

1

Medical Holism: The Context

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The standard account of the development of medicine in the nineteenth and twentieth centuries is that medicine became increasingly reductionist in orientation and increasingly dominated by laboratory research and technology. The result is a monolithic entity variously called "biomedicine" or scientific medicine. This medicine has been and continues to be the source of much faith and optimism. Since the late 1960s, however, it has also been frequently criticized, from both outside and within medicine, for its reductionism and lack of concern for the whole patient.

It is one of the arguments in this collection of essays that such criticisms of reductionist medicine are hardly new. Medicine's search for rigorous scientific procedures has always had its adversaries who based their stand on the complexity and fluidity of clinical reality. During the interwar years of the twentieth century, just at the moment when medicine seemed to be registering its greatest triumphs, condemnations of this sort reached new levels of intensity. Some of these originated outside the medical mainstream, in various movements perceived as "alternative" and hostile to orthodox medical elites. But more interesting for our purposes were the many individuals and groups *within mainstream medicine*¹ who also attempted to resist what they saw as reductionism and excessive reliance on technology. This mainstream resistance, which constitutes the subject matter of this book, took various forms: constitutionalism, psychosomatic medicine, neo-hippocratic medicine, neo-humoralism, social medicine, Catholic humanism, and, in continental Europe, the convergence of various forms of alternative healing (homeopathy, naturopathy) with medical orthodoxy. These assorted responses can be characterized by the term "holistic." Such holistic preoccupations, moreover, were not confined to the bedside; they were also voiced by basic medical scientists of the period. Nor did they stop (or start) with medicine. Holistic approaches informed many scientific and philosophical enterprises, and were central to some of the key political ideologies

of the era. A careful examination of medical holism during this period can thus contribute to a richer understanding of the relationship between medicine, science, and society in the twentieth century.

Reductionism and Medical Holism

Holism is a tricky concept. The term itself was coined only in 1926 by Jan Smuts² and was not widely used during the interwar years. But it nonetheless remains useful because it calls attention to linkages and continuities among many notions and metaphors. Philosophers can provide formal and rather elaborate definitions of the term,³ but in the world that historians inhabit, holism is essentially relational; it constitutes a rhetorical claim made in opposition to other approaches that are characterized as excessively narrow or reductionist in focus. Indeed what is holistic for one individual is frequently perceived as reductionist by another.

Reductionism in medicine has been defined in a variety of ways. Commonly, reductionism has been represented as a form of etiological thinking that identifies disease with a single cause, such as a bacterium or a biochemical abnormality. Reductionism in this sense was often associated by its critics with laboratory practices. It could also signify excessive attention to anatomical localization of disease in specific organs or tissues. Increasingly, it came to be associated with an exclusive emphasis on cure—often by specific or mass-produced cures—rather than disease prevention. Reductionism was not necessarily restricted to the cognitive domain. For some, it meant the fragmentation of the medical profession into highly specialized, disconnected, and narrowly focused groups.

What is true of medical reductionism is equally true of medical holism, which has been given a number of related but distinct meanings. These different meanings or styles will be explored in the following chapters and analyzed in detail by Charles Rosenberg at the conclusion of this volume. But for the present we require an initial formulation that allows us to approach the subject matter of the chapters. Medical holism can address itself to individuals, the environment, or populations, either separately or in various combinations. It has, in the first instance, the connotation of focusing on the human body in a systemic fashion, privileging the general state of the organism rather than the condition of individual organs. The parts in turn are perceived to have many intense and multidirectional interconnections. In many formulations the whole is said to determine the action of the parts. From this perspective, sickness is regarded as a general disorder of the body even if disease can be classified in terms of, say, local lesions or external etiological agents.

Holistic thinking of this sort can operate at the level of systemic biological processes or can attempt to incorporate emotions and the psyche into the study and cure of individuals. The latter approaches are frequently formulated as efforts to transcend Cartesian dualism—the rigid distinction between mind and body. In an

extension of this view, the whole person is regarded as being uniquely constituted by individual experiences of health and illness and by characteristics and tendencies inherited from ancestors. In this account any sickness a person might suffer is not easily incorporated into reductionist taxonomic schemes.

Another variant of medical holism concentrates more actively on the effects of the external environment on the organism. This can mean an emphasis on the *physical* environment: swamps, miasma and the heavens in earlier historical periods; climate, air pollution, and magnetic fields in later eras. Or it can focus on the social environment: poverty, various forms of behavior deemed unhealthy, the political system, even Western civilization itself. Such thinking is inspired by a sense of a fundamental interconnection among the diverse aspects of reality.

Efforts to take account of the effects of these external environments on the health of the individual were an integral part of traditional clinical medicine until well into the nineteenth century. But even this expanded clinical focus on individuals within environments has on occasion been seen as unreasonably narrow by thinkers focusing on *populations* based on geography, social class, race, or any number of biological criteria. The collection of public health and later clinical statistics has played a crucial role in this respect because such statistics were seen to reveal inequalities of health and illness among populations variously defined; these inequalities seemed to many to defy reductionist explanations. In addition to the spread of medical statistics, a major impetus to population thinking has been the emergence of political ideologies emphasizing the centrality of such categories as race, nation, class, and gender.

The meanings of holism that we have been exploring so far emphasize the *scope* of the medical gaze. Rather than research, diagnosis, and therapy that focus on a single organ, cause, or problem, holists claimed to focus on the entire “person” or group within a larger environment. Discussion of holism in the medical as in other contexts, however, has not only been about the object of knowledge but about the *nature* of knowledge. Conventional scientific procedures and modes of thought have often been deemed inadequate for the task of knowing the whole. Theoreticians of holism frequently talked about the need for synthesis to supplement or replace the dominant role of analysis. In doing so they were dealing with a pair of much-used terms that could be given a variety of different meanings.

At the simplest level, perhaps, “synthesis” was used as a call to bring order and general principles to the rapidly growing, specialized scientific data that were inundating modern medicine. Between 1880 and 1920, the world of institutional medical science, fueled by the growth of higher medical education, expanded at a remarkable rate. To the delight of some and the dismay of others, small armies of researchers were publishing more and more about narrower and narrower subjects. To the pessimists, therapeutics was seen to be in even worse shape. The modern pharmaceutical industry seemed to be producing a glut of untested medications. “Synthesis” in this context meant summarizing and making sense of all this new knowledge and bringing order to therapeutic disarray.

However, knowing holistically or synthetically was frequently presented as more than merely summarizing or combining knowledge; it had to do with new ways of knowing. While relatively few medical holists questioned the central role of science—including laboratory science—many felt keenly that it needed to be supplemented or even dominated by other forms of knowing: collective historical, clinical, and religious experience as well as intuition were needed in addition to analytical procedures. Holists also asserted that knowledge should be interdisciplinary; it should link medicine with such domains as philosophy, history, theology, or physics. Synthesis in this context represented an approach that compensated for the narrowness of vision and rigidity of categories believed to be characteristic of much medical science. Many holists went even further, searching not just for new forms of knowledge that could make up for the limitations of reductionist analysis but for a transcendence of existing intellectual divisions and conflicts. The word synthesis here retained its specifically Hegelian connotations.

Holism referred as well to the *quality of human relations* in clinical medicine. Medical concern with the “human” and the “person” was a response to the growing depersonalization and dehumanization of medicine and modern life more generally, dominated, as they were increasingly perceived to be, by technology, bureaucracy, and commercial relations. The demand to see patients as total human beings was frequently an *ethical* imperative as much as it was a call to cognitive completeness. It was this sense of the term that particularly linked medical holism to contemporary developments in religious and philosophical thought.

Medical holism, therefore, was complex and multilayered. Frequently, individuals or groups applied holistic perspectives to isolated and narrow problems without, moreover, explicitly identifying themselves as holists or rejecting reductionism. In these instances the historian faces the task of placing (or not) such cases within some historical narrative of holism. In many other instances, however, many sorts of holism were combined, in one way or another, by individuals and groups explicitly claiming to be repudiating reductionism. The interwar years were particularly rich in examples of such explicit claims to holism.

Nevertheless, holism in medicine did not suddenly come into existence during the interwar years. It was in fact the traditional though unacknowledged perspective of medical practitioners. At the beginning of the nineteenth century, as Charles Rosenberg has argued in an authoritative article,⁴ the therapeutic paradigm was fundamentally an ancient one: the body was perceived as a complex system connected to the surrounding environment through inputs and outflows and in a state of dynamic equilibrium when healthy. Illness was some form of imbalance. Therapeutics thus concentrated on reestablishing equilibrium, usually by acting on input and outflow. This ancient model had remained relatively unchallenged by the mechanistic theories of the seventeenth and eighteenth centuries.

In the late nineteenth century, most of the detailed elements of the model were eroded by laboratory-generated perspectives, but many of the various assumptions it was built on continued to be valued by clinicians. Ideas about inputs and out-

flows, for example, persisted in bedside therapeutics until nearly the end of the century, possibly because few therapeutic alternatives were available. Persisting longer were other assumptions, notably ideas about physiological equilibrium, which all agreed had been validated by modern science. Less widespread was the ancient concept of the *vis medicatrix naturae*—the healing power of nature—which regarded the body as having a natural tendency to recover from disease. Although not supported by laboratory studies, this concept was, to its supporters, validated by cumulative clinical experience. Many interwar medical holists embraced this concept to justify optimism about the fundamental beneficence of nature and to emphasize that humans needed to adapt themselves to—rather than master—natural forces and rhythms.

The holism of the interwar years was in many respects explicitly recognized as a return to traditional notions—modified by the results of contemporary science. Why this emphasis on a return to tradition in the early twentieth century? First, it was a response to developments within medicine. The revolution in medical thought brought about by bacteriology, the enormous growth and specialization of medical knowledge, and the proliferation of new, untested pharmaceuticals produced contradictory reactions. For many, probably the majority of physicians, the prestige of medicine had never been higher and the prospects of further scientific advance appeared almost limitless. The great amounts of philanthropic and industrial money poured into medical research testifies to this optimism. For a significant minority, however, all this activity had resulted in a relatively limited payoff, notably in therapeutics. Surgery was a significant exception but it, like other medical fields, was becoming a narrow specialty closed to most medical practitioners. It was thus not clear to everyone, despite a few striking successes, such as salvarsan, vaccine therapy, and insulin, that significantly greater therapeutic efficacy had been achieved. Furthermore, the growing emphasis on laboratory science, valuable in itself, was becoming dangerous to the extent that it seemed to subvert bedside authority. For many the diagnostic laboratory challenged clinical autonomy. In similar fashion, increasing reliance on technology seemed to be making obsolete clinical skills that were the basis of the physician’s identity. Equally dangerous was the growing role of the state in clinical medicine through the development of health insurance. Physicians feared the bureaucratization of the profession, assembly-line organization of the medical workplace, and destruction of the traditional doctor-patient relationship. Under such conditions, it is not surprising that many physicians developed nostalgia for the medicine of the past. In Germany, France, the United States, and (to a lesser extent) Great Britain, they were encouraged in this nostalgia by the widespread popularity of alternative forms of holistic treatment, notably homeopathy and naturopathy, among medical consumers. In the first two countries, some mainstream physicians began to seek some form of reconciliation with alternative medicine—in many instances, no doubt, to co-opt lucrative therapeutic practices.⁵

Holism at the bedside was often justified by appeals to recent developments in

science, both medical and nonmedical. Many of these scientific developments, as in neurophysiology and endocrinology, were themselves the direct results of new systemic and functional orientations in physiological research.⁶ Holism was thus an historical phenomenon that extended far beyond medicine. The new physics of relativity and quanta served as a model for holistic doctors and antireductionist scientists in a wide variety of fields.

It is well recognized that in the arts many of the languages of modernism were inflected with organic imagery. Such languages were often specifically employed to distinguish art from science, which was represented as atomistic and reductionist.⁷ But in fact, holism extended far into the social and natural sciences, as well as into the wider culture of the Western world. It represented an elaboration of tendencies that had been developing since at least the last decades of the nineteenth century.

Discussing holism in this broader context is much more difficult than is the case with medicine, whose practitioners shared at least the common aim of treating or preventing disease. It is almost impossible to articulate fully the relationship among the many diverse terms with holistic implications that gained popularity—organicism, vitalism, totality, synthesis, community, *Ganzheit*, *Gestalt*, *médecine humaine*, to name but a few. One can at best point to Wittgensteinian family resemblances, the full exploration of which would require something like an intellectual history of the Western world during the nineteenth and twentieth centuries. We will more modestly restrict ourselves to some brief and general comments on the broader holistic revival of the interwar period. These are intended as a preliminary and general guide to an area that has yet to be clearly defined as a field of study.

Cognitive and Cultural Holism

It may help to distinguish between two types of holism that are at least analytically distinct. One, which we call cognitive, refers to integrative and comprehensive intellectual approaches to phenomena. Perspectives of this type have existed since antiquity and undoubtedly constitute a permanent tendency in Western intellectual life.⁸ But their modern variants were shaped in the early nineteenth century by the Romantic and Hegelian movements and were given new impetus in the late nineteenth century by what Stuart Hughes⁹ has characterized as the revolt against positivism and Morton White¹⁰ has called a revolt against formalism. Employed in philosophy, history, and the emerging social sciences during the nineteenth century, holistic approaches were extended at the turn of the century to the life sciences by the revival of vitalism—the claim that living organisms could not be fully understood in materialist terms—due primarily to the work of Hans Driesch, whose holistic influence extended to many scientists who defined themselves as materi-

alists. Developmental embryology,¹¹ physics,¹² ecology,¹³ psychology (in its gestalt, functional, and humanistic variants),¹⁴ neuroscience,¹⁵ structural-functionalism in the social sciences,¹⁶ immunology,¹⁷ and biological theory¹⁸ represent but some of the disciplines or schools applying such systemic approaches. As in medicine, some versions of this orientation were tactical and not perceived as a break with conventional reductionist science. But increasingly during the interwar years, proponents of such views presented their views aggressively in opposition to what they defined as reductionist approaches.

At a rather different level, holism has served as one style of cultural and political critique aimed at various crises of modern Western society. This holism we call cultural. If the machine has symbolized the inhumanity and fragmentation of modern society, metaphors of organicism and wholeness have represented the solution. The things judged wrong with modern life are almost too numerous to catalogue: free-market capitalism, democracy, mass culture, atheism, industrialism, urbanization, bureaucratization, to name the most prominent. This multiplicity of targets is only the first of a number of problems complicating historical understanding of cultural holism. Solutions to the varieties of crisis could involve total rejection and radical transformation of existing society or, in contrast, might be reformist, limited, meliorative. Holistic conceptual and metaphorical elements could be buried in antimodern ideologies¹⁹ or could become distinct discursive themes as they were most obviously in Germany. Further confusing matters, there have been two rather different holistic responses to modernity, exemplified perhaps by Jean-Jacques Rousseau's complex and ambiguous legacy.²⁰ On one hand, there has been an emphasis on the need for *individual* wholeness, plenitude, or authenticity despite the fragmenting and distorting quality of modern social life. A contrasting response has emphasized the submergence of the individual within a larger entity—nation, race, religious community, nature. In the interwar years, ideologies of the right employed organic analogies emphasizing subservience of individual parts to the well-being of the whole and hierarchical relations among the parts. On the left, Marxists and welfare-state liberals also made extensive use of organicist tropes; a focus on self-regulating equilibrium and solidarity among parts could be used to justify gradualism and piecemeal government interventions in social life.

Both cognitive and cultural holism emerged as significant forces at the end of the nineteenth century and spread widely during the interwar period. Medical holism as a coherent movement seems to have followed chronologically in their wake. Although the three forms of holism were clearly related to one another in a variety of ways, it is impossible to generalize about the extent and nature of these links. Medical holism, for instance, had both cultural and cognitive elements, the blend varying with groups and individuals and differing substantially from one country to the next. In Germany, a strongly antimodernist cultural holism permeated cognitive holism in medicine and the other sciences. In the United States and Britain, the cultural holism associated with medicine tended toward pragmatic reformism.

In France, cultural holism was not a well-developed component of the local forms of antimodernism; medical holists were influenced by the prevailing antimodernist mood but drew intellectually on autonomous medical traditions.

National Styles

Holism was an international phenomenon but it is probably fair to say that it has become a substantial topic for historical discussion only among historians of Germany (and the German-speaking world). Elsewhere, holism remained relatively submerged among various other discourses. In Germany, however, not only was holism a distinct theme, but there was a proliferation of explicitly holistic ideas and analogies at various levels of intellectual life. Despite the fact that in the second half of the nineteenth century Germany was the world's leading nation in conventional (i.e., reductionist) science, it was also the nation where holistic tendencies were most deeply rooted among members of the intellectual elite. Intellectual traditions are a major part of this story. The organicism of the Romantics and the holism of Hegelianism, like the later neo-idealist and neo-vitalist revivals of the turn of the century, deeply influenced German intellectual life. To such modes of thought was added a societal crisis of major proportions that has been attributed to the decline of the *Bildungsbürgertum*, the educated middle classes, exemplified most notably by university intellectuals, in the wake of rapid if late industrialization in Germany. In Fritz Ringer's classic account,²¹ this crisis of the mandarins was exacerbated by the crushing defeat of 1918, followed by the economic and political hardships of the Weimar years, which created conditions for a widespread embrace of holism. In addition to the theorizing of the mandarins, a powerful back-to-nature movement and nationalist *volkish* ideologies expressed a widespread hunger for wholeness.²² The Third Reich too was saturated with holistic theories, propaganda, and slogans.

Few sciences remained unaffected and historians generally agree that cognitive holism manifestly interacted in some way with wider ideological movements. These movements themselves drew on holistic scientific ideas. Paul Forman has argued in a much criticized but important paper of 1971 that physicists in Weimar Germany revised their conception of causality in the face of a culture hostile to materialism, positivism, mechanism, and atomism.²³ A more nuanced argument by Anne Harrington sees metaphor as providing the connection between ideological thought and life and mind science in Germany during the Weimar era. "Posing their laboratory and clinical claims in metaphors and tropes encrusted with suggestive meanings and historically resonating associations, holistic life and mind scientists managed at once to engage the data and problems of the laboratory and clinic while simultaneously functioning as part of the heterogenous field of German cultural criticism and theory."²⁴ Although holism in Germany as elsewhere was a

vehicle for expressing many political and ideological options, it is conspicuous by the sheer extent of its association with nationalist and race thinking.

Medical holism in Germany was clearly part of the general sense of acute crisis and related ideological struggles pervasive in the larger society. It developed early and was already visible during the World War I. It incorporated a diversity of ideological commitments ranging from the liberal humanism of Kurt Goldstein to the militaristic *volkish* nationalism of Ludwig Aschoff, both discussed in this volume. The war years were crucial in the development of both men's ideas. Aschoff's program of constitutional pathology was an outgrowth of the war; Goldstein's psychiatric views emerged during his work with war casualties. Both Anne Harrington and Cay-Rüdiger Prüll, like most of those analyzing Germany during the interwar period, focus on their subjects' relationship to National Socialism. Aschoff's brand of militaristic holism was clearly compatible with Nazi ideology whereas Goldstein serves as a reminder that holism was a metaphoric resource that could be relevant to humanistic liberals. Elsewhere Harrington points out that though medical holism was influential among the Nazi elite, it eventually lost out to more reductionist and technocratic forms of medical science.²⁵ Harrington and Prüll focus on elite academic medicine. But other recent work brings to the forefront the popularity of alternative forms of medicine in contributing to the holistic mood in Germany.²⁶

The notion of holism has clearly been central to German political, intellectual, and scientific discourse. This is, however, less true in other nations. In France, for instance, one can without too much difficulty find examples of holism. Martin Jay²⁷ has pointed to two relevant traditions in France: a positivist organicist tradition exemplified by Auguste Comte and Emile Durkheim and transmitted to the later structuralist movement; and a second tradition emphasizing the role of intuition, going back to Pascal and represented in the early twentieth century by Henri Bergson and Georges Sorel. Durkheim's effort to create an autonomous discipline of sociology was certainly based on the cognitively holistic claim that society could not be reduced to the psychology of individuals. It is also true that the instrumental aim of his sociology, like the work of other republican academics, was to find ways to increase ties of social solidarity in a French Republic wracked by social and ideological divisions.²⁸ But ideas of holism as we have described them were not very pertinent to the way Durkheim or his opponents understood this enterprise. To all but a handful of his intellectual opponents, Durkheim was above all a leading representative of Republican scientism.²⁹ Henri Bergson's philosophy with its vitalism and efforts to grasp fluid, changing reality through intuition were closer to interwar holistic preoccupations, as was Henri Berr's effort to create a synthetic philosophical history (which clearly influenced the medical holist Maxime Laignel-Lavastine).³⁰ But if the historian can discern holistic elements in the work of these men, the holism-reductionism distinction was nonetheless not a significant axis of disagreement within French intellectual life. The crucial issues had to do with the limits and possibilities of rational science as a source of knowledge and as the

basis for a secular morality that could hold together the civic culture of republican France.

This conflict had a long history that shaped much of France's development during the nineteenth century. But it was during the Third Republic that secularism proved victorious, making scientism and positivism almost official ideologies of the Republic. The rise of the socialist left together with the emergence of science as the intellectual orthodoxy of republicanism spawned both a political move rightward by the French middle classes and an intellectual reaction. The popularity of Bergsonianism, the Catholic religious revival, the spread of right wing ideologies all originated before World War I but intensified dramatically as a result of the economic and social crisis of the interwar years. The result, however, was not a widespread appeal to metaphors of unity and wholeness, as was the case in Germany, but a pervasive hostility to parliamentary democracy, scientific rationalism, and materialist bourgeois civilization, expressed in a social atmosphere of profound anxiety and exaggerated hopes for social renewal.³¹ One can at best find elements of holism within this simmering apocalyptic stew of gloom and hopefulness whose essential foci were directed elsewhere.³² It is surely significant that the only major popular work of synthetic holism in France, *L'Homme cet inconnu* (1935), was written by Alexis Carrel, a man who had pursued most of his career in the United States.³³

In this context, medical holism in France—which did emerge as a distinct and self-conscious movement—appears somewhat isolated. It shared in the general intellectual mood, occasionally borrowing terms and concepts from Bergsonian vitalism, Catholic and secular humanism, conservative agrarianism and the back-to-nature movement. It expressed the same ambition to transcend social and intellectual conflicts that was characteristic of much political rhetoric of the era. But French medical holists had predominantly *medical* concerns and aspirations and seem to have looked mainly to medicine's own past for inspiration. To the extent that they looked outward, it was to the contemporary physics of quanta and relativity. While there was a strong conservative bent to much holistic rhetoric, it rarely became explicit. In George Weisz's account here, mainstream medical holism emerged late, 1929 or 1930 at the earliest, and was deeply influenced by the popularity of alternative medicines like homeopathy. Holism moved increasingly into the medical mainstream during the 1930s as the social crisis intensified. But it remained a distinctly minority option within French medicine. And it remained closely identified with nonorthodox alternative medicines.

In Britain, as elsewhere, interwar holism had its roots in prewar formulations. Britain had industrialized early and a great deal of its nineteenth-century political theory was more individualist than many of its continental counterparts. English liberalism, especially as formulated by John Stuart Mill, depicted society as the outcome of a contractual union of its individual members. Evolutionism was heavily drawn on to sustain such views, notably by Herbert Spencer.³⁴ But industrialization had also evoked a marked holist response in Britain, which can be traced

to German Romanticism (in turn owing a debt to Edmund Burke), then through S. T. Coleridge to the Hegelian disciples of T. H. Green.³⁵ Later in the century the cultural and aesthetic analyses of Mathew Arnold and Walter Pater and the New Liberalism of R. B. Haldane and L. T. Hobhouse were responses to the crises of a relatively highly developed industrial society.³⁶ More humbly, organicism flourished in the Arts and Crafts movement.³⁷

Holism also penetrated the natural sciences. In the Cavendish laboratory at Cambridge, physicists used the ether to construct a picture of nature characterized by "organic unity and harmony."³⁸ Driesch's work was also well received in some quarters in Britain.³⁹ From Oxford, and working at the same time as Driesch, the Scottish physiologist J. S. Haldane called for a consideration of the whole organism, his views being developed as part of the philosophy of New Liberalism.⁴⁰ Meanwhile, at University College London, the statistician and biologist Karl Pearson was drawing on Ernst Mach's philosophy to create a world view in which science would serve as the great instrument of social "union and harmony."⁴¹

In Britain around the turn of the century, experimental physiology and germ theory were invoked as proof that science had arrived in medicine. Such a crude account, however, overlooks the fact that many physicians regarded the medical *art* as built on science but not reducible to it. Such physicians often valued generalism over specialism and a broad cultural background over technical training.⁴² They were, in important senses, holists. William Osler, who became regius professor of medicine at Oxford in 1904, was in some ways typical of this group. Viewing the basic medical sciences from the perspective of such clinicians, however, is apt to disguise more holistic approaches being developed within the basic sciences themselves. For example, it was in this period that Charles Sherrington was thinking about the integrative action of the nervous system.⁴³

Holist sentiments in Britain were accentuated after the war. Many of these were elite reactions to mass culture. In political thought, the social sciences and the humanities, the outright biological reductionism of social Darwinism or degenerationism disappeared, but organic *analogies* were extensively employed to discuss society. The move in anthropology from evolutionism and diffusionism to functionalism signaled similar changing concerns. "Primitive" societies, which had once been seen as progressing to more evolved and thus more integrated ones, were now identified as simple but harmonious communities.⁴⁴ Concern with social solidarity was manifest in various ways, notably in the search for and construction of a quintessential England that lay either in an organic past or in the rural community. One of the leaders of this search was the self-exiled American T. S. Eliot, whose own aesthetics drew heavily on Bergson's organicism.⁴⁵

From the late 1920s, holistic formulations abounded in the natural sciences. At Cambridge explicitly unifying, almost mystical, cosmologies were developed by the physicists James Jeans and Arthur Eddington.⁴⁶ It is striking how many biologists moved from reductionist to holist positions at the end of the twenties. When the Marxist Joseph Needham made such a move, he self-consciously incorporated

political considerations into his biology and he recalled how “the dividing process was succeeded by a uniting one, and an integrated world-view emerged from the differentiated dissected analyzed system I had made.”⁴⁷ The case of biology is particularly interesting because calls for intellectual synthesis were accompanied by pleas for face-to-face cooperation among scholars. For example, the members of the Theoretical Biology Club at Cambridge in the thirties aspired to both intellectual synthesis in biology and to the creation of an integrated community of scholars.⁴⁸ In Britain too the “purposive” psychology of William McDougall was developed within an explicit consideration of past and contemporary holisms.⁴⁹

It is not surprising, then, to find holist sentiments abounding in medicine and to find strong continuities with the prewar world. Physicians, surgeons, and workers in public health called for an integrative view of the body, conservative treatment and, in many instances, an integrated health care system. Notably these ends were called for, and to some extent achieved by, orthopedic surgeons.⁵⁰ Holism had other related uses. As Chris Lawrence shows in Chapter 5, it could be employed to defend the clinician’s autonomy against the perceived dehumanizing and deskilling threats of laboratory science, medical technology, and specialization. The clinicians who employed holism in this way were usually among the London elite. Their defense of the clinician’s freedom was intimately related to their large private practices, appointments at prestigious voluntary hospitals, social life in genteel circles, and an espousal of political liberalism. Prominent in the cosmologies of British medical holists was the figure of Hippocrates, who was invoked by them as the discoverer of the healing power of nature, a concept that was employed to legitimate political gradualism as well as clinical minimalism.

All of these features of British medical holism appear in Steve Sturdy’s study (Chapter 6) of Sir George Newman, Chief Medical Officer at the newly created Ministry of Health. In 1919, Newman presented an ambitious plan to integrate the health services provided by the hospital consultant and the general practitioner (GP). The key to Newman’s administrative plan was his vision of “health and illness as inextricably embedded in the complex relations between individual and environment.”⁵¹ Newman invoked Hippocrates as both healer and spokesman for preventive medicine in support of his reforms. The politically adroit Newman also incorporated diagnostic laboratory medicine into his scheme. Although it was to be a source of routine tests for the GP, he was careful to ensure that, at the consultant level, it did not threaten clinical autonomy. In Newman’s plans we see medicine as a source of gradual social progress much as it was in America.

Historians of the United States have tended to regard American responses to modernity as unique. The United States experienced its own antimodernist movement from roughly 1880 to 1920. In Jackson Lears’ influential account,⁵² the subversive, dissenting potential of antimodernism had little impact in America, permitting instead accommodation to modernity (a bad thing, in Lears’ judgment). There were clearly elements of holism in the antimodernism that Lears describes, but what was central was the yearning for personal authenticity and for intensity

of experience. Other writers, however, have found pockets of more radical anti-modernism, like the Young America writers who were oriented toward European holistic intellectual traditions.⁵³

The European antipositivist intellectual revolt of the turn of the century had its American variant, characterized by Morton White⁵⁴ as the rejection of British empiricism and utilitarianism. Its leading figures—like John Dewey and Oliver Wendell Holmes—insisted on the interconnectedness of all events and human affairs, which needed to be seen in both their historical and social context. As elsewhere, another academic response to this crisis of modernity was the birth of the social sciences. In Dorothy Ross’ view, these were distinguished by exceptionalism, the belief in America’s unique destiny and by an ahistorical, technocratic orientation. But even in this unpromising terrain, one finds at the turn of the century influential elements of organicism and holism in the work of the philosopher John Dewey and the sociologist Charles Horton Cooley.⁵⁵

By the 1920s, a more explicit and widespread holism was beginning to flourish in the United States. One historian has suggested that the Depression led to a shift in American intellectual life from an emphasis on individualism in the early 1920s to more communitarian values and to an emphasis on the integration of the individual in society.⁵⁶ But even before the Depression, Alfred North Whitehead, freshly ensconced at Harvard, published in 1926 *Science in the Modern World*,⁵⁷ in which he developed his antireductionist, organicist philosophy. Central to Whitehead’s theorizing was the view that the understanding of the organism cannot be separated from that of environment. Whitehead drew quite heavily on the concepts of the American physiologist L. J. Henderson, whose work had a pronounced holistic character and was in turn well received by American academics.⁵⁸ Somewhat later, another European immigrant, Paul Weiss, was instrumental in developing a holistic embryology.⁵⁹ He was joined by other American embryologists.⁶⁰ The field of ecology was developing as a holistic science and was drawn on by Lewis Mumford’s social criticism and by the sociologist Robert Park.⁶¹ In physiology, Walter B. Cannon and Lawrence J. Henderson were developing concepts of organic self-regulation that they then proceeded to apply to society in an effort to explain the conditions of social stability.⁶² Such concerns with social stability as a response to the crisis of the 1930s were central to the emergence of functionalism in sociology and anthropology.

Holistic and organicist perspectives were especially conspicuous in the United States, possibly because of their prominence in the social sciences. In the mid-1960s, one commentator could state that in American social science, the “organic model of society appears dominant.”⁶³ If that is indeed the case, we are nonetheless dealing, as in Britain, with meliorist holisms.⁶⁴ Responses to modernity, for the most part, did not disapprove of it; they sought rather, through technocratic manipulation to alleviate its worst tendencies. Many of these features were equally visible in the holisms associated with American medicine. Medical holism in the United States was invested with an optimism quite different from the feverish

hopefulness and despair characteristic of Continental European holism. This was not just the result of stereotypical national traits but reflected the quite extraordinary institutional openness of American medicine during this period. Where else were there so many private foundations willing to spend money on innovative researchers and where else could reformers realistically aspire to so thoroughly reshape medical institutions?

Theodore Brown's chapter in this book on George Canby Robinson is particularly suggestive in bringing out some of the peculiarities of American medical holism. In addition to a more conventional psychosomatic orientation, Robinson was also the proponent of a uniquely American social work ideal of medical holism. He received powerful support from private foundations and was offered the opportunity to realize his vision in the architecture of new medical schools. That he ultimately failed may reflect the lack of interest in his views among mainstream medical academics; but it may also have been due to his lack of financial realism. The American holism that Brown describes was meliorist, pragmatic and generally supportive of American medical institutions. It sought to make them function more effectively by utilizing institutional design and by introducing new courses into the medical curriculum and organizational innovations such as "teamwork."

Sarah Tracy (in Chapter 8) describes a constitutionalist movement in the United States that is more familiar to students of European medicine. If American constitutionalism was in any way unique, it was in the high academic status of its proponents. Like its European counterparts, American constitutionalism was balanced precariously between the drive to humanize medicine and the reductive impulse to understand individuals in terms of physiological or hereditary characteristics. Tracy argues that this balance was destroyed in the 1940s when William Sheldon became the dominant figure of American constitutionalism and led it in a radically reductionist and politically unpopular direction that ultimately destroyed its credibility.

The various forms of American holism met, as Jack Pressman shows (Chapter 9), in the interwar research program of the powerful Rockefeller Foundation. Despite the Foundation's reputation for being a major force behind reductionist medical science, Pressman demonstrates that it adopted and generously funded a comprehensive program to create a total science of man incorporating laboratory, clinical, and social research. The promise of this ambitious program was never fulfilled, but its institutional ramifications were quite considerable. Most notable was the integration of psychiatry within mainstream elite medicine. This extensive Rockefeller investment gives some indication of just how widespread holism was in the American context.

Until now we have been mainly concerned with holism in clinical medicine, but holism could be found as well in the experimental laboratory. The relationship between clinic and laboratory was complex. Holistic medicine was in many respects an effort to deny clinical medicine's subservience to the laboratory, with its consequent intellectual and professional fragmentation and deskilling of the clinician. But holistically minded clinicians did not reject laboratory knowledge when it could

be placed at the service of bedside medicine. Furthermore, the laboratory sciences provided clinicians with numerous concepts and ideas that were themselves claimed as holistic or that could easily be deployed holistically.

In the late nineteenth and early twentieth centuries, experimental physiology and bacteriology were regarded by some as exemplars of reductionist laboratory science. It thus comes as something of a surprise to discover that these two disciplines were subject to marked holistic currents. In the case of physiology this orientation is observable in the nineteenth century. L. S. Jacyna (Chapter 10) provides a striking example from the field of neurophysiology in Britain. Trained in experimental physiology, Henry Head rejected the strict cerebral localizationism current in the late nineteenth century in favor of a more global view of nervous action. In the clinic and the laboratory, however, Head remained deeply committed to rigorous experimental research, which he defended as one of the great human creative activities. His view of scientific work was deeply informed by his aesthetic theories and, in this respect, he was representative of many attempts to infuse science with an aesthetic and spiritual dimension.

In the next chapter, Allan Young discusses an even better known effort to pursue holism both in and out of the laboratory. Walter B. Cannon began his career as a fairly conventional physiologist studying the mechanical factors in digestion. He moved on to the experimental study of the "fight or flight" reaction in animals and then to the role of emotions in man. In so doing, he developed his well-known concept of homeostasis, which he extended to the social sphere as the holistic model for ordering an integrated society. Young argues, however, that this aspect of Cannon's work was not particularly original—it owed much to Herbert Spencer—although it did express the widespread effort to produce social stability through the application of scientific knowledge. The more original part of Cannon's work, according to Young, involved the physiological role of extreme emotions, employed extensively by others in later work on psychosomatic medicine and stress.

Even more than physiology, bacteriology has symbolized the triumph of reductionist science. But it too was caught in the holistic current, especially after the rise of immunology. Ilana Löwy describes (in Chapter 12) the tradition in French immunology initiated by Elie Metchnikoff and inflected with holism well before the World War I. Metchnikoff's approach was represented in the 1920s by Alexandre Besredka. In this tradition, as Löwy described it, the key metaphor was that of "terrain" (in English, the idea of the "soil and the seed" served similar functions). This widely distributed metaphor focused attention away from microorganisms and onto the interaction between the whole body and the microorganism. The metaphor was used to create a fruitful interface between immunology and bedside medicine, and it is no accident that many of Besredka's writings appeared in clinical medical journals.

Holism was so pervasive in the immunological domain that even laboratory scientists pursuing reductionist agendas took on its vocabulary. Peter Keating dem-

onstrates this in his study (Chapter 13) of Ludwik Hirsfeld, whose work was centered on understanding the distribution of bacterial infection—why some individuals get infected and some do not. Hirsfeld used a serogenic method—blood typing—in order to distinguish among constitutions. The host environment, rather than the simple transmission of microorganisms, had to be taken into account in understanding the incidence of disease. Hirsfeld's attempts to construct disease distributions in terms of populations defined by blood type takes us into the field of epidemiology, also exhibiting tension between reductionist and holistic approaches.

J. Andrew Mendelsohn's chapter (14) illustrates this. By the 1920s, epidemiologists trained in bacteriology had moved a long way from the bacteria "tracking" model of the prewar years, a model that had been attacked as simplistic and reductionist by statisticians. Challenged by a traditional environmental epidemiology and by new diseases (such as influenza), interwar bacteriologists developed complex ecological models of the interaction between microorganisms and the total environment. Paradoxically, the epidemiologists were again challenged by statisticians, who in the 1920s were developing reductionist mathematical models of epidemics. Mendelsohn demonstrates a point made in several other chapters: certain forms of holism were highly individualized and context-dependent and were apparently lacking any connection to a self-consciously holistic "movement" with larger ideological implications.

Conclusion

Interwar holism, it is clear from the foregoing, had many faces, forms, and contexts. At its core, it centered on the scope of medical knowledge about the body and its environment; but in some forms, it was primarily about creating a more human doctor-patient relationship, or about reconstituting lost professional or social unity. It was created out of a variety of intellectual traditions and innovations both internal and external to medicine. In many cases, it was shaped by the profound unease provoked by the changing nature of medical practice and by the societal crisis of the prewar years. Its manifestations ranged from the occasional and superficial use of a concept or metaphor to highly articulated ideological formulations. In between were the applications of comprehensive, integrative perspectives to very specific disciplinary problems and issues. Holistic thinkers were *bricoleurs*, putting together distinct packages for specific uses in varying contexts. It is thus rather difficult to map medical and scientific holisms onto particular institutions or to align them with specific material or ideological interests.

If they cannot easily be mapped and categorized, in what sense were the different forms of holism part of a real historical movement? One answer is that holistic thinkers drew on a common body of concepts and metaphors. Some utilized many of these, others few. Another one of the things that made them part of an historical

movement was the personal networks that sustained and cross-fertilized them. Holists frequently knew one another. Many of the French, for example, were from Lyon.⁶⁵ Holists had met each other during the World War I, or in their travels⁶⁶; some were teacher and pupil, others collaborators and personal friends. International contacts during this period were intense. Individuals traveled, lectured, attended congresses. Some emigrated to America, a few fleeing the Nazis.⁶⁷ A figure like Alexis Carrel who moved between the United States and France served as a bridge between the distinctive types of holism in the two countries. There were also more formal frameworks encouraging contact. The neo-hippocratic congresses brought together holists of various stripes and nationalities. In the United States, the Rockefeller Foundation funded projects construed as part of an integrated science of man.

Striking as well is that many, though not all, holists were part of the same generation, born in the latter decades of the nineteenth century (with a remarkable number born in the 1870s).⁶⁸ Many had achieved considerable career success in the years preceding World War I. Although they were educated after modern germ theory had been institutionalized, they had in many cases been taught by men reared in an earlier tradition that emphasized the complex individuality of disease, and the consequent need to combine close observation, intuition, and wide scientific knowledge at the bedside. Such perspectives were not eliminated by the triumphs of laboratory medicine. World War I initiated a prolonged period of uncertainty, pessimism, and eventually intellectual, political, and economic crisis that seemed to make it imperative to rescue these traditions.

What was the fate of interwar holism? It seems to have survived World War II but declined gradually during the 1950s. Clearly this was related to the dying out of the generation we have described and to its failure to imbue the generation that followed with its values. This failure was surely connected to the extraordinary therapeutic successes of biomedicine in the postwar era, a success widely attributed to reductionist laboratory science. In Europe, the great prestige of all things American during these decades further encouraged the spread of biomedicine which was identified closely with United States institutions. But more general factors were also at work. After World War II, the sense of total civilizational crisis that had fostered both cognitive and cultural holism gradually dissipated. Until the 1960s, the success of capitalism in satisfying the material needs of Western populations displaced or at least marginalized the hostility to mass culture that had provided the dynamism behind some forms of medical holism.

While holism declined, it did not disappear from mainstream medicine. In continental Europe, for instance, it seems to have exerted continuing influence on some aspects of orthodox clinical medicine.⁶⁹ Several chapters in this volume point to the direct continuity between interwar holism and the psychosomatic movement of the 1940s and 1950s. Although this movement also declined in the United States, it did spawn the influential "biopsychosocial model" developed by George Engel.⁷⁰ Certain areas of public health, social medicine, and epidemiology also sheltered

pockets of holistic thinking.⁷¹ As Charles Rosenberg shows in the concluding chapter, a variety of medical currents today react against scientific reductionism in ways that appear similar to that of the holisms of the interwar period. But the language and metaphors have changed and there is little evidence that interwar discourses exerted much direct influence on those of the present.⁷² A more enduring legacy of the interwar period may be the influence on current-day, popular holism of various alternative medicines—homeopathy, naturopathy, and herbal medicine—which also spread widely during the interwar period and which, in some countries at least, affected the development of biomedical holism.

If the popular, lay holism of our own day seems to owe little to the orthodox medical holism of the interwar years, it certainly expresses a protest against reductionism that, as Charles Rosenberg suggests, has accompanied the rise of scientific medicine during the past two centuries and that energized the interwar movement. Holism has since the 1960s changed its form, adapting to new cultural discourses and historical conditions. It remains, however, much as it was during the interwar era, a sensitive barometer of our unease with the conditions of contemporary life and with certain characteristics of Western societies.

Acknowledgements

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Notes

1. The distinction between mainstream and alternative medicine centers on the control of or exclusion from elite medical institutions like medical schools, hospitals, and professional associations. In some countries, notably Germany, the two forms of medicine have at times blended into each other. But for historians of the United States or Great Britain, and to a lesser extent France, the distinction is fairly sharp.

2. J. C. Smuts, *Holism and Evolution* (New York: Macmillan, 1926).

3. D. C. Phillips, *Holistic Thought in Social Science* (Stanford CA.: Stanford University Press, 1976).

4. Charles Rosenberg, "The Therapeutic Revolution," *Perspectives in Biology and Medicine*, 20(1977), 485–506.

5. In Germany a Congress of the New German Science of Medicine was held in 1936 to bridge the gap between academic and alternative medicines. A year later, the First International Neo-hippocratic Congress was held in Paris.

6. Charles Lichtenhaeler, *Histoire de la médecine*, trans. Denise Meunier (Paris: Fayard, 1978), pp. 452–57. On the effect of such physiological orientations on surgery see Chap. 4 in this volume, references cited in note 52. Horace Kallen has explained the shift to dynamic, functional orientations in the natural and social science as a consequence of the influence of Darwinism. *Encyclopaedia of the Social Sciences*, vol. 6, p. 523. Cited in Cynthia Eagle Russett, *The Concept of Equilibrium in American Social Thought* (New Haven, Conn.: Yale University Press, 1966), pp. 58–59.

7. Paul Douglass, "Such as the Life is, Such is the Form : Organicism Among the Moderns," in *Approaches to Organic Form*, ed. Frederick Burwick (Dordrecht: D. Reidel, 1987), pp. 253–73. Also see Dorothy Ross, "Modernism Reconsidered," in idem *Modernist Impulses in the Human Sciences* (Baltimore: Johns Hopkins University Press, 1994), pp. 1–25; and Wolf Lepenies, *Between Literature and Science: The Rise of Sociology* (Cambridge and Paris: Cambridge Univ. Press/Ed. Maison des Sciences de l'Homme, 1988).

8. Martin Jay, *Marxism and Totality: The Adventures of a Concept from Lucás to Habermas* (Berkeley and Los Angeles: University of California Press, 1984), pp. 25–27; Phillips (note 3).

9. H. Stuart Hughes, *Consciousness and Society: The Reorientation of European Social Thought 1890–1930* (Frogmore, St Albans: Paladin, 1974), p. 118.

10. Morton G. White, *Social Thought in America: The Revolt Against Formalism* (New York: Viking Press, 1949).

11. Donna Jeanne Haraway, *Crystals, Fabrics and Fields: Metaphors of Organicism in Twentieth-Century Developmental Biology* (New Haven: Yale University Press, 1976).

12. Paul Forman, "Weimar Culture, Causality and Quantum Theory, 1918–27: Adaption by German Physicists and Mathematicians to a Hostile Intellectual Environment," *Historical Studies in the Physical Sciences*, 3(1971), 1–115; Theodore Porter, "The Death of the Object: *Fin de Siècle* Philosophy of Physics," in Ross (note 7), pp. 128–51, especially p. 128.

13. Donald Worster, *Natures Economy: A History of Ecological Ideas* (Cambridge: Cambridge University Press, 1985 c1977); Joel B. Hagen, *An Entangled Bank: The Origins of Ecosystem Ecology* (New Brunswick, N.J.: Rutgers University Press, 1992); Jean-Paul Deléage, *Histoire de l'écologie: une science de l'homme et de la nature* (Paris: Éd. de la Découverte, 1992, c1991). On more popular and political forms of ecologism, see Anna Bramwell, *Ecology in the Twentieth Century: a History* (New Haven: Yale University Press, 1989).

14. Mitchell G. Ash, *Gestalt Psychology in German Culture, 1890–1967: Holism and the Quest for Objectivity* (Cambridge: Cambridge University Press, 1995); Phillips (note 3).

15. Anne Harrington, *Reenchanting Science: Holism in German Culture from Wilhelm II to Hitler* (Princeton New Jersey: Princeton University Press, 1996); idem., Chap. 2 in this volume.

16. Dorothy Ross, *The Origins of American Social Science* (Cambridge: Cambridge University Press, 1991); Henrika Kuklick, *The Savage Within: The Social History of British Anthropology, 1885–1945* (Cambridge: Cambridge University Press, 1991).

17. Alfred I. Tauber, *The Immune Self: Theory or Metaphor?* (Cambridge: Cambridge University Press, 1994).

18. Jonathan Harwood, "Weimar Culture and Biological Theory: A Study of Richard Woltereck (1877–1944)," *History of Science* 34(1996), 347–77; Richard H. Beyler, "Targeting the Organism: The Scientific and Cultural Context of Pascual Jordan's Quantum Biology, 1932–1947," *Isis*, 87(1996), 248–73.

19. The reader will note that we use "antimodernism" in the literal sense rather than in the way that this and the related term "modernism" are used by literary scholars.

20. Jay (note 8), pp. 39–43.

21. Fritz K. Ringer, *The Decline of the German Mandarins: The German Academic Community 1890–1933* (Cambridge, Mass: Harvard University Press, 1969). This account has proved remarkably robust and many historians of Germany have built on it. A recent work that builds on Ringer while modifying some of his categories is Jonathan Harwood, *Styles of Scientific Thought: The German Genetics Community* (Chicago: University of Chicago Press, 1993).

22. Peter Gay, *Weimar Culture: The Outsider as Insider* (London: Penguin, 1992). This is the title of chapter 4.

23. Forman (note 12).

24. Harrington, (note 15). p. XIX.
25. Anne Harrington, "Metaphoric Connections: Holistic Science in the Shadow of the Third Reich," *Social Research: An International Quarterly of the Social Sciences*, 62/3(1995), 357-85. Also see Detlef Bothe, *Neu Deutsche Heilkunde, 1933-1945 (Abhandlungen zur Geschichte der Medizin und der Naturwissenschaften, Heft 62* eds. Rolf Winau and Heinz Muller-Dietz (Husum: Matthiesson Verlag, 1991).
26. Bothe (note 25).
27. Jay (note 8), pp.70-71.
28. The classic study of Durkheim is Steven Lukes, *Emil Durkheim: His Life and Work* (New York: Harper and Row, 1972). Also see Philippe Besnard, ed., *The Sociological Domain: The Durkheimians and the Founding of French Sociology* (Cambridge and Paris: Cambridge University Press / Ed. de la Maison des Sciences de l'Homme, 1983).
29. On Durkheim's place within republican scientism, see George Weisz, *The Emergence of Modern Universities in France, 1863-1914* (Princeton: Princeton University Press, 1983), chapter 8.
30. On Bergson, see Frederick Burwick and P. Douglass, *The Crisis in Modernism: Bergson and the Vitalist Controversy* (Cambridge and New York: Cambridge University Press, 1992); Robert C. Grogan, *The Bergsonian Controversy in France, 1900-1914* (Calgary: The University of Calgary Press, 1988). On Berr, see William Keylor, *Academy and Community: The Foundation of the French Historical Profession* (Cambridge, Mass.: Harvard University press, 1975), pp. 125-40.
31. See the sources cited in Chap. 4 this volume, note 36.
32. It is hard to tell whether this is a real absence or simply a limitation of existing historical work on French science during this period. But it is difficult to come up with many French examples of cognitive holism outside of medicine during the interwar period. One can cite the Durkheimians, the *Annales* group (both of which continue earlier traditions), and the philosophers who reintroduced Hegelianism in France, but little else.
33. Alexis Carrel, *L'Homme cet inconnu* (Paris: Plon, 1935). On his career, see Alain Drouard, *Alexis Carrel (1873-1944): de la mémoire à l'histoire* (Paris: L'Harmattan, 1995).
34. But note also the biological sociology of Germany. See Piritim Sorokin, *Contemporary Sociological Theories* (New York: Harper and Brothers, 1928) and Peter Weingart, "Biology as Social Theory: The Bifurcation of Social Biology and Sociology in Germany, Circa 1900," in Ross (note 7) pp. 255-71. Spencer held that society was a sort of organism continuous with but distinct from biological organisms and that "the properties of the aggregate are determined by the properties of its units." Cited in Lukes (note 28), pp. 82-83. Likewise the evolutionist anthropologists, such as E. B. Tylor, "understood the culture of a group as the psychology of its individual members writ large." Kuklick (note 16), p. 83.
35. Phillips (note 3).
36. James McGeachie, "Organicism, Culture and Ideology in Late Victorian Britain: The Uses of Complexity," in Burwick (note 7), pp. 211-73.
37. Martin J. Wiener *English Culture and the Decline of the Industrial Spirit* (Harmondsworth: Penguin, 1981), pp. 178-79 n.37.
38. Brian Wynne argues this picture was a defense against scientific naturalism, specialization, and materialism. See his "Physics and Psychics: Science, Symbolic Action, and Social Control in Late Victorian England," *Natural Order: Historical Studies of Scientific Culture*, eds. Barry Barnes and Steven Shapin (Beverly Hills: Sage, 1979), pp. 167-86.
39. It was translated (and partly rewritten) by the Cambridge philosopher C. K. Ogden. See George Rousseau, "Traditions of Enlightenment Vitalism," in Burwick and Douglass (note 30), p. 57.
40. Steve Sturdy, "Biology as Social Theory: John Scott Haldane and Physiological Regulation," *British Journal for the History of Science*, 21(1988), 315-40.
41. Porter in Ross (note 12), pp. 128-51, p. 145. As yet another instance of the multiple

- possible uses of holistic formulations, it should be observed that Pearson was a relatively left wing "progressive" and that his principal scientific opponent, William Bateson, was a conservative who has been represented, no doubt correctly, as a typical romantic holist.
42. Christopher Lawrence, "Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain 1850-1914," *Journal of Contemporary History* 20(1985), 503-20.
43. Garland Allen, *Life Science in the Twentieth Century* (Cambridge: Cambridge University Press, 1975), pp. 88-94.
44. The sociology of Durkheim, especially as interpreted by Radcliffe-Brown, was crucial here. Kuklick (note 16), p. 265.
45. Douglass in Burwick (note 7), p. 253. Bergson was also absorbed by the arch-critic of "mechanistic rationalism," and theoretician of elitism, the historian Arnold Toynbee. See Koenraad Swart, *The Sense of Decadence in Nineteenth Century France* (The Hague: Martinus Nijhoff, 1964), p. 170.
46. In London, Alfred North Whitehead elaborated his organic philosophy long before his move to Harvard in 1924. See Ann Plamondon, *Whitehead's Organic Philosophy of Science* (Albany: State University of New York Press, 1979).
47. Joseph Needham, *Time: The Refreshing River* (London: George Allen & Unwin Ltd., 1943), pp. 11, 15. On Needham, see Donna Jeanne Haraway (note 11).
48. Pnina G. Abir-Am, "The Bioethical Gathering, Trans-Disciplinary Authority and the Incipient Legitimation of Molecular Biology in the 1930s: New Perspectives on the Historical Sociology of Science," *History of Science*, 25(1987), 1-70. For a guide to American and further British literature on biological societies, see Jonathan Harwood, "Metaphysical Foundations of the Evolutionary Synthesis: A Historiographical Note," *Journal of the History of Biology* 27(1994), 1-20, 1 n.2.
49. William McDougall, *The Riddle of Life* (London: Methuen, 1938).
50. Roger Cooter, *Surgery and Society in Peace and War: Orthopaedics and the Organization of Modern Medicine, 1880-1948* (Houndmills, Basingstoke: Macmillan, 1993), p. 167.
51. See Chapter 6 in this volume.
52. T. J. Jackson Lears, *No Place of Grace: Antimodernism and the Transformation of American Culture, 1880-1920* (New York: Pantheon Books, 1981).
53. Casey N. Blake, *Beloved Community: The Cultural Criticism of Randolphe Bourne, Van Wyck Brooks, Waldo Frank and Lewis Mumford* (Chapel Hill, N.C.: University of North Carolina Press, 1990).
54. White (note 10).
55. Dorothy Ross (note 16), pp. 167-69, 240-45.
56. Robert M. Crunden, *From Self to Society, 1919-1941* (Englewood Cliffs, N.J.: Prentice-Hall, 1972). Also see Richard E. Pells, *Radical Visions and American Dreams: Culture and Social Thought in the Depression Years* (New York: Harper and Row, 1973), particularly chapter 3.
57. Alfred North Whitehead, *Science in the Modern World* (Cambridge: Cambridge University Press, 1926).
58. An example of Whitehead's influence among certain psychiatrists is William Alanson White, *The Meaning of Disease: An Inquiry in the Field of Medical Philosophy* (Baltimore: William and Wilkens, 1926).
59. Haraway (note 11).
60. Sharon Kingsland, "Toward a Natural History of the Human Psyche: Charles Manning Child, Charles Judson Herrick, and the Dynamic View of the Individual at the University of Chicago," *The Expansion of American Biology*, eds. Keith Benson, Jane Maienschein, and Ronald Ranger (New Brunswick, N.J.: Rutgers University Press, 1991), pp. 195-230.
61. Worster (note 13), pp. 316-38. On Mumford, see Blake (note 53) and Pells (note

56). On Park, see Ross (note 16) and Lewis Coser, *Masters of Sociological Thought: Ideas in Historical and Social Context* (New York: Harcourt Brace Jovanovitch, 1971), pp. 357–84.

62. Stephen Cross and William R. Albury, "Walter B. Cannon, L.J. Henderson, and the Organic Analogy," *Osiris* 3(1987), 165–92. Also see Russet (note 6).

63. Russet (note 6), p. 150.

64. For one example of this meliorism, see Loren Baritz, *The Servants of Power: The Use of Social Science in American Industry* (Westport, Conn.: Greenwood Press, 1974, c.1960).

65. See Chapter 4 in this volume.

66. On Robinson's meetings abroad with Walter Cannon and George Draper, see Chapter 7 in this volume.

67. In addition to Goldstein, the Austrian holist Bernhard Aschner came to America in the 1930s and published an English-language account of his views.

68. Among those discussed in this volume who were born during this decade are G. Newman (1870); A. Besredka (1870); W. Cannon (1871); T. Horder (1871); A. Carrel (1873); M. Laignel-Lavastine (1875); G. C. Robinson (1878); K. Goldstein (1878); L. J. Henderson (1878); R. Leriche (1879); R. Pearl (1879); C. Stockard (1879); G. Draper (1880). There were, of course, younger holists such as G. Ryle (1889), A. Gregg (1890), and P. Delore (1896).

69. Lynn Payer, *Medicine and Culture* (New York: Henry Holt and Company, 1988).

70. See Chapter 7 in this volume.

71. Steven Kunitz, "Explanations and Ideologies of Mortality Patterns," *Population and Development Review*, 13(1987), 379–408; Dorothy Porter, "Changing Disciplines: John Ryle and the Making of Social Medicine in Twentieth Century Britain," *History of Science*, 30(1992), 119–47.

72. A recent study of the American holistic health movement mentions only one interwar figure, Kurt Goldstein, for his influence on Abraham Maslow. Maslow's humanistic psychology and the human potential movement associated with Carl Rogers were, in this reading, the major intellectual influences on American medical holism. See Kristine Beyerman Alster, *The Holistic Health Movement* (Tuscaloosa and London: The University of Alabama Press, 1989). A cursory survey of holistic journals and books found almost no mention of interwar figures or their work.

I

CLINICAL MEDICINE