in Rothstein, op cit., note 1 above, pp. 325–26.

³ On this point, see especially J H Warner, ‘The History of Science and the Sciences of Medicine’, *Osiris*, 1995, 10: 164–93.

⁴ The meaning of the term “medical geography”, in this volume and elsewhere, remains unstable. In the essay on ‘Environment and Miasmata’ in the *Companion Encyclopedia of the History of Medicine* (ed. W F Bynum and R Porter, 2 vols, London, Routledge, 1993), vol. 1, pp. 292–308, Caroline Hannaway implicitly contrasts “medical meteorology”, which emphasized climate, with “medical geography” and “medical topography”, which emphasized place and locale. F A Barrett in this volume differentiates between “geographical medicine”, and “medical geography”. The brochure announcing the conference that produced this volume defined medical geography broadly as “the study of large-scale distribution patterns of human diseases as a function of environmental conditions”, a definition that corresponds well with nineteenth-century understandings of the term.

As Mark Harrison notes in his contribution to this volume, medical geography was “one of the largest scientific enterprises in British India during the first half of the nineteenth century”. The same was true of the United States. James H Cassedy has shown in the most comprehensive historical survey of medical geography in America that this activity flourished in the early and middle decades of the nineteenth century, especially after Alexander von Humboldt’s visit to the U.S.A. in 1804. Although America’s mushrooming medical schools rarely, if ever, taught medical geography as a separate subject, early medical societies and journals frequently urged its cultivation. In 1814 the U.S. Surgeon-General James Tilton began requiring officers in the Medical Department of the United States Army to keep accurate meteorological records, and four years later his successor, Surgeon-General Joseph Lovell, ordered army surgeons “to note everything of importance relating to the medical topography of his station”, including the weather. A young assistant surgeon in the army, Samuel Forry, later drew on these records to produce a landmark study of *The Climate of the United States and Its Endemic Influences* (1842).⁵

Medical geography in the United States peaked in the 1850s with the publication of Daniel Drake’s *Systematic Treatise, Historical, Etiological, and Practical, on the Principal Diseases of the Interior Valley of North America* (1850, 1854). This monumental two-volume work surveyed the distinctive disease patterns found in the “great intermontane region” between the Rockies and the Alleghenies, bounded on the north by the Polar Sea and on the south by the Gulf of Mexico. By identifying the geological, meteorological, and social determinants of disease—including diet, drink, and dress—the Cincinnati physician hoped to lay “the foundation of local medical history and practice” in this natural region. “Physical causes lie at the bottom of whatever differences the maladies of different portions of the earth may present”, he wrote. By assiduously collecting epidemiological data from throughout the region, Drake was able to establish the geographical limits of malaria, typhus, and yellow fever.⁶

The association of locale with disease led to repeated calls for distinctively regional therapeutic practices and medical training. In *The Therapeutic Perspective* (1986), John Harley Warner illustrates in rich detail the changing meaning of therapeutic regionalism in nineteenth-century America. “Early in the century”, he writes, “the notion that the physical and social environments were significant factors in determining appropriate therapeutic behavior made region a necessary consideration in planning a patient’s treatment and in evaluating the applicability of knowledge from another place, but by the 1880s therapeutic regionalism and nationalism had by and large become stigmata of inferior practice and antiquated thinking.”⁷

⁵ J H Cassedy, *Medicine and American Growth, 1800–1860*, Madison, University of Wisconsin Press, 1986, chapter 3, ‘Medical Geography of a Growing Nation’, pp. 33–59.

⁶ D Drake, *A Systematic Treatise, Historical, Etiological, and Practical, on the Principal Diseases of the Interior Valley of North America*, Cincinnati, Winthrop B Smith, 1850, pp. 1–5. Drake’s Second Series was published in Philadelphia in 1854 by Lippincott, Grambo & Company. This paragraph and some of the material that follows is adapted from R L Numbers, ‘The Significance of Regions in American Medical History’, in M L Hildreth and B T Moran (eds), *Disease and Medical Care in the Mountain West: Essays on Region, History, and Practice*, Reno, University of Nevada Press, 1998, pp. 1–17.

⁷ J H Warner, *The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820–1885*, Cambridge, MA, Harvard University Press, 1986, quotation on p. 3.

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Because of the allegiance of American physicians before the Civil War to the notion that therapeutic judgements should be based on the peculiarities of a patient's environment (as well as the person's race, class, gender, and age), argues Warner, they typically insisted on acquiring therapeutic knowledge in their own locales. "As surely as there is a distinction between foreign and American medicine", declared a New Orleans practitioner in the mid-1850s, "so surely is there a distinction between Northern and Southern medicine".⁸ One of the consequences of this belief was an often strident defence of regional medical education. Basic scientific knowledge might have universal applicability, but what sense did it make for, say, a southern medical student to learn about clinical practice in Paris, London, or Philadelphia when he intended to treat southern patients, with their peculiar diseases and constitutions?⁹

With the rise of bacteriology and the germ theory of disease in the late nineteenth century, medical geography went into decline. Michael A Osborne asserts in his essay on medical geography in nineteenth-century France in this volume that the germ theory of disease was "the major reason for the decline of medical geographical activity". The new laboratory medicine of Claude Bernard and Louis Pasteur did indeed strip medical geography of the cachet it once enjoyed, but recognition of the importance of place in medicine persisted long after the coming of bacteriology. Medical scientists may have devoted far more time and effort to searching for new micro-organisms than for correlations between disease and soil, water, and ambient temperature, but well into the twentieth century place remained significant in the study and prevention of such diseases as malaria and tuberculosis.

The story of tuberculosis in America illustrates how the principles of medical geography could survive well beyond the discovery of the tubercle bacillus. Almost from the beginning of European exploration, the salubrity of the Rocky Mountains had elicited favourable comment. George Frederick Ruxton, a young Englishman who explored in the vicinity of Pike's Peak in the spring of 1847, noted the "extraordinary fact that the air of the mountains has a wonderfully restorative effect upon constitutions enfeebled by pulmonary disease".¹⁰ For decades, altitude therapy, or climatotherapy, remained the treatment of choice for tuberculosis, at the time the nation's number one killer. At one point researchers claimed to have discovered a line of immunity, at about five thousand feet above sea level, above which tuberculosis germs could not survive. When word of the mountains' healing powers reached the East, hordes of consumptives—many of them physicians—began pouring into the Rocky Mountain region in search of a cure. By 1880 an estimated one-third of the population of Colorado, nicknamed "the World's Sanitarium", consisted of health seekers and their families. By the early twentieth century, however, physicians were turning increasingly to sanatoria as the first line of defence against the white plague. As the benefits of isolation and hospital care—wherever it was provided—became

⁸ *Ibid.*, p. 69.

⁹ J H Warner, 'A Southern Medical Reform: The Meaning of the Antebellum Argument for Southern Medical Education', in R L Numbers and T L Savitt (eds), *Science and Medicine in the Old South*, Baton Rouge, Louisiana State University Press, 1989, pp. 179–205.

¹⁰ J W Spidle Jr, *Doctors of Medicine in New Mexico: A History of Health and Medical Practice, 1866–1986*, Albuquerque, University of New Mexico Press, 1986, pp. 87–170, quotation on p. 91. See also B Jones, *Health-Seekers in the Southwest, 1817–1900*, Norman, University of Oklahoma Press, 1967.

clear, more and more patients sought help in sanatoria close to home rather than trekking west for an expensive mountain cure. “By the time of World War II”, writes Frank B Rogers, “climatotherapy in the United States was a dead issue”, ridiculed by the medical community as “a pseudo-science”.¹¹

As medical geography moved from the heartland of medical science to its margins, medical historians increasingly lost interest in and respect for the subject. Nicolaas A Rupke and his collaborators in this volume go a long way toward restoring medical geography to its rightful place in the history of medical science.

¹¹ F B Rogers, ‘The Rise and Decline of Altitude Therapy of Tuberculosis’, *Bulletin of the History of Medicine*, 1969, 43: 1–16. See also R R Anderson and M Beaton, ‘From Pest Houses to Hospitals’, in H T Sethman (ed.) *A Century of Colorado Medicine, 1871–1971*, Denver, Colorado Medical Society, 1971, pp. 33–7.