# Critical Epidemiology and the People's Health

Jaime Breilh

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## Epigraph

**Author(s):** Jaime Breilh

> And then, above all, there is the new arrival—the thinking that does not shy away from the horror of the world, the darkness, but looks it straight in the face, and thus passes over into a different kingdom, which is not the kingdom of darkness. This thinking asserts itself while wandering among illusions and lies, beyond truth as well as error. If a consciousness of ineluctability wins out, then we have nihilism and the confirmation of decline.
>
> —LEFEBVRE (2014)

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## Foreword

**Author(s):** Nancy Krieger

Critical ideas for tumultuous times. As political, economic and social polarization and inequities within and between countries escalates, and the fast-growing climate crisis and environmental degradation accelerate (People’s Health Movement 2017; Beckfield 2018; Friel 2019; Latour 2018; Krieger 2020), urgent need exists for clarity about causes of—and paths towards rectifying—rampant health injustices.

In epidemiology, as in all sciences, the ideas and questions animating the field necessarily engage with the very world that scientists inhabit and seek to understand—and their place within this world (Krieger 2011a; Felt et al 2017; Oreskes 2019). For epidemiologists and others concerned about the people’s health and planetary health, analyzing who and what shapes population distributions of health is necessarily informed by diverse and contending philosophical and political worldviews, grounded in the intimately and inseparably political, social, biological, ecosystemic, and historically dynamic realities of life on our planet (Krieger 2011a, 2020; Felt et al 2017; Latour 2018).

Embracing, rather than obscuring, these debates has been a cardinal feature of Latin American critical epidemiology since its emergence in the 1970s (Breilh 1979, 2003, 2008, 2019; Laurell 1989, 203, 2018; Franco et al. 1991; Iriat et al. 2002; Tajer 2003). Born in a context of opposition to

authoritarian rule and military dictatorships, in countries with complex histories and struggles involving settler colonialism, imperialism, enslavement, and Indigenous populations, Latin American critical epidemiology, as part of the Latin American Social Medicine/Collective Health movement, has critically guided research and action regarding the societal determination of health (Breilh 1979, 2003, 2008, 2019; Laurell 1989, 2003, 2018; Franco et al. 1991; Iriat et al. 2002; Tajer 2003). For too long, however, the rich discussions of Latin American critical epidemiology have appeared in primarily in publications written in Spanish or Portuguese. They have not, with some notable exceptions (Barreto et al. 2001; Iriat et al. 2002; Krieger 2003, 2011a; Tajer 2003; Laurell 1989, 2003, 2018; Franco 2003; Yamada 2003; Waitzkin 2001, 2008, 2011; Breilh 2008, 2019; Cueto 2015; Birn et al. 2017; Birn and Muntaner 2019; Vasquez et al. 2019), been readily accessible to readers for whom English is their primary scientific language.

This new volume of the Oxford series *"Small Book, Big Ideas in Population Health"* (OUP 2020) accordingly deliberately features, in English, the work of Jaime Breilh, a longstanding incisive and influential proponent and practitioner of Latin American critical epidemiology (Breilh 1979, 2003, 2008, 2019; Franco et al 1991), whom I first met in the late 1980s. Publishing this volume is part of a lifelong commitment I made, early on in my work in public health, to connect progressive thinking about social justice and public health across the Americas (Krieger 1988, 2002, 2003, 2011b, 2015; Krieger et al. 2010). It is also part of my commitment, embodied in the ecosocial theory of disease distribution I first proposed in 1994 and have elaborated since, to weave together critical political, historical, biological, and ecological thinking into the ideas and practices of epidemiology and other population health sciences (Krieger 1994, 2001, 2011a, 2014, 2020).

I keenly recall one moment when I was a graduate student getting my master degree in epidemiology in the US in the early 1980s and I was in the library—and unexpectedly came across an article titled: "Mercury poisoning in Nicaragua: A case study of the export of environmental and occupational hazards by a multinational corporation" (Hassan et al. 1981). Published in 1981, two years after the then progressive overthrow of the Somoza military dictatorship, the article appeared in the *International Journal of Health Services*, then a decade old. Its editor, Dr. Vicente Navarro, had left Spain in the 1960s in a context of opposition to the Franco dictatorship, and had many ties to progressive Latin American colleagues, as reflected in the journal's editorial board (Navarro 2020). The article vividly documented how the Somoza regime had suppressed knowledge about how an industrial plant had been poisoning its workers and other people and wildlife adjacent to and depending on the water of Lake Managua—and how this knowledge only became public, and thus actionable, following the regime's overthrow (Hassan et al. 1981). It offered an eye-opening glimpse of what critical Latin American insights could offer North Americans in our own work for health equity.

# Foreword

Breihl's analysis complements the foci of the series' first two books: *Political Sociology and The People's Health* (Beckfield 2018) and *Climate Change and The People's Health* (Friel 2019). Drawing on Latin American critical thinking and movements, his text seeks to illuminate, challenge, and transform the underlying conceptual and ideological assumptions—and sociopolitical contexts—that inform contemporary epidemiological theories, knowledge, and practice.

Hence: in Chapter 1, Breilh introduces the historical trajectory and panorama of critical thought in Latin American Social Medicine/Collective Health and the intertwined sociopolitical and ecological contexts and crises giving rise to this work and rendering it more relevant than ever. In Chapter 2, he delineates the theoretical underpinnings of Latin American critical epidemiology and provides concrete empirical examples of its utility to guide critical research. In Chapter 3, he urges epidemiology specifically, and public health more generally, to incorporate transformative, transdisciplinary, and intercultural ideas and practices to improve collective health, building on the strengths of both critical scientific and Indigenous knowledge.

At a time when the North American and European English-language epidemiological literature is embroiled in seemingly narrow debates—albeit with far-reaching consequences—about conceptual and methodological approaches to causal inference (VanderWeele 2015; Krieger and Davey Smith 2016; Vandenbroucke et al. 2016; Schwartz et al. 2016; Galea and Hernán 2019; Robinson and Bailey 2019), Breilh's arguments may seem as if they come from another planet. But they are very much grounded in the terrestrial realities of life on Earth. For all peoples to thrive and planetary health to flourish, we would do well to learn from the critical insights of the Latin American critical epidemiology, as aptly synthesized by Jaime Breilh.

—Nancy Krieger (February 13, 2020)

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## About the Author

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Jaime Breilh, MD, PhD, MSc, is former Rector (President) of the Universidad Andina Simón Bolívar. He is past president of the Ecuadorian Academy of Medicine (2014–2016); coordinator of the doctoral and postdoctoral programs in “Collective Health, Environment and Society”; director of the Center for Research and Evaluation of Collective Health (CILABSalud); and creator and director of the research, graduate training, and scientific services provision program AndinaEcoSaludable). He is recognized as one of the founders of contemporary critical Latin American epidemiology (Latin American Movement of Social Medicine/ Collective Health). His numerous publications and research offer pioneering innovative contributions on research methodology, the understanding of social determination of health, critical health theory, and the history of Latin American epidemiology, with instruments for intercultural participative research.

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## Introduction: Critical Epidemiology—Bold Scientific Thinking and the Global Irruption of Inequity

**Chapter:**
Introduction: Critical Epidemiology—Bold Scientific Thinking and the Global Irruption of Inequity

**Author(s):** Jaime Breilh

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*Critical Epidemiology and the People's Health* is an act of compassionate critical intellectual pursuit and audacious resistance with which to confront an ailing world. It aims to be a valid tool for rethinking prevention and the promotion of life in a civilization that has taken inequality and social pain to their extremes. The fundamental source of its inspiration is the selfless work of many epidemiologists, physicians, nurses, professionals, scientists, and social leaders of all types and disciplines, including gender and ethnical advocates, who dedicate their lives to defend, repair, mitigate, and promote wellness and the people's health. Contemporary books won't change the present unsolicited World, but they can provide a powerful testimony of the valid contributions of premillennial generations that forged irreplaceable critical knowledge of the societies we want to transform. If millennial and postmillennial generations make good use of their particular potentialities, and free themselves of the ideological chains imposed on them in the name of youthful innovation, they will surely appreciate what good scientific work

has been accomplished. If young and older conscious scholars look back at our civilization with radical wisdom, we will surely be better prepared to rescue the progressive side of the science and arts production that is synthetized in daring publications.

Today, life sciences face multifaceted global challenges that demand of us academic consistency, consciousness, and resilience. Epidemiology, as with any scientific work that is involved in the defense of well-being and health, must approach its goals with boldness and an open mind, in order to assume the knowledge and wisdom of our peoples as a vital component of research and action.

In this context, the explanatory power of science is a potent tool for social governance. It is an instrument to build and rethink the utopian goal of plentiful wellness. Be it for practical productive purposes or for political reasons, knowledge is key for social planning and evaluation. Its contribution to the interpretation and appraisal of reality has inevitably made it a tool for the construction of hegemonic or liberating ideas. This characteristic has inevitably placed scientific work under the permanent scrutiny and pressure of opposing social forces.

Sciences advance not only through an accumulation of technical knowledge. Periodically, they experience profound paradigm shifts. Physical science’s reasoning and calculations, for instance, were based for many years on the seemingly immovable principles of Newtonian mechanics. Light was supposed to travel in a straight line and gravitational force was supposed to define the physical order and movement of the entire universe. But at one point the dialectic logic of relativity overturned the mechanistic dogmas and revolutionized theoretical physics. At the beginning, new ideas are rejected or made invisible by mainstream strongholds, and a process of scientific epistemicide demands creativity and resilience on the part of the reformers. As a younger discipline, epidemiology is now experiencing a paradigm shift because its previously uncontested causal linear thinking is being overturned by the dialectic principles that social determination of health theory encompasses.

Thomas Kuhn described these profound epistemological, methodological, and practical periods of transformation as a scientific revolution (Kuhn, 1970). In Chapter 3, we discuss this issue in more detail, but in these introductory reflections it will suffice to underline the fact that our discipline, as with any other scientific work dealing with the integrity of life and well-being, has developed in the historical framework of the clash of ideas and is influenced by strategic interests of socially opposed stakeholders.

It is within this contradictory and contested societal context that epidemiology, public health’s so-called diagnostic arm, must operate: called on to produce objective assessments of social well-being. Both in private productive settings and in public spaces, epidemiological

statements and indicators are considered to be the barometers of the health and well-being of the population. In general, these statements explicitly and implicitly evaluate the healthiness and fair-mindedness of industrial systems and of urban and rural enclaves. In doing so, they assess the effectiveness of public policy and governmental regulations. Epidemiology thereby justifies or casts doubt on companies, governmental entities, and/or the individuals and parties in power, apparently committed to the protection of human life and ecosystems.

In the 21st century, the acceleration of neoliberalism and the global monopoly of agricultural, industrial, financial, and, more recently, strategic digital resources have produced a systematic regression of human, social, and environmental rights. Globalized lobbying and corporate rule are rapidly dismantling the institutional and ethical foundations of conventional public health and environmental justice policies. Moreover, cannibalistic corporate greed has expanded unilateral control of all basic life resources and expanded social disparities (Klein, 2000). The ongoing fourth industrial revolution has spread and accelerated health inequity, enlarging unhealthy processes and landscapes.

Planetary life and human health are severely constrained by the unhealthy civilization that underlies the macroeconomic and technological apparatus, and the accelerated global decline of well-being —with hardly any substantial variation between different types of societies: those that form the largest economies in the affluent North, the emerging economies, and the rest of nations situated in the bottom of the so-called development scale—is the greatest challenge faced by responsible, grounded science.

The phenomenological expressions of this worldwide regression appear in all classes of reports. In recent decades, indicators of income inequality—a partial parameter of social inequity—have increased in nearly all world regions. In 2019, the world’s billionaires, only 2,153 people, had more wealth than 4.6 billion people (Coffey et al., 2020). In 2016, the share of total national income accounted for by the powerful top 10% of the population ranged from 37% in Europe to 41% in China; 46% in Russia; 47% in the United States and Canada; approximately 55% in sub-Saharan Africa, Brazil, and India; and 61% in the Middle East (Alvaredo, Chancel, Piketty, Saez, & Zucman, 2018). The permanent rise of the wealthy inevitably leads to the constant decline of the poor (Fry & Taylor, 2018). The gap ($r > g$) between private capital rent ($r$) and the entire value of income and production ($g$) that existed throughout the 20th century is becoming even wider. This means that capital will increase more quickly than production and income. In simple terms, this regressive trend implies that the past is devouring the future (Piketty, 2015). Accumulated collective fear and anger is exploding in a wave of global protest, which gives clear expression to the continuous scientific and artistic works that have depicted the planetary regression of justice, equity, and wellness.

Paradoxically, this colossal movement revolves around the convergence of productivist uses of the technology of the fourth industrial revolution (Ribeiro, 2016); the unfair and fraudulent dispossession of strategic resources in their most varied forms (Harvey, 2003); and even the opportunistic exploitation of conditions of extreme, shock, despair, and social anxiety (Klein, 2008).

All basic means of social reproduction and the people's health are in the hands of a few corporate giants. Iron hand dominance of strategic resources and commodities is achieved through land and water grabbing (Nolte, Chamberlain, & Giger, 2016), patent-protected seed control (Kuyek, 2001), and, in general, the oligopolistic control of the food system and the imposition of a neoliberal diet (Otero, Pechlaner, Liberman, & Gürcan, 2015). The formation of huge transnational corporations stands behind the massive induction of unhealthy pro-big business consumer behaviors.

This regressive trend has been defined in the United States as "America's concentration crisis" (Open Markets Institute, 2018). It also affects a range of specific health care-related markets, from syringes to medical patient financing. A growing monopoly power in the health care sector contributes significantly to high prices, poor quality, and lack of access that millions of Americans experience when interacting with the health care system. The brilliant metaphor of "health care under the knife" clearly depicts the gravity of this corrosion of health rights (Waitzkin et al., 2018). Extreme inequality is also demolishing health rights and democracy in Latin America (Cañete et al., 2015), in the process of becoming a modern version of the old practice of bleeding and colonialism that has kept open the veins of Latin America (Galeano, 2004).

The unparalleled increase of social and health inequity is an important expression of the present worldwide breakdown of healthy life conditions. This uncontrolled growth of a technologically accelerated market economy and the intensification of neocolonial strategies in the 21st century are multiplying the threats to life on Earth.

The contemporary geographical expansion of the spaces penetrated by capital (Harvey, 2001) brings us back to the organic relationship between the modern capital reproduction and the older processes of dispossession that shaped the historical geography of capitalism from early colonial times (Harvey, 2003). Neo-extractivist structures operate through the organic interrelation of long-standing and newer mechanisms of profit extraction. On the one hand, we have the recrudescence of openly violent territorial dispossession tactics that operate through war, armed extortion by local drug lords, and even the intentional burning of rainforests to expand mining and agribusiness frontiers. These lawless procedures, combined with fraudulent financial expropriations and the cheap long-term land leasing of the most fertile soils, are simply the modern expression of the age-old dispossession of strategic natural resources. On

the other hand, high-tech neo-extractivist activities in mining, agribusiness, and digital services–consumer cyber platforms—that operate with personal data as the most valued commodity—constitute its brand new face (Dance, La Forgia, & Confessore, 2018).

The curse of this new gilded age is therefore not only the *diseconomy*[1] of entrepreneurial gigantism and its structural corruptness (Wu, 2019) but also its impact on social democracy and its power to weaken the legal control of health-related behaviors and goods. This complex multidimensional regression of social and health rights explains the expansion of an array of pandemic developments or "pathologies of power" (Farmer, 2005).

The case of globalized obesity clearly illustrates the dynamic multidimensional nature of epidemiological transformation of our societies. In the broader context of big economy and political power, we find the expansion of agribusiness' obesogenic products and the corresponding corporate lobbying, which finally induced the congressional US farm bills of the 1970s. The new legal framework determined "a rapid increase in food portion sizes, accelerated marketing and affordability of energy dense foods," while at the same time inducing "widespread introduction of cheap and potent sweetening agents, such as high-fructose corn syrup, which infiltrated the food system and affected the whole population" (Rogers, Woodward, Swinburn, & Dietz, 2018). There is a clear dynamic articulation of general societal forces that subsume particular unhealthy modes of living and at the same time condition individual lifestyles and obesity as their related corporal embodiment. This constitutes an integral view in contrast with hegemonic, causal epidemiology, which interprets this global phenomenon as the generalization of an essentially personal biological or psychological problem that demands individual health care measures. Concomitantly, the unrestricted growth of pharmaceutical big business has unleashed mechanisms that distort the medical code of honor and are lethal for scientific academic control, which explains the reductionist responses that the medical establishment gives to problems such as obesity (Jones & Wilsdon, 2018).

This vertiginous, technologically based rhythm of wealth concentration places human and nature's rights in a precarious situation. The frenetic expansion of the postmodern consumerist society makes us hostages to a civilization that has imposed a new logic of living, new principles of organization, and new rhythms of life that are clearly incompatible with a healthy ethos.

Greed and its counterpart of philosophical individualism have derailed the material and spiritual fundaments of the common good that nurtured wellness and made democracy viable. Structural unfairness and extreme political shortsightedness are propelling our planet toward a true social, sanitary, environmental, and moral abyss.

However, the material mechanisms of this uncontrolled destructiveness and extremely inequitable World System are far from self-sustaining. They are clearly supported by a set of political–ideological, cultural, and communicative mechanisms that discipline collectivities and alienate them from their strategic needs. As was recently confirmed in the political crises of Brazil and Bolivia, even religious entrepreneurial ideological platforms are playing a major role in debasing social consciousness and sovereignty. New powerful multimillionaire sects subject their growing clienteles to a fundamentalist indoctrination that aims to adapt the poor people's common sense, their profound subjectivity, to the role of functional consumers and defenders of the neoliberal mode of living: a "new Christ," an inverse Christianity not of the poor but of the wealthy. In the case of Latin America, this is no longer the principal function of traditional conservative Catholicism but a new practical commercialized version of the distinct forms of imported Protestantism that assume private individual success as God's utmost reward (Arístegui, 2019). When one looks from a critical epidemiology perspective at this massive ideological alienation of impoverished urban and rural communities—both "mestizo" and ethnically indigenous and Afro—one realizes, among other things, that it implies a disdain and belligerent rejection of their original ethnic indigenous roots and cultural practices. Instead of rediscovering the wisdom of others, the richness of their health-related notions and practices, from a tolerant, knowledgeable, and democratic interculturality, and instead of sharing efforts in the intercultural search for a new civilization and healthy modes of living, fundamentalist thinking derails these constructive pathways to make racism, sexism, and intolerance the canon of social coexistence.

This is the global setback that places before the academic world the urgency of audaciously reviving critical and responsible science, as well as building a whole new intercultural participative knowledge. Health specialists therefore face the extremely complex and daunting challenge of rethinking our work from a different perspective of sensitivity, and a new paradigm.

Considering the complex and adverse scenario we have outlined, in this book we have tried to answer some important questions: What is the real challenge of critical epidemiology in an era of insatiable and cannibalistic corporate greed, bewildering deterioration of the planet's natural reserves, and imposition of colonizing and patriarchal devastating societal canons? What should be the guiding questions in all responsible and sensitive research centers and academic scenarios? What, then, is a rigorous, updated, and effective epidemiology? What is its role in the face of our most urgent needs, both in the Global North and in the Global South?

It has been argued for a long time that consistent advances in epidemiological method are centrally related to the sophistication of induction (i.e., reliability and validity) and statistical models (Miettinen, 1985) and sophistication of data management. All this in order to better

describe risk factors and predict focalized outcomes. More recently, mainstream conventional researchers concerned with the changing nature of present conceptions and practices denote a growing acceptance of the “scientificity” of qualitative research. Either to enhance the traditional method or as a complementary and equally valid tool, so-called interpretative research holds a new position in the academic world. This obeys the need to recognize new ways for addressing new kinds of questions, shifting the balance between the researcher and the researched, and adding conceptual and theoretical depth to knowledge (Popay, 2003).

The book will deal with this quantitative versus qualitative debate, and other complementary issues—an important but essentially instrumental discussion—but its cognitive and strategic purpose is to go beyond instrumental discussion, to delineate a different epistemological and hands-on perspective: a historically defined standpoint for transformative action in the face of ever growing health needs of our time.

The history of all fields of science demonstrates that the contents and guiding strategies of its intellectual and practical operations change permanently. In his magnificent book *Revolution in Science*, I. Cohen (1985) reveals cornerstone arguments about the changing nature of scientific work. For the purpose of this introduction, I summarize his fundamental explanations of the profound changes that interpretative models, values, and social connections of science experience in different societies and historical periods. In his opinion, those new routes are determined by the use of the evolving ideas of each period; the creative application of ideas of other disciplines; the two-way interaction between the natural and exact sciences and the social and behavioral sciences; and, most important, the fact that revolutionary moves in science are not produced by instrumental innovation (i.e., quantitative or qualitative) but by the application of a groundbreaking theory or set of revolutionary ideas[2]—a paradigm in Kuhn’s terms (Kuhn, 1962).

So, when analyzing the development of any scientific tradition, we must recognize that beyond the sociopolitical frame, the development of powerful ideas that spring out of needs, especially at crucial times, does inspire and guide transcendent, renewing, academic work.

In this introduction to *Critical Epidemiology and the People’s Health*, it is important to highlight some of those instigating thoughts that have recurrently influenced the construction of the Latin American critical epidemiology paradigm. The book constitutes our first complete and wide-ranging English account of the theoretical and practical elements of our proposal for a critical epidemiology; until this time I have only published complete books and work of this scale regarding my version of the Latin American paradigm, in Spanish and Portuguese.

The first and probably the most significant intellectual challenge responds to the need to re-examine, and overturn, the governing epistemological and ethical canons of the mainstream health sciences, in the process, repositioning the cardinal importance of critical science. This implies providing a convincing critique of the supposed pillars of the supposedly rigorous conventional Cartesian paradigms of hegemonic thinking. In all times, this dialectical move has always proved vital to protect academic knowledge from economic and political co-optation. Currently, the paramount importance of a critical epistemology therefore relates to the urgent need to protect and refresh the traditions of independent, responsible, critical health science.

In the second place, given the present affliction of our societies—both in the Global South and in the Global North—what is at stake is also the condemnation and questioning of a permissive or sometimes even mercenary epidemiology that, whether we like it or not, has become an accomplice of the historical hegemonic project. We must consequently embrace and increase with all our talent and ethical reserves the emancipatory force of the critical epidemiological paradigm, in order to denounce and counteract a decadent civilization and its grasping and shortsighted economic system.

Radical science has flourished in long-term intellectual traditions both in the South and in the North. A personal anecdote will serve at this point to illustrate their complementary nature. Two years ago, I was conducting a seminar discussion with my doctoral students about the construction of a transdisciplinary intercultural critique of the eco-epidemiological consequences of agribusiness. That activity coincided with an invitation to speak at the American Public Health Association annual meeting (APHA 2017) in its Spirit of 1848 Caucus Section. I gladly accepted the honor of joining a representative group of top-notch North American critical scholars and presenting my theory on “the 4 S’s of life and the Andean academic-people’s epidemiological approach.” Inevitably I had to study the guiding principles of the Spirit of 1848 APHA caucus and understand its complementarity with our Latin American collective health movement philosophy. On doing so, my attention was drawn to Rudolph Virchow’s sobering argument: “Preserving health and preventing disease requires ‘full and unlimited democracy’ and radical measures rather than ‘mere palliatives’ ” (Virchow, 1848). Going over Virchow’s powerful statement, I recalled the pioneering epidemiological writings of Eugenio Espejo—not only one of the forefathers of Latin American Independence but also a medical revolutionary from Quito—who authored a groundbreaking volume on his socio-epidemiological argument relating smallpox with health inequity and criticizing a dominant bureaucracy (Espejo, 1785/1994). The radical pioneering ideas contained in Espejo’s essay, written in Spanish and published in Madrid, soon crossed the colonial frontiers of the “Royal Audiencia of Quito” and his innovative arguments were expeditiously translated to Italian (1789) and German (1795), as explained by the medical historian Nuñez (2018).

This conceptual parallelism of critical voices coming from distinct settings both in the South and in the North of America is by no means a minor coincidence. It exemplifies the epistemological identity of bodies of knowledge linked to emancipatory science.

My dear colleague Nancy Krieger, of the prestigious Department of Social and Behavioral Sciences of the Harvard T.H. Chan School of Public Health, kindly invited me to present in this contribution to the “Small Book Big Ideas” series that she proposed, for the first time in the English language a complete synthesis of all the cardinal elements of my new epidemiology proposition; not withstanding some abridged previous publications focusing on certain facets of work. I immediately accepted, considering it an unparalleled personal opportunity to contribute to international socially supportive academic work. I was especially encouraged by her design of the series. An important motivation for my enthusiasm was also the fact that the series is being produced in partnership with Oxford University Press (OUP), a prominent, well-renowned scientific publisher. Chad Zimmerman, former Clinical Medicine Editor of OUP, suggested that in this small book I provide a consistent panorama of my own ideas and contributions to Latin American epidemiology.

The significant undertaking of translating for an English-speaking audience my key ideas about the nature and responsibilities of epidemiological research implies a double challenge. First is the need to overcome a cultural barrier. In effect, despite the fact that many of my epidemiological works have received wide circulation in Spanish and Portuguese in prestigious doctoral and postdoctoral programs of the region, and although many of them have also been defined as cutting-edge contributions by leading North American health scientists (Briggs, 2005; Krieger, 2011; Waitzkin, Iriart, Estrada, & Lamadrid, 2001), to date they have not been widely disseminated in the English-speaking world. Second, and most important, it implies the complex challenge of polishing and communicating a well-knit synthesis of my principal contributions by placing my ideas within the logic, framework, and structure of English academic writing. In accepting this challenge, I have been encouraged by the very positive experience of postgraduate lecturing at the University of California (UC). Professor Charles Briggs, a leading internationally known social scientist and knowledgeable expert on Latin America, invited me to lecture in a full quarter program of undergraduate and graduate studies at UC San Diego and, more recently, a doctoral seminar at Berkeley. Both were proposed by the respective Latin American Studies Centers of the UC branch and, in the second case, sponsored by the prestigious National Nurses United and the California Nurses Association.

I sincerely hope that this collaborative effort will open a path to consistent intercultural cooperation and mutual intellectual enquiry. The book is intended, on the conceptual side, to present our efforts in rethinking the scope of wellness and healthy living in a contextualized manner. It also presents an alternative logic for constructing the real

object, subject, and practical projection of transformative health knowledge: a counteractive trend involving concrete methodological restatements needed for complex thinking in epidemiology. That is, complex, intercultural, and emancipating knowledge–wisdom research that involves, but also supersedes, the innovation of formal quantitative models.

In other words, critical epidemiology must avoid juxtaposing a critical model of relationships within society and the practices needed to change it, with the passive, functional, value-free conventional cognitive structure of empirical analysis. It must be consistent with a renewed methodological perspective that breaks away from the Cartesian rigidities of a positivistic notion of correspondence and objectivity. This means it must override the *active object—passive subject* unidirectional reflex conception of empirical method and, at the same time, supersede the *active subject—passive object* logic of cultural relativism. It must therefore acquire an *active object—active subject* form of logic that can only be fully developed in the context of *active epidemiological praxis*. All three elements must therefore be considered and operated as active interdependent elements of the movement of emancipatory knowledge needed to explain, mobilize, and transform society, and not merely describe its fragmented causal conjunctions.

The previous reasoning leads to a discussion of what is hard social science or, specifically, hard epidemiology. The “hardness” of epidemiology does not only reside in rigorous objectivity but also simultaneously resides in a laborious and well-knit subjectivity, and also an effective integration of praxis. What we need is a triangular action that articulates three fundamental elements: (1) a solid transformative project of the critical processes involved in the social determination of a certain epidemiological condition; (2) a clearly integrated block of affected or concerned collectivities; and (3) a solid and effective integration of intercultural, transdisciplinary, transformative knowledge in action. Integral, intercultural, meta-critic epidemiological method needs this triple movement to mobilize society toward the prevention of unhealthy processes and promotion of protective modes of living, at all levels of the social determination of health movement.

One challenge of this book is to show how we have gone about rethinking the *object–subject–praxis movement*. This is crucial in defining sharp theoretical, technical, social, and administrative ways to act in defense of life and enhance healthy modes of living. In order to attain that objective, we need to unravel the incomplete and compliant logic and structure of empiricist science. It is our ethical duty to overcome the paramount rule of the causal epidemiological method in bureaucratic planning and functionalist research. We must elucidate a means of recovering the dialectic inductive–deductive–praxis movement, where the construction of study object and study subject become interdependent and define its movement in the context of transformative social praxis.

This brief book summarizes our work and our main propositions—stated in many previous books and articles—constructed in the mainstream of the Latin American social medicine/collective health movement. It also incorporates the reflections and clarifications that appeared while condensing that experience for an English-speaking public.

The guiding principle of my work has been, for many years now, the need to promote and consolidate effective intercultural research in the intersection of academic and progressive community paradigm building. We still are far from completing the task, but we already have some very powerful and interesting successes.

In Chapter 1, I present a panoramic analysis of the roots and landmarks of the critical scientific tradition: the new philosophy and ethics of the Latin American critical collective health sciences. When streamlining our initial essay text, we came to understand that it was important to start by familiarizing our readers with our work and its historical construction.

In Chapter 2, I deal with the global problems that make critical epidemiology an imperative tool in our current world. It aims to explain my epidemiological understanding of the historically demanding socio-environmental contradictions, out of which we must extract the critical processes that must be central to our work. I emphasize the fact that greedy destructive big business applications of new technologies of the fourth industrial revolution have left planetary life and health hanging by a thread; they are the basis of a civilization in which producing fast, living fast, and dying fast is the logic and foundation of accelerated profit. We stress the need to expose the fast-track, unhealthy, global civilization of the 21st century and to redefine the scope of wellness and health.

Chapter 3 describes the main conceptual and methodological breaks and new categories that I have proposed in order to go beyond the Cartesian logic. Basically, I have condensed this movement into five central ruptures with the cognitive pillars of empirical epidemiology: lineal causality, external conjunction, empirical quantitative and qualitative analysis, empirical socio-epidemiological stratification, and Cartesian health geography. To illustrate my reasoning, I have inserted some examples taken from our research and postgraduate teaching.

Chapter 3 also highlights some key elements for working toward a new framework for practice and ethos, one necessary to subvert the notions of health prevention and promotion and to move from passive vertical bureaucratic surveillance to an active, community-based critical health monitoring movement. Here, the overall intention is to move our reasoning away from functionalist public health to incorporate the transformative notion of collective health. This is a complex operation that presupposes the need to move beyond conventional conceptions, to leave our institutional comfort zones, to reaffirm a critical scientific philosophy, and to rescue potent concepts of the wisdom of “others.”

The final question we need to answer in this introduction is: Who is this book for? We have made an effort to incorporate in this synthesis of our work a basic streamlined version of key theoretical and methodological elements that the reader can expand through our bibliography. The book is intended for curious, up-to-date, open-minded, and, above all, aware physicians, health professionals, social scientists, social leaders, health and social workers, gender and health rights advocates, and community leaders. People who are willing to distance themselves from the dominant health paradigm, as well as teachers who are willing to inspire their students to leave their academic and professional comfort zones in order to restate their relationship to people.

In his handwritten letter to Robert Markus (February 1950), Albert Einstein wrote:

> A human being is a part of the whole called by us universe, a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest. . . . Our task must be to free ourselves . . . by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty.

I sincerely hope that after reading this book about the pressing epidemiological challenges and ethical duties we face in our present civilization, readers will warmly endorse his wise invitation to assume the protection of human and natural life, and will accept it as the leitmotiv of epidemiology.

## Notes:

1. Scale diseconomies: To the extent that a corporation grows disproportionately, scale-up economies appear (i.e., intricate internal control system, growth of employee greed, and increasing market maladjustment). Growing power determines that as a business grows larger, it begins to enjoy different types of advantages that have less to do with the efficiency of the operation and more to do with its ability to exercise economic and political power, just or in conjunction with others.

2. Cohen from his rationalistic perspective illustrates this with the case of Galileo’s revolution in astronomy: “Astronomy was never the same again. But these revolutionary changes (including the visual demonstrations the Ptolemaic system is false) were not ‘produced’ by the telescope but by Galileo’s theoretical ideas drawing Copernican and unorthodox conclusions from his telescopic observations. The telescope produced a vast change in kind, magnitude and scope of the data base of astronomy, providing the observational materials on which revolution would eventually become founded; but these data did not in and of themselves constitute a revolution in science” (p. 9).