Introduction

Holism against Reductionism

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In its relationship with society, contemporary medicine is beset by a deep tension. It is an old tension and familiar to all those who work in and study medicine. It has long been observed, for example, that the instrumental stance of scientific medicine can entail a loss of consideration for the person of the patient.\footnote{The ideal-type of the biomedical physician is a kind of applied scientist, guided by objective diagnostic criteria and deploying an armament of specific technical interventions against nature’s “real” diseases. Taking this role involves a depersonalization, a setting aside of the emotional and moral aspects of distress, and a technological focus that has in the past and continues in the present to generate considerable patient dissatisfaction and alienation.} The ideal-type of the biomedical physician is a kind of applied scientist, guided by objective diagnostic criteria and deploying an armament of specific technical interventions against nature’s “real” diseases. Taking this role involves a depersonalization, a setting aside of the emotional and moral aspects of distress, and a technological focus that has in the past and continues in the present to generate considerable patient dissatisfaction and alienation.\footnote{Perhaps one small measure of popular unease can be seen in the plethora of recent American apocalyptic films and TV shows—The X-Files, Falling Skies, The Walking Dead—wherein hospitals are without exception portrayed as menacing and inhospitable.} To address this tension, clinicians, bioethicists, and other scholars have proposed over the years any number of strategies to “humanize” biomedicine, and fields such as nursing and bioethics define themselves, somewhat oppositionally, as patient-centered and oriented toward care.

Similarly, observers have long argued that the mainstream conceptual model of disease, the “biomedical model,” for all its technical successes, tends to marginalize or exclude the crucial social and environmental determinants of illness. The model reduces the causes of disease and disorder to specific somatic malfunctions in the individual that respond to specific technological interventions and individual-level preventive measures. Against this narrowly individualistic and highly biological
approach, alternative models have aimed to integrate or supplement somatic explanations with broader factors, whether psychological, cultural, ecological, political, or economic, that affect health and illness, both on an individual and a collective level. Much of the burden of disease and its variability, argue critics in public health, social epidemiology, anthropology, sociology, and other fields, cannot be explained or effectively addressed with the mechanism-oriented biomedical model.

Historians have explored this tension as a contrast between “reductionistic” and “holistic” approaches to health and illness. Philosophically, reductionism and holism represent different stances with respect to the relation between “parts” and “wholes.” In a reductionist approach, higher-order properties of phenomena can be completely explained by—that is, reduced to—lower-order properties. So, for instance, disease (higher level of complexity) can be accounted for solely in terms of molecular biology and genetics (lower level). A holist approach, by contrast, typically treats higher-order properties (“wholes”) as emergent phenomena that are irreducible to the lower-order properties (“parts”) that make them up. However, in historical terms, medical reductionism and holism are not philosophical concepts but orientations of thought, typically defined in opposition to each other. Reductionism has often meant those defining features of scientific medicine against which holism, in its various forms, has aligned itself.

In popular usage the term holistic is often used by practitioners and participants to designate particular mind–body practices—such as acupuncture and healing touch; the use of natural substances, such as botanicals and probiotics; and healing systems, such as homeopathy and naturopathy—that are alternative or complementary to mainstream medicine. It can also refer to a larger, critical orientation that accompanies and informs the use of these practices. This orientation often has a premodern, non-Western, spiritual, and anti-bureaucratic ethos that is set against conventional “allopathic” medicine and wants to replace it. If the biomedical model amplifies the division between mind and body with an overemphasis on the somatic, holistic health practitioners often make the opposite error, granting the mind a nearly boundless power over the ailing body.

However, our concern is with a sensibility and a set of interlinked ideas articulated within the mainstream (though certainly with influence
from alternative practices) of medicine and social science. Holism, in this sense, was never a self-conscious movement; few proponents even used the term. The shared feature, expressed in many different forms, is a contextual understanding of disease causation, intervention, or practice. A systemic concern with the whole organism (including the emotional/psychological), a focus on the interconnected effects of the larger physical or social environment, and attention to population-level variation can all be characterized as holistic. So too can more synthetic ways of knowing—supplementing the narrowness of scientific analysis with other modes and disciplines of thought—and ethical concerns with the quality of human relations in the clinical encounter and wider society.

Because the biomedical literature generally lacks explicit discussion of its underlying assumptions, it has been holistic-oriented critics rather than proponents who typically articulate the more or less tacit meanings of reductionism in medicine. Over time, reductionism has been used to characterize a mechanistic and narrowly somatic understanding of disease, monocular theories of disease, an excessive focus on localized pathology, an exclusive preoccupation with cure to the neglect of prevention, and even an overspecialization and fragmentation of medical practice.

We have sought to capture the contrasting orientations and the tension between reductionism and holism in our title, “to fix or to heal,” but the or is not meant to indicate any absolute distinction. Like the historians, we are talking not about polar opposites but orientations and ways of thinking that are often negotiated in practice. By heal we mean a broadly integrative and humanistic orientation that opposes the sufficiency of a mechanistic, individualistic, and overly technological biomedical orientation, rooted in the metaphor of the body as a machine that can be “fixed.” Sufficiency is the crux of the matter. The elements of the “fix” orientation can have their appropriate place. Somatic reductionism, for instance, can be a valid explanatory strategy as adjudged in terms of scientific productivity. What we stand against is a larger, one-sided orientation, with problematic ontological (what is real) and epistemological (what we can know) implications. Our argument, consistent with the holistic tradition, is that the contemporary practice of medicine is based on both prodigious knowledge and technical skills and on very real limitations and blind spots.
Critically, we also argue that the “fix” orientation has powerful sources outside biomedicine that are shaping its role within. In fact, “medicine” is not a static or homogeneous category, and many areas of medicine resist a narrow physicalism, attend to the person of the patient, and recognize social and environmental contributions to illness and disorder. And, as I discuss more in the following pages and the chapters in this book will demonstrate, there are strong scientific, clinical, ethical, and public health reasons to move further in this direction. If holistic, integrative orientations remain marginal, and they do, forces well beyond the sound practice of medicine are at work. The historian Charles Rosenberg, for instance, has written: “The dominance of reductionist styles has a long history in the explanation of human behavior . . . but it has an extraordinarily salient place today. We have never been more infatuated with visions of molecular and neurochemical—ultimately genetic—truth.” Reductionism of this kind and other aspects of the biomedical model, including its putative value-neutrality, mind–body dualism, and decontextualized individualistic orientation, are prized for social, cultural, political, and economic reasons of their own, and medicine is being positioned in the contemporary social order accordingly. In resisting the fix orientation, our goal is to explore its sources as well as its limitations and ethical inadequacies.

There are grounds for cautious optimism as new challenges are arising that may loosen some of the hold of reductionism. While reductionism was the ascendant model throughout the twentieth century, the relative influence of holistic thinking has waxed and waned with changing social conditions, moments of cultural crisis, and the shifting nature of the disease burden. If marginalized, holism has remained alive in select pockets of the medical professions and social sciences. In the next section I briefly touch on this history as a backdrop for situating the contributions of the book, with a guide to some of the important literature provided in the endnotes. From a more holistic perspective, each chapter calls into question the adequacy of reductionist and individualistic modes in medicine, public health, or bioethics. Part I explores the role of medicine in the moral/cultural agendas of contemporary society; part II takes up the challenges to the biomedical model represented by new regimes of disease and disorder; and part III investigates bioethics and, in light of the dominance of the “fix” orientation, the urgent need for richer, more substantive ethical reflection.
The Holistic Challenge to Reductionist Medicine

Under the long reign of humoral theory, all of medicine before about 1850 was holistic. Ill health and disease reflected an imbalance or disharmony in a mutually constitutive economy of bodily, personality, and environmental factors. Yet, even as medicine was being swept up into the scientific revolution, prominent scientists and physicians continued to emphasize the importance of what are now called the “social determinants of health” and resisted the increasingly sharp distinction between mind and body. Rudolf Virchow, for example, a pioneer of microscopy and the founder of cellular pathology, is primarily remembered today for his medical achievements. But while a strong proponent of scientific medicine and experimentation, Virchow recognized the social, political, and economic dimensions of health. In 1848 the Prussian government sent him to investigate a typhus epidemic in Upper Silesia; in his report, Virchow blamed the outbreak not primarily on individual microbes and diseased bodies but on the region’s poverty and social despair:

[T]here can now no longer be any doubt that such an epidemic dissemination of typhus had only been possible under the wretched conditions of life that poverty and lack of culture had created in Upper Silesia. If these conditions were removed, I am sure that epidemic typhus would not recur. Whosoever wishes to learn from history will find many examples.

The logical answer to the question as to how conditions similar to those that have unfolded before our eyes in Upper Silesia can be prevented in the future is, therefore, very easy and simple: education, with her daughters, liberty and prosperity. . . . Medicine has imperceptibly led us into the social field and placed us in a position of confronting directly the great problems of our time. . . . If we therefore wish to intervene in Upper Silesia, we must begin to promote the advancement of the entire population, and to stimulate a common general effort.  

Since Virchow’s time, many have tried to resist medicine’s seemingly inexorable reductionizing trend by proposing social models of sickness and health that take into account the mind and the larger social and political context in which we live. These holistic efforts were most powerful at two points in the twentieth century. First, major contribu-
tions were made, primarily in Europe, in the interwar years of the 1920s–1940s; indeed, the word *holism* was coined at this time. Second, the late 1960s–1970s saw a revival of holistic thought, in both Europe and the Americas, that generated biting critiques of the biomedical model. Important elements of these legacies remain alive and contribute to the paradoxical situation in which we now find ourselves.

*Holism of the Person*

In both periods, the major holistic approaches may be roughly divided into two categories. The first is a *holism of the person*, which addresses the whole patient, not merely a particular disease process within the patient. On the physical level, this means being aware of the patient as a complete and integrated organism, not as a collection of parts. Usually, it also means taking into account other aspects of the patient, such as her mental, emotional, and social life; her family situation; and features of the larger external environment. In the interwar period in the United States, the most visible expression of this mind–body holism was in the psychosomatic movement with roots in the work of pioneers at Johns Hopkins, such as Adolph Meyer, and the groundbreaking investigations of the physiology of emotion by Walter Cannon. In the 1930s the Austrian-Canadian endocrinologist Hans Seyle built on this work to develop his theory of “general adaptation syndrome,” one of the earliest attempts to show the physiological action of stress. The journal *Psychosomatic Medicine* first appeared in 1939; although the journal is still being published, the movement, after flourishing in the 1930s and ’40s, went into decline in the postwar years. It was revived during the crisis years of the 1970s in the influential “biopsychosocial” model of the internist George Engel.

For Engel, the stripping away of social context, the effacing of the patient, and the sole focus on biology were together the linchpin of the biomedical model. Against it, he proposed an alternative scientific framework, a biopsychosocial model, which offered, he argued, a unified concept that involved “evaluating all the factors contributing to both illness and patienthood, rather than giving primacy to biological factors alone.” While some who articulated holistic positions downplayed the achievements of medicine, Engel was not among them. He saw the bio-
medical model as a powerful scientific framework for discovering and understanding the disordered bodily processes involved in disease. The problem, in his view, is when this instrumental framework is generalized as a model for a human practice like medicine. In this broader context, it is deeply inadequate. Its biological reductionism and sharp mind–body dualism lead to the downplaying or exclusion of the social, psychological, and behavioral aspects of health and illness; to an overreliance on technology; and to narrow professional specialization. The physician’s clinical gaze is directed to the somatic features of disease and away from the complex environmental context that can affect the onset, course, therapeutic response, and outcome of illness and that typically holds the key to devising potential means of prevention.

Engel’s writing in the late 1970s had an enormous impact, but its influence was uneven and has waned. In psychiatry, for example, where Engel’s ideas received the greatest attention (outside primary care), there has been a strong reassertion of the biomedical model and a heavy reliance on medication treatment. In 2005, the president of the American Psychiatric Association, Steven Sharfstein, argued, “As a profession, we have allowed the biopsychosocial model to become the bio-bio-bio model. In a time of economic constraint, a ‘pill and an appointment’ has dominated treatment.”

Newer psychosocial approaches have appeared since Engel’s. Perhaps the best-known is the “status syndrome” theory of the British epidemiologist Michael Marmot, which identifies the primary source of stress as social status relative to peers. All this work has contributed to a body of well-recognized scientific evidence on the role of stressful life events in modulating vulnerability to illness of almost every kind. Although the influence of psychosocial models is limited in medicine today, this valuable legacy remains critical to understanding social differences in health and illness.

Holism of the Environment

For Marmot, Engel, and others in the psychosocial tradition, the psychological is but one of the multiple factors at work in disease. Their holism of the person overlaps in some measure with what might be called, for simplicity’s sake, a holism of the environment. The many varieties of this holism center not on the patient’s individual traits and psychologically
mediated social experience but on features of a society—cultural systems and norms, political and economic policies and relationships—that can affect the distribution of disease and health. In the period from the 1930s to the early 1950s, this holism was generally termed “social medicine.” A predominantly European approach to public health, social medicine emerged, in part, in resistance to the growing dominance of the biomedical model, and in an age of population-wide programs. Its exponents saw health, too, as something existing first within populations, not individuals. During this period, social approaches to health commanded wide respect, and some highly prominent figures within the medical community—such as the medical historian Henry Sigerist and the public health statistician Edgar Sydenstricker—were affiliated with the social medicine movement. Proponents of social medicine were aware of and identified with the tradition of nineteenth-century holism (not far distant in the 1940s). Sigerist’s *Medicine and Human Welfare*, for instance, approvingly quoted Virchow’s famous pronouncement “Medicine is a social science and politics is nothing else but medicine on a large scale.”

One of the major exponents of social medicine was the Scottish epidemiologist Jerry Morris, who worked toward the end of the period. Morris’s work might now seem focused on “lifestyle”-related factors of health. In the 1950s he was the first person to investigate the connection between cardiovascular activity and health; in 1962 he was one of nine doctors to write the first Royal College of Physicians report on smoking and health. But he always understood health on a social level, was highly skeptical of individualistic approaches to prevention, and wrote a 1957 textbook, *Uses of Epidemiology*, that was enormously influential in establishing programs to foster public health. His work suggests, as discussed in the following pages, that there was nothing inevitable in the shift toward individual behavior change that would come to characterize the “new” lifestyle epidemiology of the postwar years.

Despite Morris’s work, with the end of the war and the sense of cultural crisis the war created, the 1950s and early ’60s were a quiet time for social and other holistic approaches to medicine. This is doubtless partly, as Nancy Krieger observes, because social medicine was often linked to radical political programs of social change, at a time when these were suspect. But it is at least equally likely that holistic accounts
were simply eclipsed by the extraordinary success of biomedicine during this period.\textsuperscript{22} In the 1950s—with the appearance of penicillin, cortisone, and the first effective antipsychotics and the eradication of polio all within roughly a decade—the explanatory power of the biomedical model was apparently complete. And the rapid rise of federal funding for laboratory research brought biology and medicine together into a new and reductionist juggernaut. Further, as Alan Brandt and Martha Gardner argue, in the postwar years the rise of the risk-factor approach to systemic chronic illnesses—an increasingly dominant aspect of the disease burden as infections were controlled—brought a rapprochement between public health and biomedicine, as public health began to shift away from a sociomedical model of disease focused on life conditions to emphasize prevention strategies aimed at the modification of individual lifestyles.\textsuperscript{23}

But holistic approaches revived strongly with the social ferment of the late 1960s and 1970s. If ever there was a moment when the dominance of biological reductionism was under assault, it was in these years. A whole range of humanistic physicians like Engel, as well as social scientists, ethicists, and others, launched trenchant criticisms of the biomedical model. Thomas McKeown, for example, argued that much of the positive change in patterns of morbidity and mortality in the twentieth century was the result of nonspecific factors, especially rising standards of living, and downplayed the role of specific medical achievements.\textsuperscript{24} In their different ways, Ivan Illich, Irving Zola, and Michel Foucault offered stinging critiques of medicalization and the deployment of the individualistic and technology-driven medical model in the service of widening forms of social engineering and control.\textsuperscript{25} Feminists and other minority activists questioned the politics by which health, illness, and the fundamental experience of the body were defined.\textsuperscript{26} And after the thalidomide debacle and the infamous Tuskegee experiments, bioethicists and others called for stricter scrutiny of medicine, and a more humane doctor–patient relationship.\textsuperscript{27}

A social medicine approach also revived, reconstituted in the Anglo-American context as the “social production of disease” and the closely related “political economy of health” (in Latin America, “social medicine”). In these approaches poverty and inequality are the ultimate structural sources of disease—risk factors underlying all other risk
factors—and the solution is, first, reform of economic and political systems that produce health disparities and, second, redistributive policies to reduce inequality. Sharing some features with the old social medicine, they also differed in two significant ways. First, they were characterized by a new suspicion of and pessimism about medicine and science generally; in Krieger’s words, theorists of the political economy of health questioned “not only the application but the basic assumptions and theoretical orientation of mainstream science.” Second, and perhaps unsurprisingly, though they met with considerable success in the academy, and sometimes with policymakers, they got little hearing within the medical community.

The suspicion and social location outside of medicine, characteristic of many of the social medicine critiques offered in the 1970s, limited their impact. More important was another development, noted earlier, that had been steadily growing in influence after 1960. In the postwar period, a critical turn came in the wake of the so-called epidemiological transition in the disease burden from acute, infectious to degenerative, chronic diseases. Chronic illnesses, highly dependent on circumstances, resisted explanation in deterministic, monocausal theories, and the work of researchers, such as Jerry Morris, in the 1950s was instrumental in the formulation of more complex, multicausal, and probabilistic models of disease causation. These researchers’ work on what came to be called “risk factors”—including both exposures, such as to lead, and behaviors, such as cigarette smoking—and the emphasis on prevention it inspired seemed to represent a break with reductionist approaches. The role of individual and social context was now front and center, portending a necessarily more holistic orientation. What happened instead was that the risk factor—a quantitative, statistical concept—was brought within a theory of health promotion directed to individual lifestyle changes.

In this theory, risk factors, according to Robert Aronowitz, though derived from epidemiological observations, “are understood—and legitimated—only as they contribute to the specific, localized pathogenic processes that cause disease.” The primary concern is not with disease distribution but with disease mechanisms in individual bodies, and the only “eligible risk factors” are the “discrete, quantifiable features of individuals.” Thus, poverty, for instance, despite its high
correlation with every sort of illness, is not eligible. There is, in fact, little attention to the larger context of pathogenic exposures, and behaviors are conceptualized as individual-level, independently modifiable, and voluntary lifestyle choices. Prevention is therefore directed to the promotion of healthy lifestyles of personal care and attention. Rather than holistic, then, lifestyle theory is of a piece with the reductionist, mechanism-oriented biomedical model. Risk factors defined in these terms fit smoothly with both the promise of drug therapy and, because the risk levels can be quantified, routine medical practice. In lifestyle theory, a new public health was joined to the mainstream approach in medicine with but the barest reference to holistic context.

Social medicine approaches have not disappeared and have, in fact, been developed and extended to a broader range of issues and forms of inequality. Over the past two decades, an especially prominent expression has been the “social determinants of health” framework. Like earlier social medicine approaches, it is based on the tenet that the social patterning of health and disease cannot be explained on the basis of intrinsic characteristics—biological or behavioral—of individuals. Rather, disparities in health, to quote the World Health Organization (WHO), “arise from the societal conditions in which people are born, grow, live, work and age. . . . These include early years’ experiences, education, economic status, employment and decent work, housing and environment, and effective systems of preventing and treating ill health.”

The social determinants perspective rose to prominence in the late 1990s when the WHO adopted its concepts and language. The WHO has continued to promote this perspective. In 2008 its Commission on Social Determinants of Health released Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health, a comprehensive action report to encourage the development of healthy (i.e., health-promoting) societies. And in 2011 the WHO convened a global conference, representing 125 member states and culminating in the Rio Political Declaration on Social Determinants of Health, which expressed formal political commitment to the sorts of corrective measures proposed in Closing the Gap.

The WHO’s imprimatur has helped popularize both the term and the theory of social determinants of health, and this framework is today the primary holistic alternative to the biomedical model. There are other
reasons, besides the WHO’s patronage, for its influence. In particular, unlike its precursors in the 1960s and ’70s, the social determinants of health perspective does not go beyond its central insight—the necessity of healing the patient’s environment as well as the patient—to make sharp political and economic judgments. Relatedly, it also attends more closely to biology—it is interested in the mechanisms whereby poor social conditions affect the body’s health, not exclusively in the conditions themselves.\(^{38}\) (In both these tendencies, it is a partial return to the social medicine tradition of the mid–twentieth century.) By minimizing the political and emphasizing the physical aspects of medical holism, the framework is more broadly acceptable, not only across the political spectrum but also within the medical community itself: An emphasis on the social determinants of health may modify aspects of the biomedical model without explicitly challenging it.\(^{39}\)

Challenging Reductionism

Speaking of holism can sound mystical and romantic, a yearning for a simpler time or an earnest concern for improving the art of medicine. Or it can sound reactionary and politicized, oppositional to the hard but fruitful achievements of bioscience or demanding of doctors a social role they cannot, and should not, assume. Even my brief and incomplete overview suggests that something larger is at stake. Holistic and integrative thinking, though it has taken an eclectic and uneven variety of forms, has contributed a large body of work—from stress research in the psychosocial tradition to the elucidation of complex social determinants of health in social medicine—that bears importantly on the health of individuals and communities. Some of this integrative thinking is now commonplace, of course, and taken up directly in new programs, the emerging field of global health being one example.

Furthermore, developments in the larger world make the holistic contribution more relevant than ever. Much of the current work in medical sociology and anthropology, social epidemiology, public health in the social medicine tradition, and so on makes this case. From the increasing concern with ecology, climate, agriculture, and food production to the rising cost of health care and the indeterminate payoff from intensive reliance on high technology, to the extraordi-
nary and unexpected resurgence of infectious diseases, both new and old, we are confronted with the need for integrative, multidimensional, and environmental approaches like never before. In light of a globalized world, one-dimensional and reductionist approaches seem anachronistic. Several new areas of science potentially push in the same direction, including the growing field of systems biology, the study of epigenetics and the groundbreaking work on bidirectional gene–environment interaction, and neuroscientific findings on the plasticity of the brain in response to environmental diversity. Each of these emphasizes interactivity and context: the body as historically and environmentally situated.

Throughout the twentieth century, holistic and integrative thinking was shaped by crises in society and discontents in and with medical practice. These too have contemporary expressions. The popular dissatisfaction that George Engel saw creating a crisis in medicine in the 1970s remains strong, a paradoxical skepticism about technological progress is pervasive, and the use of so-called complementary and alternative medicine is widespread. Critics observe that even as medical capabilities have become more sophisticated, health disparities have grown wider. Humanistic physicians challenge enthusiastic talk of “personalized medicine” (prevention and treatment based on individual genetic susceptibilities), “comparative effectiveness research,” and “evidence-based medicine” for yet again touting technology and a rationalized, quantitative, algorithmic logic to displace clinical judgment. And on it goes, with complaints and a sense of crisis at every turn.

Despite these and other developments, which have made holistic conceptualizations more urgent for clinical practice and public health, the hold of the reductionist biomedical model remains firm and the obstacles to reforming it remain formidable. Especially in elite practice and basic medical science there has been a muscular reassertion of the model in the name of a more rigorous science. I have characterized holism in its various forms as oppositional to reductionism, and it is, but the reverse is also true. The biomedical model is central to the canonical story of medical progress from its pre-scientific past to its benevolent present and open future. Holistic reservations and alternative models can represent challenges to this story and, when not simply ignored, have often been met with serious resistance. Not all of this reaction is
misplaced, of course; it can be part of a necessary negotiation, as I noted at the outset. But we are again living in a moment of antagonism. We have to begin by asking how we got here.

*Part I: Reductionist Medicine in Cultural Context*

The persistence of reductionism is typically explained as a basic requirement of good science. The physicalist ontology and reductionist logic of the biomedical model simply are how good science is done and genuine medical progress secured. But in chapter 1, I explore another appeal of reductionism that is only tangentially related to scientific productivity or therapeutic success, or to the current and increasingly insistent bureaucratic imperatives of commensurability, impersonality, and control that depend on a specific-entity, mechanism-oriented approach. The reductionist biomedical model, I argue, has a cultural authority that shapes the social positioning of medicine and gives it, as several other chapters further develop, an increasingly important moral role in contemporary liberal society. I trace the origins of this role to two sources: first the humanitarian impulse that made the relief of suffering, and the fostering of self-determination, foundational to natural science from its roots in the seventeenth century, and second the physicalism, enshrined in the biomedical model, that imbues medicine with its putative objectivity and moral neutrality. The open-ended humanitarian commitment trumps alternative moral frameworks, while the physicalism and putative neutrality allow reductionist medicine to itself become an “objective” basis for social and moral judgments. This moral role, added to the demands of bureaucratic health care delivery, commercial pressures, and the generalized orientation of natural science, greatly complicates the adoption of alternative approaches that are less technological and more integrated and socially oriented.

I also explore some of the “appropriations and dispossessions” of the biomedical model. Rather than answers to existential questions, I argue, the specific disease model provides an account that explains problematic experience, validates it as real with a somatic etiology, legitimates intervention, and reduces implications of moral culpability. All these features are in evidence, as Christina Simko shows in chapter 2, in the new genre of depression memoirs. Most authors of these memoirs draw
upon the biomedical model to explain their experiences. They attest to the power of an amoral conceptualization of disease to decrease or neutralize moral responsibility (though questions of responsibility remain and reassert themselves\textsuperscript{13}). It is partly that power, paradoxically, which makes the self-adoption of the reductionist biomedical approach so appealing.

The model offers an account that can bring assurance that something is “really” wrong, along with a sense of control. But it cannot address questions of personal transformation or theodicy. Nor, it is important to note, can it fully suppress these questions. While some reject the reductionist account, others embrace it, at least in part, even as they struggle to resist its implicit determinism. Talk of somatic etiologies, Simko finds, cannot address our larger, holistic need to find some meaning in suffering. The memoirists draw on other traditions and resources (or what’s left of them), and these larger frameworks can represent a challenge to the biomedical model. At a minimum, these accounts provide narrative models of working not only “with” and “through” but also “around” the biomedical model, and they contradict the facile line, implicit in the model and further encouraged by pharmaceutical advertising, that existential issues are irrelevant.

In my discussion of the appropriations and dispossessions of the biomedical model, I also explore some reasons why medicine is ineffective in setting limits on its own expansion. Medicalization—the redefinition and treatment of problems previously outside the jurisdiction of medicine in a medical framework—typically begins with some sort of problem and is legitimated within the conventional framework of treating disease, remedying a deficit, easing pain, and the like.\textsuperscript{44} Its end or telos, in other words, is the relief of some felt suffering or disability. But there are uses of medical technology that have as their end cultural concerns with furthering self-determination. Some aspects of dermatology and reproductive, cosmetic, and sports medicine, for example, involve technologies that are directed to healthy people. The frontier in the development of such technologies, as Luis E. Echarte argues in chapter 3, is in the exploding field of neuroscience. Existing and emerging “neurotechnologies”—psychoactive medications, functional brain imaging, cerebral stimulation, and others—are creating new abilities to alter brain function. Whatever uses they might have for treating disease and
disability, these technologies also open up other possibilities, including “quality of life” interventions with respect to mood, libido, sleep, cognitive functioning, and more.

Although bioethical discussion of these nontherapeutic interventions typically classes them together as “neurocognitive enhancements,” Echarte distinguishes between enhancement and cosmetic uses. Enhancement, he argues, retains at least in theory a sense of objective improvement: “better” study or sleep or mood. Cosmetic uses, on the other hand, move even further away from any sort of objective problem. They are governed by the desires of individuals pursuing their self-defined interests and goals. The distinction is valuable because most actual cases of “enhancement,” by intention or by effect, are probably cosmetic. Driving the bioethical promotion of these nontherapeutic interventions, Echarte argues, is an ever more vigorous reduction of mind to brain (and body to machine) and a nearly unqualified assertion of patient autonomy. Paradoxically, neuroscientific reductionism and libertarian individualism, while consistent with the biomedical model, also constitute a challenge to it. Should these interventions be justified without some recourse to the rhetoric of suffering, they move away from the model entirely and, despite the scientific trappings, introduce a deep subjectivism that leaves psychiatry ever more captive to popular trends.

The growing role of individual preferences and judgments in medicine is also being driven by consumer culture. Echarte does not discuss the question of payment for enhancement/cosmetic uses of medicine, but an important part of the drive to medicalize everyday life problems is commercial and activist pressure. The treatment specificity in the biomedical model, as I note in chapter 1, has meant that patient response to pharmaceuticals has played an important role in the very definition of disease and disorder categories. Pharmaceutical and device manufacturers’ promotion efforts—an intricate network of advertising, scientific publication plans, continuing education courses, and much more—has also led to a vast increase in diagnoses and sales. For instance, drugs for recently medicalized conditions and risk factors—social phobia, erectile dysfunction, elevated cholesterol—now generate billions in sales. Lay advocacy groups, often working hand-in-hand with companies, as noted by Robert Dingwall in chapter 4, lobby for new conditions, treatments, research funding, and the like, on precisely the ontological terms of the
biomedical model. Part of what is at stake is legitimacy and with it payment through insurance schemes, public and private.  

Holistic critics have long argued against viewing medical care as simply a series of market transactions. Rather, it must be seen, as Dingwall depicts it in chapter 4, in terms of “mutual obligation” and “burden sharing” within the larger community. While before World War II, medicine was provided on a market model in the United Kingdom (and the United States), a mutual obligation model, Dingwall argues, informed the system established by the National Health Service after the war. Then, in both the United Kingdom and the United States in the 1960s, activist movements for patient autonomy and self-determination began to establish a new kind of consumer rhetoric. Later, and also in light of financial crises and new economic thinking, the structures for the provision of medical care were revised. These structures are highly individualized and driven by patient choice. This health consumerism, framed in terms of rights rather than mutual obligation, is synergistic with the reductionist biomedical model, and like the model is appealing because it suppresses the moral and collective dimensions of medicine.

Questions of responsibility and dependency, however, do not disappear, as many other chapters in this book also demonstrate. Drawing out implications of Talcott Parson’s famous analysis of the conditional legitimacy of the sick role, Dingwall argues that the dilemmas of dependency cannot be “legislated away.” Because there are financial costs and other goods at issue, the problem of constraints on individual preferences and entitlements is not eliminated by the state’s adoption of a consumerist orientation. Rather it is relocated, making other stakeholders adjudicate the legitimacy of claims for care and support. The obdurate moral and collective dimensions of medicine challenge the consumer vision of the patient and suggest that a viable model of medical provision must incorporate an understanding of mutual obligation.

Part II: Reductionist Medicine and the Disease Burden

Part I explores why reductionist medicine has been drawn deeply into key cultural priorities and projects and identifies some of the resulting paradoxes and potential openings for more holistic approaches. Part II proceeds in a similar manner, examining changes in the burden
of disease and disorder, the reductionistic and individualistic medical response to them, and some possibilities for moving in a more socially integrated direction.

In the first instance, as Anne Hardy reminds us in chapter 5, the dominant regime is now one of chronic illness and diseases of aging and degeneration. Chronic illness has meant a critical shift of resources toward care and management, amidst growing economic constraints. At the same time, the absence of new curative therapeutics in recent decades has brought a return to prevention. State policy has accordingly shifted, Hardy argues, toward a new regime of disease management. While the return to a prevention strategy represents a return to the historical norm, it is now conducted through the medium of individual lifestyles. It is thus limited in all but the most extreme circumstances to steps, from tax policy to the promotion of a health-focused subjectivity, that urge or pressure individuals to change how they live. Paradoxically, even in the more holistic context of prevention, which necessarily directs our attention to a wider context, disease remains an individual problem just as in the biomedical model, abstracted from the pathogenic aspects of particular social, physical, and economic environments.

The synergy of biomedicine and the lifestyle approach, already robust, is growing even stronger, Deborah Lupton argues in chapter 6, as health promotion and preventive medicine are increasingly joined to new technologies. Like Anne Hardy, Lupton discusses the important holistic, social medicine movements of earlier decades, such as “the new public health” and social epidemiology, that emerged to challenge the individualistic approach to prevention and health promotion. These movements, as noted earlier, have not disappeared; Hardy even describes the social determinants of health as “big epidemiological business.” However, Lupton observes, a changed economic and political climate has brought a renewed emphasis on individual lifestyle and personal responsibility, irrespective of social circumstances. The lifestyle approach is being transformed and accelerated with the deployment of new interactive digital technologies for health communication and with devices—wearable, implantable, even ingestible—for measuring and monitoring the body.

Health promotion endeavors, public and private, Lupton argues, have embraced digital technologies for several strategic reasons. The most
important concerns are reducing costs by increased health attentiveness and prevention efforts on the part of individuals and generating new data that might contribute to health gains. The data come from amassing people's interactions with digital technologies. The accumulated information on exercise, consumption habits, biometric readings, medical treatments, illnesses, and other experience could potentially be used to identify at-risk groups, track infectious disease outbreaks, improve health services, generate predictive patterns and new risk factors, and so on. As with other promotions directed at lifestyle, the new technologies represent tools for fostering a new subjectivity. Neither Lupton nor Hardy uses the term, but it is a kind of “biomedical subjectivity.”

Individuals, as Lupton notes, are incited to make health their top priority, conceive of themselves and their bodies in reductionist and objectivized terms, continually monitor their bodily functions, stay aware of and manage their susceptibility to illness, and keep informed of the latest developments. While the aim is generally to encourage self-surveillance, the new digital technologies also make possible new kinds of social pressure on those targeted as at risk. And yet again, because the technologies and their effects are assumed to be neutral and objective, the moral, political, and ethical are suppressed.

Another critical shift in the disease burden, also noted by Hardy, is the dramatic and totally unanticipated return of infectious diseases. If the shift to prevention in health promotion is incongruous with the relentless optimism about medicine's power to control nature, even more so is the outbreak of infectious diseases, both new (such as HIV/AIDS) and old (such as tuberculosis). In fact, as Jon Arrizabalaga argues in chapter 7, our confidence in technological success has, paradoxically, delayed effective responses to these new and incurable killers. However, several decades into the era of “(re)emerging diseases,” the profound threat they represent is challenging the biomedical model by forcing attention to the complex local and global human factors—urban concentration, industrial use of new biotechnologies, land use and food production, migration, and so on—that are critical to the origins, spread, and response to these diseases. There is now some movement away from universalistic and one-dimensional biomedical approaches. Still, the global burden of these diseases is highly unequal, and their spread goes largely unchecked in many parts of the world. A more comprehensive, integrative, and ho-
listic approach to infectious disease is urgently needed, one which fully recognizes, as Arrizabalaga writes, that “epidemics are social as much as biological events.” Infectious disease, whose control has been biomedicine’s greatest success, has returned as one of its greatest challenges.

Our time of chronic illness and (re)emerging diseases draws our attention to the relationships between pathology and particular social practices and arrangements. In chapter 8, Bruce K. Alexander explores the rapidly proliferating number of new addictions—compulsive and destructive pursuits that encompass far more than the traditional categories of excessive drinking and recreational drug use. In the “official” paradigm of addiction, based on the biomedical model, the disease of addiction is limited to alcohol and various drugs, treated as a chronic problem of individuals, and designated as a failure of personal agency. Various theories have been proposed over the years to explain the disease, with the current etiology conceived in terms of brain mechanisms. Though the history of treatment is poor, therapeutic optimism has been and remains high—successful intervention is only a matter of time.

Against this specific entity model, Alexander argues, stand new forms of addiction—gambling, consumption, Internet games, and much more—that implicate social breakdown itself as pathogenic. And, he believes, the many new forms of addiction are finally undermining the scientifically untenable and implicitly moralistic official view and opening a space for the emergence of a more holistic and social conceptualization of addiction. His “dislocation theory” does not concentrate on single individuals or inevitable chronicity, though it allows for genetic and other personal differences. The etiology of addiction, rather, is located in the stress of profound and dislocating social transformations, and its incidence and outcomes vary with the relative obstacles to social reconnection. The medicalization of addiction is being undermined, according to Alexander, by the inability of the specific disease model to contain it.

Part III: The Need for a More Holistic Ethical Discourse

We argue in this book that matters of morality and value are inescapable for medicine as a human practice and as a social institution. Too often such matters remain implicit, and in going unspoken they sustain the notion that medicine is value-free. This is clear in all the chapters of
part I. In part II, Lupton shows how prevention focused on individuals, where risk is defined in terms of decontextualized habits and individual choices, becomes the source for introducing attributions of moral failure that biomedicine supposedly banishes. Similarly, as Arrizabalaga and Alexander emphasize, AIDS and addiction are fraught with value judgments, despite their framing within biomedical discourse. Further, parts I and II argue that the individualized biomedical framework obscures both the role of social structures and inequality in creating the conditions for problems to arise, and the role that structural change might play in ameliorating them. While there are important challenges to this regime, as the chapters have also stressed, the need for a more holistic ethical reflection on medicine is more urgent than ever. Part III takes up this issue.

Since the 1960s, a new field, bioethics, has arisen to carry on that reflection and articulate ethical standards for guiding medicine and medical research. According to John H. Evans in chapter 9, bioethics initially represented a challenge to reductionist medicine: It was critical of medicalization, such as in reproductive and genetic medicine; it offered a holistic and socially oriented framework for making substantive critiques; and it had some institutional homes that were outside medicine. While important aspects of this work continue, the challenge represented by the field itself, argues Evans, “ended . . . nearly as soon as it started.”

The story Evans tells is one of an opportunity missed. The dominant framework that has come to guide bioethics, and that has been institutionalized in the administration of medicine and research with human subjects, is an ethical system known as principlism. This system, Evans argues, cannot challenge reductionist medicine, despite its typically holistic-sounding talk. If briefly an outsider, bioethics has since been absorbed as a subsidiary to medicine; it has few free-standing institutional centers and little professional independence. Its four principles are relatively noncontroversial because they either articulate goals already integral to medicine—such as the relief of suffering and avoidance of harm (beneficence, nonmaleficence)—or possess little specific content (autonomy, justice). Their primary appeal is that they function as easy-to-apply procedural rules in centralized, bureaucratic, and regulatory settings. While this rationalizing and managing role is not a trivial one, its ethical minimalism provides no grounds for resistance to the ex-
tension of medicine into new areas and, significantly, supplants alternative, more substantive critiques that do. For this reason, bioethics serves, paradoxically, as a driver rather than restrainer of medicalization. Only through a “severing of the symbiotic relationship” with medicine might bioethics once again constitute a challenge.

If anything, Jeffrey P. Bishop suggests in chapter 10 an even more symbiotic relationship between bioethics and biomedicine. He begins with the early critiques of reductionist medicine by the mid-twentieth-century theologians Joseph Fletcher, Paul Ramsey, and Richard McCormick. Their theologically grounded treatments of ethical dilemmas in medicine initially worked from an ontology and teleology that were radically different from those of biomedicine. But, in an attempt to gain a hearing, Bishop argues, they became less oppositional, speaking a “thinner” language, one less challenging of the fundamental assumptions of biomedicine. At the same time, as Evans in chapter 9 also notes, concerted efforts were made by scientists to marginalize these critical theological voices. To fill the resulting void, and in terms acceptable to both government agencies and the research and medical establishment, philosophers created common morality theories, the most successful of which was principlism. Thus in Bishop’s reading, principlism was from the beginning synergistic with the ontological commitments and ends of biomedicine; principlist bioethics attends to the efficiency and effectiveness of means but always within the ambit of biomedicine’s frames of reference.

Furthermore, Bishop argues, subsequent holistic efforts, drawing upon the social sciences (such as the biopsychosocial model) and the humanities (e.g., narrative medicine), have attempted to reform and “humanize” the clinical practice of medicine. These efforts, however, have not challenged biomedicine’s fundamental premises but, if anything, extended them. In Bishop’s view, there are still some who offer richer, holistic critiques, but only on the margins of the field. If bioethics is ever to work as a strong counterbalancing force to reductionist approaches, it must recover an ethics that challenges the mechanistic, “fix” orientation rather than reproduces it.

Even if, as Evans and Bishop argue, bioethics as currently constituted does not represent a challenge to reductionist medicine, it does represent an opportunity. As Evans briefly mentions, new developments in
medicine must now pass through a public ethical analysis. If, as seems to happen now, nothing technologically possible and allowably safe ever gets rejected by this process, the process itself still might be important. The very fact of bioethics, the fact that scientists and doctors do not fully control the ethics of science and medicine, opens a space for reflection that might not otherwise exist. And, as Bishop suggests, and this book seeks to foster, making the implicit ontological and moral commitments of biomedicine more transparent is an important first step.

We need a richer reflection on the human good and the place of health in a well-lived life and a good society. As this book documents, powerful and accelerating trends in modern society, influencing and influenced by medicine, contribute to the “naturalization” of the ethical dimension of life, putatively replacing a moral register with an organic one. There are pragmatic advantages to this naturalization. The “fix” orientation is attractive at the personal level, for deflecting guilt and stigma; at the social level, for avoiding controversy and public debate; and at the political level, because adapting individuals to their social environment is far easier than the other way around. As the criminologist Barbara Wootton once observed: “Always it is easier to put up a clinic than to pull down a slum.”48 Yet, as Ana Marta González shows in chapter 11, conflating ethical questions with health questions creates serious problems.

To reduce questions of the good to the healthy, González argues, is to efface questions of justice, inequality, rights, and the common good and remove them from the public sphere. Naturalizing the good risks turning health into an ideology that can justify inequality—always the danger of naturalizing discourses—and, “precisely because it easily excites our approval,” legitimate the ruthless enforcement of narrow standards of normality. “Health” provides no grounds for dissent or appeal, and biomedical reductionism and individualism distort the nature and complexity of human experience. Similarly, González observes, the terms of proper care and the allocation of health resources require notions of justice and the common good, including on a global level, which cannot be found in the naturalist framework. Avoiding controversy and debate does not justify naturalization. Ethical questions, she argues, “need to be addressed in ethical terms.” The good that is health, in the polity and in a meaningful life, can be understood only within the context of reflection on the human good as such.
Conclusion

Biomedicine’s individualistic and reductionist orientation is pervasive and culturally powerful, the repository of some of modernity’s most fervent hopes. But it is not absolute or monolithic. This book analyzes real-world developments and explores failed responses that show, we argue, the insufficiency of the biomedical model on its own. They show the need for balancing and countervailing values, practices, and institutions that can limit the model’s practical, theoretical, and ideological reach. They show, in brief, the urgent need for a richer, holistic orientation, and in my Conclusion to the book I trace out the arguments and the critical implications of the book for moving further in this direction. There are no assured paths; time and again, the biomedical paradigm has demonstrated its power to marginalize or co-opt alternative visions, and the reductionist project is now tightly interwoven with both bureaucratic organization and many aspects of contemporary life and culture. We have no illusions. At the same time, we are not without traditions of thought and research on which to build. In fact, some are available in the very fields—medicine, bioethics, and public health—that are the subject of much of our critique. In all these fields, retrieving the neglected, the marginalized, and the half-forgotten is the place to begin.

Notes

1 See Joseph E. Davis, “Reductionist Medicine and Its Cultural Authority,” chapter 1, this volume.

2 It is not just patients who are dissatisfied and alienated. A number of recent books by physicians chronicle deep disillusionment. See, for example, Sandeep Jauhar, Doctored: The Disillusionment of an American Physician (New York: Farrar, Straus & Giroux, 2014) and Danielle Ofri, What Doctors Feel: How Emotions Affect the Practice of Medicine (Boston: Beacon Press, 2013).


5 See, for example, Matthew Schneirov and Jonathan David Geczik, A Diagnosis for Our Times: Alternative Health, from Lifeworld to Politics (Albany: SUNY Press, 2003).

6 Lawrence and Weisz, "Medical Holism’; Charles E. Rosenberg, "Holism in Twentieth-Century Medicine,” in Greater than the Parts, 335–55. Further historical