

Epidemiology and Social Sciences: Towards a Critical Reengagement in the 21st Century

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INTRODUCTION

Probability and patterns

Estimates of risk and population rates. Numerical data and tables. Classification and misclassification. Survey methods and study design. Correlation and causation. Part and parcel of epidemiologic reasoning and analysis?

Yes and no. For the same could be said of any of the quantitative social sciences whose disciplines are envisioned, advocated, and established in Europe and the Americas during the course of the industrial and political revolutions of the 19th century. Common to their work is a belief that society can be studied scientifically, that meaning can be discerned from population patterns, that regularities bespeak cause, and that knowledge gives grounds for action. The nascent disciplines “epidemiology” and “social sciences” arise as kindred components of their era’s new and expansive “science of statistics,” literally, sciences of the state and its populations.

Yet, curiously, in the late 20th century and the beginning of the 21st century, at least in the United States, few formal linkages exist between epidemiology and the disciplines currently defined as comprising the social sciences: sociology, anthropology, economics, political science, and psychology (table 1) (1–5). A review of their common origins, disparate paths, and renewed connections can potentially spark an enlivening critical reengagement beneficial to the public’s health.

EPIDEMIOLOGY AND SOCIAL SCIENCES: EMERGENT POPULATION SCIENCES OF THE BODY AND BODY POLITIC

Prelude: quantifying patterns of heaven and earth

Preconditional to the emergence of quantitative population sciences are the fundamental beliefs that inti-

mate relations exist between mathematics and material reality, that counting and categorizing are the currency of durable knowledge, and that empirical study of variegated humanity—chock full of irreducibly unique individuals—can uncover universal truths (6–9). The common origins of contemporary epidemiology and social sciences can accordingly be traced to Western Europe in the 14th–16th centuries, when quantification of phenomena—whether motion of planets, passage of time, pitch of music, or balance of trade—becomes a potent new mode of describing and predicting events of the heavens and earth (6–8). Spurred by Europe’s expanding commerce and reintroduction of long-forgotten texts of classical Greek natural and social philosophy introduced by way of Islamic scholars (6–9), enterprising investigators and entrepreneurs develop an enthusiasm for numbers and for “natural laws,” grasping their utility for effectively tracing and transforming daily transactions of trade, navigation of ports, manufacture of goods, and mechanics of war (6–8). Embracing still another Islamic import—that of Hindu-Arabic numbers—the era’s merchants and mathematicians discard awkward Roman numerals and create not only double-entry bookkeeping, the first systematized tabular numeric narrative, but also new mathematical symbols to ease computation (e.g., “+,” “–,” and the decimal point) (6–9).

Among the first to translate this appetite for numbers simultaneously into matters of human life, health, and wealth is William Petty (1623–1687), an English physician, anatomist, and economist (10). In the 1670s, he completes his classic works, “Political Arithmetick” (11) and “Political Anatomy of Ireland” (12). Expressing new concepts in their very titles, these works draw on Petty’s experiences in the 1650s of organizing, on behalf of the English army, a massive survey of Ireland to adjudicate redistribution of its conquered territory, including to Petty himself (8, 10). Noting Sir Francis Bacon’s “judicious parallel in many particulars, between the Body Natural, and Body Politick” (12, p. 129), Petty advances the novel claim that society could, like any organism, be studied numerically:

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TABLE 1. Disciplines comprising the core contemporary social sciences: definitions

Discipline	Definition
Social science	"A general label applied to the study of society and human relationships. The development of social sciences, during the course of the nineteenth century, followed on the development of natural science. The designation of an area of study as a social science usually carries the implication that it is comparable in important ways to a natural science. Of the various disciplines that study human beings, psychology is often seen as a natural rather than a social science, and economics most frequently regarded as a comparatively unproblematic social science. Sociology, social psychology, politics, and geography have a more problematic status, while history is perhaps least often designated as a science."*
Sociology	<p>"...(a term coined by COMTE): the scientific and, more particularly, the positivistic, study of SOCIETY (see POSITIVISM). Since then, however, the term has gained a far wider currency to refer to the systematic study of the functioning, organization, development, and types of human societies, without implying any particular model of 'science.' In some usages, the term can also encompass approaches which explicitly repudiate the relevance of a 'physical science' orientation to social science.</p> <p>One problem immediately emerges about such a definition: (a) it fails to distinguish sociology from SOCIAL SCIENCE in general; (b) it fails to distinguish sociology from other, less generalist, social sciences.</p> <p>Since no one aspect of society is excluded from consideration by sociology, no simple distinction can be drawn between sociology and social science; in some usages the two terms are simply synonymous. More usually, however, whereas sociology necessarily overlaps with the subject matter of more specialist social sciences (e.g., ECONOMICS, POLITICAL SCIENCE), the discipline is conceived of by its practitioners as distinguished from these more focused social science disciplines by an avowedly 'holistic' perspective in social analysis, a commitment to analysis which studies the interrelation of social parts."†</p>
Anthropology	<p>"...broadly, 'the study of humanity,' but more narrowly consisting of (a) physical anthropology, (b) SOCIAL ANTHROPOLOGY (in Britain) and CULTURAL ANTHROPOLOGY (in the USA).</p> <p><i>Physical anthropology</i> concerns itself with the genesis and variation of hominoid species and draws on evolutionary biology, demography, and archaeology. <i>Social and cultural anthropology</i> investigates the structures and cultures produced by <i>Homo sapiens</i>.</p> <p>In Europe and elsewhere the term <i>ethnology</i> is also employed to refer to these areas of study. The distinction between sociology and social or cultural anthropology is primarily one of convention—sociologists have tended to study complex societies whilst anthropologists have concentrated on numerically small, non-industrialized cultures outside Western Europe and modern North America. In addition, methodological differences between the two subjects are critical; anthropologists have usually involved themselves in detailed ETHNOGRAPHY, accounts produced after long periods of PARTICIPANT OBSERVATION.</p> <p>This methodological difference grew out of two considerations: (a) many of the societies studied were pre-literate, and thus with no written records anthropologists had no alternative but to observe societies directly and to record the oral memory of the members of the societies; (b) a reaction against speculative accounts of pre-literate societies, e.g. in early forms of social EVOLUTIONARY THEORY."‡</p>
Economics	"The study of the production, distribution and consumption of wealth in human society ... Political economy, an early title for the subject, now sounds old-fashioned but usefully emphasizes the importance of choice between alternatives in economics which remains, despite continuing scientific progress, as much of an art as a science."§
Political science	"An academic discipline which studies power and the distribution of power in different types of political systems."¶
Psychology	"Most commonly defined at present as 'the scientific study of MIND and BEHAVIOUR'."#
Behavioral sciences	"A general label attached to any of a number of sciences that study the behavior of organisms including psychology, sociology, social anthropology, ethnology, and others."**

* Marshall (1, p. 620).

† Jary and Jary, eds. (2, p. 630).

‡ Jary and Jary, eds. (2, pp. 23–4).

§ Bannock et al. (3, p. 130).

¶ Statt (4, p. 504).

Statt (4, pp. 109–10).

** Reber (5, p. 88)

The method I take to do this is not yet very usual; for instead of using only comparative and superlative words, and intellectual arguments, I have taken the course (as a specimen of the Political Arithmetik I have long aimed at) to express myself in terms of number, weight, or measure; to use only Arguments of sense, and to consider only such causes as have visi-

ble Foundations in Nature; leaving those that depend upon the mutable Minds, Opinions, Appetites and Passions of particular Men, to the consideration of others (11, p. 244).

That Petty's error-plagued calculations are often based on incomplete data of typically dubious quality and

that he has considerable stakes—apparent even to his peers—in securing land, fame, and fortune by virtue of his quantified claims, deters neither Petty nor his colleagues (8, 10). Instead, grasping the signal importance of suggesting that evidence speaks unbiasedly for itself, they call for better, more comprehensive, and ostensibly value-free data. Building on Petty's approach, in 1662, John Graunt (1620–1674) calculates—most likely with Petty—and publishes the world's first documented life tables (9, 10, 13); the next attempt will be in 1693 by the astronomer Edmond Halley (1656–1742) (14). Finding regularities in patterns of death just as astronomers find regularities in the motions of planets, they bring human experience into the orbit of numerical analysis.

Defining terms: the naming of epidemiology, statistics, and social sciences

It will, however, be another century before Petty's numerical approach to analyzing the body and body politic loses its novelty. Key to this transformation is societal tumult. The French Revolution in 1789, following on the heels of the American Revolution of 1776 and followed by the Haitian Revolution of 1791, augurs a turning point for Western states, their colonial possessions, and their inhabitants, who would be citizens, not subjects *or* slaves. New forms of statehood entail new depictions of society (8, 15). To count, for purposes of representation, let alone taxation, one must be counted, and the United States Constitution sets precedent by mandating, from 1790 onward, a full census of population every 10 years. Yet, codifying inequality, in the United States, slaves are decreed equal to only three-fifths of a free person (15). Meanwhile, others invoke population data to increase “the quanta of human happiness”; such is the mission of John Sinclair (1754–1835), who in 1791 begins publishing his massive 21-volume *The Statistical Account of Scotland* (8, 16, 17). Sinclair's use of the term “statistic” is new for the English language; his source is the German “statistik,” derived from the word “state” and coined in 1749 by Gottfried Achenwall (1719–1772) to describe systematic reports that inform a nation's rulers about their country's natural, economic, military, and human resources (16–18). Meanwhile, pursuing numbers more abstractly, mathematicians newly plumb laws of probability, elucidating links between seemingly disparate games of chance, decisions of juries, and errors in celestial observations (9, 18–23). What Hacking has termed the era of the “avalanche of numbers,” the “taming of chance,” and the “erosion of determinism” is begun (21–23).

New times call for new concepts, and in this context of social upheaval and redefinition of the contours of the state and society, French writers create “la science sociale” (7, 24, 25). Offering promise of systematic and increasingly quantitative knowledge of society, the term first bursts into public view in a French revolutionary pamphlet in 1789, is adopted by the influential mathematician-turned-political philosopher, the Marquis de Condorcet (1743–1794), and enters British and American English through translation of texts by Condorcet and his colleagues (24, 25).

Epidemiology, too, comes into its own, by name (26). The term is coined, and gains currency, in 1802, when Don Joaquin Villalba publishes *Epidemiología Española*, a chronicle of epidemics in Spain (27). It quickly encompasses the era's new quantitative investigations of mounting outbreaks of deadly diseases, both old (e.g., typhus) and new (e.g., cholera and yellow fever). These epidemics burn through fast-growing and increasingly congested cities, home to commercial ports and to squalid neighborhoods barely housing the multitudes of laborers employed in (or unemployed by) the new factories of the Industrial Revolution (28, 29).

Only, in this period, I would argue that distinctions between epidemiology and social sciences are imposed chiefly by hindsight. More germane is their new and common cause: “the application of the numerical method to living beings in all their social relations” (30, p. 39), as defined in 1839 by one of the era's prolific investigators, William Guy (1810–1885), an early member of both the London Statistical Society (founded in 1834) and the London Epidemiological Society (founded in 1850). Employing the umbrella term “the science of statistics,” Guy explains:

Man (sic), considered as a social being, is its object; the mean duration of his life, and the probable period of his death; the circumstances which preserve or destroy the health of his body, or affect the culture of his mind; the wealth which he amasses, the crimes which he commits, and the punishments which he incurs—all these are weighed, compared, and calculated; and nothing which can affect the welfare of the society of which he is a member, or the glory and prosperity of the country to which he belongs, is excluded from its grand and comprehensive survey (30, p. 35).

A quarter of a century later, in 1865, a similar breadth of concerns appears in the founding statement of the American Social Science Association (31).

Under this umbrella, influential researchers from Louis René Villermé (1782–1863) in France (32) to William Farr (1807–1883) in England (33) to Rudolf Virchow (1821–1902) in Germany (34) to Adolphe Quetelet (1796–1874), the Belgian astronomer-turned-

social physicist (35), empirically investigate links between societal conditions and health. Seeking to discover “laws of society” as precise and “objective” as those of Newtonian mechanics (18–21, 36), they nevertheless find themselves embroiled in raging battles over classification and causal inference. Who, for example, is to say what constitutes a valid “cause” of death? When epidemics hit and strike the poor hardest, is the cause miasma (reeking air corrupted by putrefied organic matter), contagion (direct transfer of a disease poison from one person to another), greater vulnerability caused by starvation and overwork, or a political and economic system that permits industry to pay starvation wages and demand 16-hour workdays? As recognized by researchers, physicians, politicians, industrialists, reformers, and revolutionaries alike, the stakes in these debates are high, since contagion implies quarantine of boats and goods (thus interfering with commerce), miasma implies costly sanitary reform and urban renewal, and declaring social or economic policies (rather than individual shortcomings) as a cause of population poverty rates implies government regulation of industry, wages, and the market, all anathema to increasingly influential advocates of a laissez-faire capitalist economy (28, 29, 37–39). Additional conceptual controversies erupt over the meaning of population data themselves (18–20, 36). Is a population’s average value simply an arithmetical contrivance? A tally of discrete individual events? Or a collective trait that is a property of societies, not individuals? as argued by Emile Durkheim (1858–1917), one of the founders of modern sociology (40). If these questions and controversies about meanings of population data and acceptable types and levels of “causes” seem all too familiar, it is because they are with us still, in epidemiology and the social sciences alike.

EPIDEMIOLOGY AND SOCIAL SCIENCES IN THE 20TH CENTURY: DIVERGING PATHS AND NEW CONNECTIONS

Professionalization, specialization, and separation (1880s–1930s)

One response to tensions provoked by explicit debates over individualistic versus societal explanations of distributions of suffering, health, and wealth is to redefine, in the late 19th century, the terms of argument through erection of disciplinary boundaries. For example, in the United States in the 1890s, amidst the Gilded Age of railroad monopolies, fabulous fortunes, and colonial expansion, on the one hand, and massive labor organizing, economic immiseration, and immigration, on the other (28, 29, 41), universities create their first departments and programs for the newer social sciences of sociology, cultural anthropology,

and social psychology, all of which are intended to be “scientific,” divorced from the reform movements of the day (42). In public health, germ theory becomes ascendant and shapes the country’s first schools of public health, founded in the second decade of the 20th century (43). Specialization of disciplines is the rule, not the exception. Academia and social advocacy, after the “Red scares” of the 1890s and World War I, are now like oil and water: Individualistic explanations of social conditions and health, construed as “apolitical,” gain ascendancy, while critical accounts are deemed polluted by “politics” (41–44). The germ theory’s triad of “host, agent, environment” confers causal primacy to microbial “agents”; scant or no theorizing delineates how both the host and environment are shaped by human agency (29, 45). The general science of statistics which Guy envisioned is no more, the actual field of “statistics” is now the biometry of Karl Pearson (1857–1936), with its correlation coefficients and Galtonian emphasis on genetic and eugenic theories of disease causation (18–20, 29). Although connections between epidemiology and social sciences are not totally severed, the links are weak indeed.

And yet, because of their common population focus, epidemiologists and empirical social scientists continue to draw on each other’s methods and ideas. In 1890, revolutionizing social sciences with his research on poverty in London, Charles Booth (1840–1916) inaugurates the era of mass social surveys and further combines individual interviews, census data, and participant observation to provide an unprecedented view of the extent, contours, and causes of material and social deprivation (18, 46). Explicitly building on Booth’s work, in 1893, the US labor economist Florence Kelley (1859–1932), based at Jane Addams’s Hull-House settlement in Chicago, conducts the first comparable US neighborhood survey and, as recently recognized, generates the first US mapping of community health for both noninfectious and infectious diseases (47, 48). Epidemiologists adopt this methodology (28, 29, 45), and three decades later again draw on social science innovations when, in 1934, the statistician Jerzy Newman (1894–1981)—explicitly prompted by the need to evaluate Depression-era New Deal social programs—demonstrates the superiority and feasibility of probability sampling over purposive sampling (15, 18).

Meanwhile, a small stream of US epidemiologic research explicitly begins to incorporate social science perspectives, leading to new etiologic insights and data relevant to public policy. Setting precedent, in 1912, the newly founded US Children’s Bureau—under the leadership of Julia Lathrop (1858–1932), a longtime Hull-House resident and the first woman to head a major US federal department—sponsors the first substantial

prospective epidemiologic analyses in the United States; the health outcome is infant mortality, with studies focusing especially on its socioeconomic and nutritional determinants (49, 50). Exemplifying and extending the era's social epidemiologic research is Edgar Sydenstricker (1880–1936), a trained economist and the first statistician employed by the US Public Health Service (51, 52). In 1916, he commences study of health consequences of low wages, noting “a general lack of statistical data” in the US on this subject (53, p. 1298), and is next assigned to work with Joseph Goldberger on the etiology of pellagra. He creates new economic scales relating family income to the number, age, and gender of persons supported by this income (54) and, with Goldberger, uses this scale and unprecedented prospective documentation of inter- and intrafamilial patterns of food consumption to demonstrate that pellagra is a dietary deficiency disease whose incidence is driven by social disparities in access to food, as determined by wages, access to markets selling fresh produce, and ownership of garden plots (55, 56). Next, he designs the first longitudinal survey of ill health among an urban population (Hagerstown, Maryland, 1921–1924) (57) and then a massive 10-city study to track the effects of the Depression upon morbidity (58), which sets the basis for the first US National Health Survey in 1935 (59). Also during the Depression, a handful of other researchers produce the first US national mortality rates stratified by occupational class (60) and conduct studies indicating that poorer health among Black compared with White Americans is neither innate nor inevitable but instead reflects their greater exposure to poverty and occupational hazards (61–63). Such research, however, is the exception, not the rule; the bulk of early- to mid-20th century US epidemiologic inquiry either ignores social factors or treats them as nuisance variables encountered en route to ascertaining the “true” etiology (read “biological causes”) of disease (29, 45, 52).

The disconnect between epidemiology and social sciences is not unnoticed. In 1933, in his classic work, “Health and Environment” Sydenstricker writes:

To obtain this knowledge of the interaction of environment and health, thorough inquiries are necessary into the etiology of each disease and into the specific conditions that affects its prevalence. Epidemiology has been confined so far almost entirely to a few infectious diseases; untouched fields remain for exploration. The student in these fields should be trained not only in the etiology of disease and in human pathology, but also in the social sciences (64, p. 109).

His recommendations, echoed by proponents of social medicine in both the United States and England during

the 1940s (65–67), lie unheeded, eclipsed by exigencies of World War II and the subsequent Cold War (67, 68).

Social realities meet critical science: renewed interactions between social sciences and epidemiology (1960s–1990s)

It is only during the 1960s that a renewed effort to integrate epidemiologic and social sciences gains headway. Social ferment once again plays a leavening role. In the United States, McCarthyism loses its sting, the civil rights movement is underway, protests against the war in Vietnam mount, women's and gay liberation movements ignite, and environmentalists heed the call of Rachel Carson's (1907–1964) *Silent Spring* (41, 68, 69). Globally, popular movements challenge colonial rule, capital's power, and state repression of any kind—whether by governments labeled “totalitarian,” “communist,” or “democratic” (41). In this context, a new generation questions the legitimacy, ideology, and practice of any science—whether “social” or “natural”—that disregards social and economic inequality, discounts environmental degradation, cleaves “facts” from “values,” and separates “body” from “mind” (18, 19, 70, 71). Critical science gains critical mass, moving from beyond a positivist or Popperian stance of treating all scientific knowledge as “provisional” to questioning how scientists' priorities, theories, categories, and methods are shaped by social and political contexts in which scientists live, obtain funding, and conduct their daily work (7, 8, 18, 19, 70, 71). Ironically, it is this challenge to the epistemologic, ontologic, and ideologic assumptions of self-styled objective empirical quantitative science—the mode of knowing that gives rise to the 19th-century population sciences from which epidemiology and social sciences emerge—that is to reconnect these two fields in the late 20th century.

Initially, calls for reengagement are framed in terms of linking health behaviors and health outcomes. Illustrating this approach is the article, “A Bookshelf on the Social Sciences and Public Health” (72) appearing in the *American Journal of Public Health* in 1959 and coauthored by the journal's editor, George Rosen (1910–1977), 1 year after he publishes the first comprehensive social history of public health (28). Following up on Sydenstricker's suggestion, Rosen provides public health professionals with a list of texts to familiarize themselves with concepts and methods of the social sciences (72). That same year, the *Journal of Health and Social Behavior* is founded, suggesting a growing audience for such ideas; 7 years later, in 1966, *Social Science and Medicine* takes off (73).

Among the first epidemiologists to respond to Rosen's challenge is John Cassel (1921–1976), in his

now classic paper, "Social Science Theory as a Source of Hypotheses in Epidemiologic Research" (74), appearing in *American Journal of Public Health* in 1964. Urging investigation of social conditions as out-right determinants of health, not just health behaviors, Cassel encourages epidemiologists to draw on "biological, psychological and social theories to define some of the general social processes that could be regarded as potentially deleterious to health" (74, p. 1486). Indicating that social scientists are receptive to this approach, in 1968, the sociologist E. S. Rogers publishes an article in *Science* entitled "Public Health Asks of Sociology ...," in which he encourages social scientists to join with epidemiologists and others to elucidate how the "psychosocial environment can act directly on the host as a disease-producing agent" (75, p. 507). No longer are social conditions backdrop to biological and physical pathogens. Instead, they are conceived not only as determinants of exposure to exogenous hazards but also as pathogens in their own right.

Also igniting epidemiologists' reengagement with social sciences in the 1960s and 1970s is evidence that, despite rising prosperity and increased access to medical care among the world's wealthiest nations, socioeconomic inequalities in health persist (76, 77). These disparities are forcefully highlighted in the *Black Report*, published in England in 1980 by a government-appointed Working Group comprised of epidemiologists, physicians, and social scientists (76). This influential document provokes yet another generation of social epidemiologists to rediscover and extend analyses of links between social inequality and population health, within and across nations (76–79).

Starting in the mid-1990s a new raft of articles—by epidemiologists for epidemiologists—turns critical attention to theoretical frameworks guiding epidemiologic hypotheses and investigations (80–86). Challenging the discipline's dominant focus on individual-level biological and behavioral "risk factors," as fostered by biomedical and lifestyle approaches to analyzing disease causation, these epidemiologists call for explicit development of epidemiologic theories of disease *distribution*—informed by relevant social science constructs—capable of explaining current and secular trends in social inequalities in health. Some of these frameworks, like "social production of disease"/"political economy of health" (87–90), tend to the sociologic, asking whether a society's relations of political and economic power, and contingent distributions of property, wealth, living standards, working conditions, and environmental pollution, are reflected in disparities in health between those with more versus fewer rights and resources; lesser concern is evinced

for biological pathways connecting inequality to adverse health. Other, still newer, frameworks, such as ecosocial theory (80), ecoepidemiology (84), and the life course perspective (79, 91), advance concepts like "embodiment" (80, 92) to ask how people literally embody—biologically—social conditions, thereby generating inequitable population distributions of health. Bridging biologic and social reasoning, they focus on social, political, and economic determinants of health while simultaneously using a historical biological perspective, cognizant of evolution, that considers the cumulative interplay of exposure and susceptibility from womb to tomb. Social *and* biologic plausibility matter; neither alone is sufficient for evaluating explanations of distributions of disease, disability, and death.

Together, these different epidemiologic frameworks encourage measurement of exposure, susceptibility, and resistance at diverse levels (individual, household, neighborhood, and region) across the life span. In doing so, they challenge the prevalent individualistic and static fallacy that data on individual characteristics at one point in time are sufficient for analyzing population distributions of health (77–80). Directly borrowing contextual and hierarchical models first developed for social science research (e.g., to assess the relative contributions of schools and parents to students' performance) (93, 94), these epidemiologists assess how neighborhoods influence health (77–79, 95), at once hearkening back to and extending Booth's and Kelley's neighborhood surveys of a century ago.

Renewed connections between epidemiology and social sciences in the 1990s also challenge a long-standing epidemiologic practice of conceptualizing and analyzing "race" as an innate biological characteristic (92, 96–98). Bringing new insights to unexplained racial/ethnic disparities in health, an emerging body of work examines effects of racial discrimination on somatic health, with measures of exposure extending from individual-level, self-reported experiences of racial discrimination to data on residential segregation and Black political empowerment (92, 99–103). Signaling how bodies may register social experiences not readily captured by self-report data, the epidemiologic research also spurs development of new instruments to measure racial discrimination, as attention of social scientists had been directed towards studying racial prejudice (92). An allegedly biological category, "race," is reinterpreted (once again, as it was by African-American physicians shortly before the Civil War (104)) as a social category, born of racial oppression, whose biologic consequences are embodied in population patterns of health, disease, and well-being (92, 96–98, 105, 106). We are a long way from think-

ing our variables are “value free” or that the numerical method guarantees objectivity; underlying theoretical frameworks and ideologic assumptions are brought out into the open, spurring much-needed debate and reflection (18, 19, 70, 71, 107, 108).

BACK TO THE FUTURE: TOWARD A CRITICAL REENGAGEMENT OF EPIDEMIOLOGY AND SOCIAL SCIENCES IN THE 21ST CENTURY

As this brief review suggests, connections between epidemiology and social sciences run deep. These links, however, do not imply that epidemiology and social sciences will inevitably or explicitly reengage. In fact, alternate scenarios are easily imaginable, given contemporary rifts between “modern,” “molecular,” and “social” epidemiologists (109). Continuing debates now two centuries old, some epidemiologists still question whether our work can or should focus on causal connections between poverty and ill-health (110, 111), even as others conduct critical investigations of the health consequences of income inequality, unfair labor practices, capital flight, structural adjustment programs imposed by the World Bank, and violation of human rights (76–79, 92, 108, 112, 113). If history is any guide, however, I would readily venture that epidemiologic theory and methods *overall* will be invigorated and improved by acquiring a critical historical perspective that returns us to our roots, shared with social sciences, of finding meaning in *and* delineating accountability for the social patterning of human suffering. Through such critical reengagement, we better our chances of generating knowledge that, if put into action, can help improve health, promote dignity, and enhance the well-being and sustainability of life on our planet.

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