

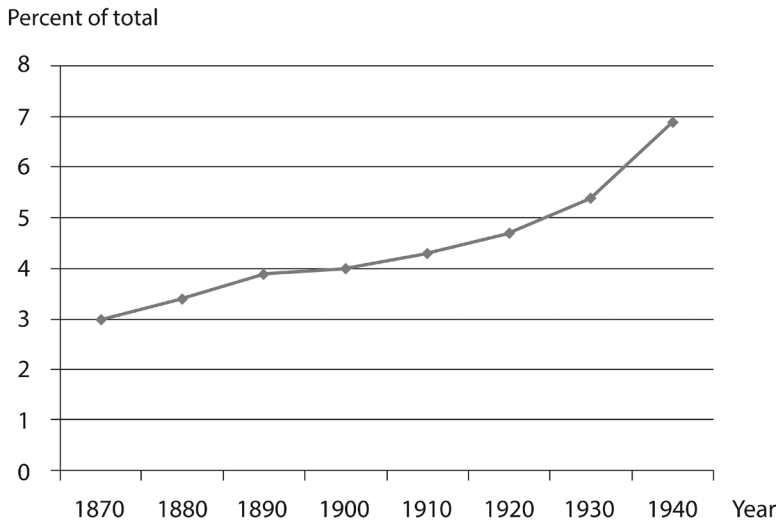
# INTRODUCTION

“Staying healthy and strong well into our centennial years . . . is becoming an increasingly viable goal,” declared the authors of *The CR Way: Using Secrets of Calorie Restriction for a Longer, Healthier Life* (2008).<sup>1</sup> The “secret,” they noted, is that “when it comes to living a longer, healthier life, less is more.” To the authors, low-calorie diets were a crucial means to achieve not only longevity but also sound health in declining years, as recommended by many gerontologists. This secret was discovered in the 1930s in the laboratory of a prominent gerontologist, Dr. Clive McCay (1898–1967), whose “breakthrough studies showed that calorie restriction greatly expanded the lives of mice.” Thereafter, the authors of *The CR Way* wrote, “thousands of studies have documented the broad range of health and longevity benefits of calorie restriction,” including for humans. These studies suggested that the science of gerontology should be fundamental to a healthier and longer life, and they emerged just as the aging population in the United States was expanding.

This reference to the work of Clive McCay demonstrates the enduring legacy of early gerontologists, whom I define as the creators of the new field of gerontology from the 1930s to the 1950s, a time when the problems of an aging population prompted scientific scrutiny of the phenomenon of growing old (figure I.1). As the proportion of seniors in the United States grew due to improvements in hygiene and nutrition as well as a declining birthrate, topics associated with the older population, such as chronic disease, pensions, industrial efficiency, and age discrimination gained greater social relevance. The creators of gerontology argued that everyone could better prepare for old age when scientific knowledge of the aging process was available.

## ORIGINS OF GERONTOLOGY

Today, gerontology is a scientific field institutionalized in American and British academia, although its stability as a science



**FIGURE 11.** The Increasing Percentage of People of Sixty-Five Years of Age and Over in the United States from 1870 to 1940. Social Security Board, *Economic Security in Old Age*, 10; “United States Summary: Population Characteristics by Age, 1940,” <http://www2.census.gov/prod2/decennial/documents/33973538v4p1ch1.pdf> (accessed June 25, 2015).

is still not completely certain. In the United States, this science, represented by the Gerontological Society of America, has developed as a multidisciplinary field reflecting its members’ broad interests in biological, medical, social, and psychological problems. In the United Kingdom, the British Society for Research on Ageing (BSRA) and the British Society of Gerontology are the organizations for biological and social gerontologists, respectively. Financial support for gerontologists is now also quite substantial, especially in the United States. In fact, the National Institute on Aging (NIA) within the National Institutes of Health (NIH) in the United States is currently funding a host of scholars interested in a variety of topics on aging, including the biological nature of senile changes, seniors’ psychological adaptations to workplaces, and the socioeconomic impact of the aging population. The focus of the NIA is biomedicine—a new type of science and medicine that emerged after World War II that involves extensive research on life and disease at the molecular and cellular levels and its systematic application to clinics.<sup>2</sup> But the NIA also supports social and psychological investigations of aging people. For its continued

support of these research projects, the NIA allocated a total budget of \$1.2 billion for fiscal year 2014.<sup>3</sup>

How did this science come to be? The Gerontological Society, the first formal gerontology organization, was created in 1945, but its origin can be traced to several decades earlier. In the 1910s and the 1920s, many biological and medical scientists began to propose several new approaches to studying aging processes. As McCay and his team at Cornell University's agricultural college started investigating the relationship between life span and calorie consumption, the prominent French surgeon Alexis Carrel (1873–1944) was studying cellular aging with his new technique of growing cells outside of the body at the Rockefeller Institute for Medical Research. The result of this work led Carrel to argue that aging and natural death were “contingent,” or not inevitable, at the level of the cell. During the 1920s, cytological research by Edmund Vincent Cowdry (1888–1975) and others revealed that aging occurred at distinct rates in different portions of the body, and studies of protozoa by Herbert Spencer Jennings (1868–1947) and others showed that single-celled organisms would not die or age in certain environmental conditions. Furthermore, Charles Manning Child (1869–1959), a biologist at the University of Chicago, discovered that many cells of invertebrates had an ability to reverse their specialized functions; that is, to “dedifferentiate” and become more like embryonic cells again that, consequently, could continue their life without senescence.

During the Great Depression, some of these researchers came to believe that they needed to do more than merely pursue their own research projects. Although age discrimination and poverty among the elderly had been persistent problems in the West since the late nineteenth century, the economic disaster of the 1930s considerably worsened the predicament of the aged and alerted these scientists to the profound social implications of their work. Indeed, the Depression strengthened the age barrier in job markets and demolished the savings and private pension plans of the elderly. The United States government responded by enacting the Social Security Act of 1935, which created a national pension system and other federal provisions. At the same time, scientists like Cowdry embarked on developing the field of gerontology in order to apply their expertise for the benefit of seniors.<sup>4</sup> In their view, scientific knowledge was a critical tool for tackling the problems of aging in a systematic way.

Under Cowdry's leadership, a number of scholars gathered to create what would become the major gerontology organizations and institutions.<sup>5</sup> First, American and British scientists formed the Club for Research on Ageing, which evolved into the Gerontological Society of America in 1945 and the British Society for Research on Ageing in 1947. Simultaneously, the *Journal of Gerontology*, the first academic periodical of the new field, was launched, and several American funding agencies, such as the NIH, the Josiah Macy Jr. Foundation, and the Rockefeller Foundation, started awarding research grants to gerontologists on a long-term basis. In particular, the NIH created an intramural research unit on aging, and the Federal Security Agency formed a Committee on Aging and Geriatrics as a national agency. In 1950, Cowdry and other gerontologists also created the International Association of Gerontology in order to promote research on aging across national borders.

This movement to establish aging research was new in the Western world. Aging had long been a subject of scholarly discourse associated with morality, spiritual redemption, and the enigma of life rather than a focal point for organized scientific investigations funded by governments and philanthropies.<sup>6</sup> The long tradition of studying the aging process, dating from the time of Aristotle and Galen, was scientific and legitimate in its own context, but it was not the same as the activities of twentieth-century gerontologists that emerged from their network of laboratories and professional organizations. Under the banner of *gerontology*, a term coined by the Russian-French scientist Elie Metchnikoff in 1903, these scientists crafted a new way of approaching the phenomena of growing old through their multidisciplinary field, which covered all aspects of aging from biological, medical, psychological, and social scientific perspectives.<sup>7</sup>

## **BIOSOCIAL VISIONS, WELFARE, AND INDIVIDUALISM**

The origin of this multidisciplinary characteristic of gerontology demands an explanation. In fact, most of the key players in early gerontology organizations were biological and medical researchers. When social scientists started to study aging but drew insufficient attention, these life scientists worked to form a multidisciplinary field of gerontology.<sup>8</sup> Why, then, did they decide to foster their field as a multidisciplinary arena rather than a subdiscipline of

biology or medicine? Would it not have been easier to construct a discipline belonging only to the life sciences? Another feature of gerontology that can pose a question was the pervasive viewpoint of gerontologists motivating and guiding their efforts. Early gerontologists believed that aging was, by nature, as much social as biological. This differed from the more common view among many in the life sciences that the phenomenon under study was essentially biological, though the research outcome could be applied to the social realm. Usually, most contemporary life scientists, with their ideal of the objectivity of science, assume a clear separation between the biological and the social. What, then, did gerontologists mean when they said that aging is both biological and social, and what might have led them to adopt this as their guiding philosophy? A historical examination of what I am referring to as the visions of the early gerontologists can help answer these questions. Indeed, like scientists establishing other fields, early gerontologists developed their own ideologies and expectations for the discipline. With these, they promised something important for the future; namely, a set of benefits, particularly to the growing population of the elderly. In this respect, early gerontologists were not different from others in the life sciences, which can be defined as the biological and medical disciplines that study living organisms, including cytology, immunology, animal husbandry, and clinical medicine.<sup>9</sup> Just as immunologists envisioned a healthier society through their research on vaccines and other products of their work, early gerontologists created an image of active and vigorous seniors. Their ideals and aims contributed to recruiting scholars concerned about aging and guided the efforts for organizing the field, much as immunologists' visions for a healthier society could attract young students interested in pursuing subdisciplines related to various agendas implied therein, such as healthy pregnancy (reproductive immunology), reliable diagnosis (diagnostic immunology), and effective cancer therapy (tumor immunology).

Early gerontologists differed, however, in that they created what I call “biosocial visions” as their collective but not entirely unified outlook, informed by their research in laboratories and experimental clinics but also reflecting the world of factories, offices, families, and public hospitals. These visions were developed through scientific work whose structure and implication were intertwined with shifting perspectives on the state and future of the

elderly in society. Once formed, they shaped early gerontologists' scientific advice for seniors' daily health management and social adaptation as well as their efforts to construct the field. Thus, they linked early gerontologists' current research and social situation with their ongoing and upcoming endeavor for seniors and the professional organizations in gerontology. It is meaningful to analyze these visions because they reveal how early gerontologists' biological study and its potential benefits were interwoven with seniors' social conditions and the structures of gerontology. My study will also illustrate their normative and disciplinary characteristics, which furnished long-standing theoretical and practical viewpoints on aging with the power to guide not just the elderly but the organizations of researchers who studied aging. Through a focused analysis of biosocial visions and their origins in American and British science and culture, this book argues that an amalgamation of novel research in early twentieth-century life sciences, with gerontologists' perspectives on seniors' social place, shaped the new professional institutions in gerontology as well as the individualistic discourses on aging entangled with the practices and policies divided by class, gender, and race.

My study reflects a central subject in the history of science and medicine: the relationship between the biological and the social. As numerous historians have shown, many biological theories had social origins and implications, whereas a host of social theories were shaped by ideas resulting from biological research. For instance, it is well known that Charles Darwin's conception of natural selection was indebted to Thomas Malthus's demographic theory and laissez-faire ideology of nineteenth-century Britain. Darwin's work, in turn, inspired a cadre of thinkers advocating various versions of social Darwinism, which were not so much a direct extension of the natural selection theory into the domain of politics and economics as a product of the thinkers' sociobiological views and the prevalent racial and capitalistic perspectives during the late nineteenth century. Philip Pauly, Gregg Mitman, and other historians have also shown how early twentieth-century biological research in the United States was interwoven with the ideals of democracy, cooperation, and social integration.<sup>10</sup> Looking in the opposite direction, the historian Dorothy Ross has claimed that American social science has often been guided and motivated by scientism—the methods, attitudes, and doctrines based on the supposed certainty and objectivity of the natural sciences, including evolutionary biology.<sup>11</sup>

More theoretically oriented scholars have also explored the complex relationship between the biological and the social. Above all, with a series of studies in “biopolitics,” “governmentality,” and the knowledge–power nexus, Michel Foucault explored how the production of knowledge on the body was geared to the construction and penetration of power into everyone’s bodies in social life.<sup>12</sup> Likewise, sociologists and historians in the field of STS (Science Technology Studies or Science, Technology, and Society) have explored the intricate network of knowledge, practice, and institutions in political and cultural arenas.<sup>13</sup> For instance, Paul Rabinow’s term “biosociality” implies the complex relationship between the biological and the social after the Human Genome Project, which raised novel questions about biomedically defined social identities.<sup>14</sup> Bruno Latour and Donna Haraway have also claimed that science, including the life sciences, may not be reduced to politics, but it is “politics by other means.”<sup>15</sup> Knowledge of life reflects the power relations of gender, race, and citizenship in modern society, and simultaneously exerts influences on people’s bodies and behavior in society. Using these scholars’ viewpoints, I discuss how the biosocial visions of early gerontologists reflected their knowledge production and the politics of old age, which in turn shaped their new professional organization as well as the discourses concerning seniors’ bodies and social conditions.

Cowdry’s biosocial vision originated from his and others’ investigations of cells, which led him to formulate the problems of aging in human society and contribute to the creation of a new academic society in America. Most significantly, he was inspired by Carrel, Child, and other senior scientists around him to think that the vital functions of aged cells in the body could help teach people how to maintain the beneficial social roles and activities of older Americans. During the Great Depression in the 1930s, when older people were suffering from substantial unemployment and discrimination, this reasoning led him to ponder the sort of social and work life that would be most advantageous to the elderly, to which the new science of gerontology could contribute. Though motivated by his biological research, Cowdry was also driven by social issues, because what he observed under his microscope resonated with what he saw around him. The impetus was social in another sense in that his research and social experience became a key for creating a multidisciplinary scientific culture for professional scientists of aging.

Other early gerontologists, including Clive McCay and Nathan Shock (1906–1989), also developed biosocial visions. Whereas Cowdry developed his through his study of aged cells, McCay came to create his own from research on old rats, and Shock from elderly patients and children whom he studied. While Cowdry’s vision was formed during the Depression and its distressing social problems, McCay’s originated from the involvement of nutrition research in the politics of the body and food during the early and mid-twentieth century. In the same period, Shock developed his own perspective through his contemplation of different kinds of American problems, that is, those of aged people in public hospitals and child growth. Thus, I refer to biosocial *visions* in the plural throughout the book.

Yet the diversity of these visions did not discourage interactions among early gerontologists. Most of them shared a belief in the biological and social dimensions in the problems of aging as well as the nature of gerontological knowledge. They hoped that their research would improve individual seniors’ physical, social, and mental adaptation to the changing world with the assistance of their field. The common ground of early gerontologists included a paradox, however. While they thought that the outcome of their research was objective scientific knowledge, free from any undesirable social influences, they simultaneously argued that the nature of their knowledge was partially social within the multidisciplinary organization of gerontology. How could they deny and underscore the social in their research at the same time? STS scholars have stressed how scientific knowledge is placed within a “black box,” which conceals the complex social relations integrated in the knowledge-making process.<sup>16</sup> But this does not account for why gerontologists valued the social on one occasion and seemed to hide it in another. The crux of the question, I think, was about the *kind* of social. Early gerontologists were very careful in delineating the meaning of “social factors” in their work, especially when they discussed the social conditions desirable in old age.

What, then, did early gerontologists determine as the desirable conditions of old age? Many historians have claimed that biologists and medical scientists of aging were interested not so much in the best conditions of elderly life as the difficult and perhaps inevitable consequences of senile changes. The medicalization of old age defined the aged body as inherently pathological and unavoidably declining. Accordingly, modern medicine



as broadly defined—from late eighteenth-century French clinical medicine to mid-twentieth-century geriatrics—gave rise to the notion of inevitable physiological degeneration and pathological transformations of the elderly.<sup>17</sup> This idea, supported by a study of aging cells and tissues by various medical researchers, was deeply associated with changing practices and institutions concerning old age. Several historians have shown that modern biomedical research produced a scientific basis for justifying the removal of the elderly from workplaces.<sup>18</sup> When a rising capitalistic society increasingly displaced the elderly from its sites of production, scientists of aging, by making senile decline and pathogenesis an undeniable scientific fact, provided a rationale for marginalizing this older population.<sup>19</sup> Starting from this historical study, I uncover the multiple layers of gerontology's roles and functions in shaping social conditions of and for older people. Early gerontologists, such as Cowdry, McCay, Shock, William MacNider (1881–1951), and Vladimir Korenchevsky (1880–1959), emphasized that aging did not necessarily entail bodily decline and pathological degeneration, even though they were clearly aware that such negative changes could accompany the aging processes. Their point was that if aging people were to manage their bodies and social relations carefully throughout their life, they should arrive at old age without suffering significantly from isolation, chronic diseases, or mental deterioration. The desirable situation for seniors, which early gerontologists worked hard to make possible, required constant attention and management across the life span. One of gerontology's primary aims was thus to help the elderly live healthy and socially active lives, and this aim survived throughout the early years of the field.<sup>20</sup>

But several historians and sociologists have examined the complex problems behind even this seemingly sound goal. They argue that such early scientific efforts to promote an active and healthy life in old age often intensified the marginalization and alienation of the elderly in an industrializing society. For example, Jesse Balenger has argued that gerontologists' work to maintain the health and activity levels of older people for the prevention of Alzheimer's disease subjugated the elderly to constant scientific scrutiny. As an additional consequence, mental illness and dependency came to seem even more tragic and intolerable because these conditions could occur without regard to the prudent health management advised in the scientific publications.<sup>21</sup> Thomas R. Cole has also

asserted that gerontologists' insistence on constant self-discipline for a better adjustment to old age originated in late Victorian virtues, such as moderation, careful life planning, and hard work, all of which reflected a deep fear of falling behind in the competitive production-oriented modern world.<sup>22</sup> In a similar vein, the sociologists Stephen Katz and Barbara Marshall, in their study of the present day, have claimed that the cultural priority placed on a busy and sexually active old age promoted by gerontologists is associated with the declining welfare state and emerging neoliberalism. They argue that this emphasis is imposing harsh constraints on seniors who seek other ways of life or do not have the means to follow the recommendation of gerontologists.<sup>23</sup>

By examining early gerontologists' research and arguments that reflected their biosocial visions, my work explores how gerontology contributed to these problems. Early American gerontologists promoted the ideal and expectation of active and healthy aging, which incorporated ideological commitments, biased views of gender, and racial and class problems in the United States. The image of desirable old age championed by American gerontologists like McCay and Shock relied on individualism as a guiding ideological stance—but this turned attention away from societal factors that were constraining and shaping each individual's behavior, such as corporate dominance in food marketing and privatized health services. The *social* in their biosocial visions excluded and ignored certain aspects of society. The individualistic perspective of these early scientists of aging furthermore prompted them to find the proper subjects of their research and the primary beneficiaries of the outcome of their work in a social group that was most likely to affirm their view—namely, middle-class white men.<sup>24</sup> However, even with this narrow configuration of ideal old age, it was hard to dispel the antithesis—the poverty, decrepitude, and debilitating illness that affected a large number of seniors in the United States. This opposite pole always lingered around American gerontologists' biosocial visions, strengthening negative stereotypes of the elderly.

In Britain, the discourse on aging was quite different. Unlike Americans, Britons stressed a collective rather than an individualistic approach to the social and economic problems of aging. Even though certain British scientists such as Vladimir Korenchevsky and Peter Brian Medawar (1915–1987) forged a biosocial perspective similar to that of American gerontologists, their proposed

solutions were deemed less important than the development of the welfare system for the aged. The country had already passed the Old Age Pensions Act in 1908 and consolidated its welfare policies after massive wartime destruction in the 1940s.<sup>25</sup> Since the establishment of better pensions and free health care then had a priority over other measures in Britain, approaches to accommodating aging in a modern society took a political rather than academic form, lessening gerontologists' opportunities for further institutional development.<sup>26</sup>

When Britain established the National Health Service (NHS) in 1948 to provide free health care for its citizens, including the aged, the United States federal government substantially expanded the NIH to support more medical research. This was the only politically acceptable way for the federal government to improve the health of Americans when national health insurance could not be introduced.<sup>27</sup> It was thus propitious for gerontologists that their field was chosen as one of the health sciences subject to growing public support after the war. The expanding biomedical enterprise in the United States resulted in a rapid increase of funding and institutional support for gerontology instead of better welfare provisions for seniors.

Obviously, American gerontologists' more individualistic vision corresponded to the underdevelopment of welfare policies in the country. Gerontologists and government administrators agreed that difficulties associated with old age were primarily each individual's responsibility rather than problems of the state. What gerontology could offer was helpful advice and biomedical assistance for aging people who should be able to find their own way to live well in accordance with the demands of industrializing society.

This individualistic approach to aging also led American gerontologists to view the aged as a homogeneous social body, composed of freestanding and discrete persons. By separating individual seniors from their entangled social relations, gerontologists placed older Americans within a homogeneous category and ignored problems associated with race, gender, and class. Admittedly, homogenizing the category of the elderly might render research more convenient and straightforward. It could also draw more attention to age discrimination as a social problem equivalent to racism and sexism. However, as later commentators criticized, this view led gerontologists to have a rather simplistic expectation of what the elderly would be like without regard to their distinct experiences,

political standpoints, and social status.<sup>28</sup> This also prompted gerontologists to focus their research on white middle-class men and made them less capable of addressing deeper and more challenging questions concerning old age within various different cultural sectors of society (e.g., African American working-class men, white working-class women, or Asian American middle-class men).

## **THE LIFE SCIENCES AND THE SOCIAL SCIENCES IN A MULTIDISCIPLINARY FIELD**

Britons' collectivist approach to matters of aging in the emerging postwar welfare state also affected the internal organization of gerontology in the country. Apart from the fact that the science of aging attracted less attention in postwar Britain, its structure, which was multidisciplinary to some extent, was different from that of American gerontology in that it included almost exclusively biological and medical sciences. The multidisciplinary nature of the British science of aging was defined only *within* biology and medicine. This character of the British Society for Research on Ageing partially originated from the intention of its founder, Vladimir Korenchevsky, who did not try to include social scientists of aging in his organization. Yet a greater influence on the BSRA's remaining a biomedical organization was that the social dimensions of the problems of aging were preempted by British policymakers after the Second World War. As old age became a subject of systematic government intervention, the research Britons publicly supported was limited to a series of social surveys on elders' housing and income.

In a country without comparable development in welfare programs, early American gerontologists were able to use their biological research as a basis for fostering multidisciplinary research. An initial catalyst for an alliance among distinct fields of expertise was a series of novel biological studies in the early twentieth century, such as Alexis Carrel's work involving tissue culture, Raymond Pearl's genetic manipulation of longevity, and Clive McCay's study of dietary caloric restriction. Amid the growing social problems of aging, what they found—that is, the distinct modes and rates of aging in different parts of the body, the contingency of senile changes, and the close relationship between growth and aging—fostered a belief that the relationship between aging and society was a complex biosocial problem demanding multidisciplinary re-

search. Most of all, their study of localized differences in the aging process within the body encouraged researchers to think that an older person could continue to work using the faculties that were still functional and unaffected by aging. Their finding that the aging process could be controlled by experimental manipulation and was contingent—not inevitable—also encouraged the hope that scientific management of the body would enable an elderly person to remain physically and socially active. Likewise, gerontological study of growth and aging highlighted the significance of lifetime care of the body and mind, which would contribute to creating healthy and socially adjusted citizens throughout their childhood, adulthood, and old age. As they began to consider these complex sociobiological problems, they felt the need to cooperate with experts interested in the social dimensions of aging, including anthropologists, psychologists, and social statisticians, who should have expertise in labor and social adaptation.

McCay's research shaped an experimental program that was particularly important in this regard. As a professor of animal husbandry at Cornell University, his study of farm animals' longevity and nutrition led him to discover the effect of restricted dietary calories on life span and senile changes, which also showed the contingency and localized nature of aging alongside its close relation to the growth process. The public representation of his work with these new implications invoked an enduring awareness of the importance of low-calorie diets that could possibly facilitate a healthy and active old age. At the same time, it also became a means of gathering scholars from various disciplines into the field of gerontology including physiology, clinical medicine, pharmacology, psychology, dentistry, and the social sciences.<sup>29</sup>

Cowdry's work in cytology and textbook editing also played a key role in establishing the field's multidisciplinary nature. Above all, the lack of a paradigm in cytology made it necessary for a broad range of scholars from different biological subdisciplines to cooperate in studying the nature of cells. He thus edited several multiauthored books, including *General Cytology* (1924) and *Special Cytology* (1928), through cooperation with scientists studying distinct features of cells in different localities of the body. Cowdry drew from this previous editorial experience as well as his understanding of the distinct features of aging cells in different regional tissues for his editing of *Problems of Ageing* (1939), for which he garnered collaboration with biologists interested in

distinct modes of aging in various tissues and organs in diverse species, as well as several scholars studying the social and cultural dimensions of later life. The contributors, with the encouragement of Vladimir Korenchevsky, formed the “American division” of the Club for Research on Ageing. With this start, the Gerontological Society was formed as a multidimensional organization.

I do not exaggerate the extent to which the disciplines composing gerontology were integrated. Indeed, in comparison with *interdisciplinarity*, *multidisciplinarity* often indicates a loose form of interaction among disciplines. It is even possible to say that multidisciplinary fields like gerontology are simply a “juxtaposition of disciplines.”<sup>30</sup> In this sense, some people even consider gerontology a “nondiscipline” rather than a multidisciplinary field because, they argue, the interaction among disciplines constituting gerontology is too weak and infrequent. From this perspective, there were hardly any conceptual tools or methodologies for producing knowledge shared across disciplinary boundaries, and for this reason some scholars regard gerontology as merely a service profession for helping the aged rather than an academic field.<sup>31</sup> W. Andrew Achenbaum, a historian of aging, has also been quite cautious in designating the science of aging as a discipline. In his view, gerontology has remained “a field very much in the formative stages of emergence.”<sup>32</sup> Its progress has been quite slow and “theories of aging remain partial, tentative” despite consistent efforts to understand aging in scientific terms.<sup>33</sup>

Nevertheless, I consider the multidisciplinary science of gerontology to be more than a mere “juxtaposition of disciplines.” If gerontologists from different disciplines shared nothing, they would not feel that they should gather at least once a year for their regular meetings and publish papers in a common journal. Perhaps even the term *gerontology* might then be unnecessary. But this was not the case. Participants in gerontology remained experts in their respective disciplines, but they also assumed another identity in the field of gerontology traversing their disciplinary borders.<sup>34</sup>

American gerontologists formed their new professional identity gradually. Above all, the creation of gerontology offered an opportunity for interaction among life scientists with distinct training, norms, and institutional priorities. Such an opportunity would otherwise be rare among disciplines with considerably different origins and practices such as clinical medicine and agricultural science. If such interactions were made possible, then, the scope of

multidisciplinarity could become further enlarged by incorporating psychology, anthropology, and statistics, which, as Ross says, were close to biology and the other natural sciences in terms of subject and approach.<sup>35</sup> In this multidisciplinary alliance, it was important that there were several early social scientists and psychologists of aging who had professional experience in the natural sciences. For example, Robert Havighurst (1900–1991) was a physical chemist-turned-educational researcher and social gerontologist, and Louis Dublin (1882–1969) studied biology before turning to the social statistics of aging populations. Likewise, psychologist Walter Miles (1885–1978), the organizer of the Stanford Study of Later Maturity, investigated experimental problems related to physiology, and anthropologist Clark Wissler (1870–1947), who participated in the first conference on aging at Woods Hole, Massachusetts, was a curator at the American Museum of Natural History and a scientific theorist of race.<sup>36</sup> No strangers to biological theories and discourses, these researchers contributed to the multidisciplinary of American gerontology.

Another bridge that connected life scientists and social scientists was the linkage between growth and aging. Strikingly, many involved in the development of gerontology as a field had been engaged in studying growth and early life before joining the field of aging research. These scholars included major figures in aging research in America, such as McCay, Carrel, Miles, Shock, Dublin, Havighurst, Lawrence Frank, Charles Minot, and G. Stanley Hall. It may not be very meaningful to divide these people into two groups—the “bioscience group” including Minot, Carrel, McCay, and Shock, and the “psychosocial research group” of Frank, Hall, Miles, Dublin, and Havighurst. They all shared the view of an emerging discursive and theoretical link between growth and aging, despite their different disciplinary backgrounds. Interestingly, the signs of aging could be seen by many of these scholars even in very early phases of life and the same methodology and perspective could be applied to the understanding of both early and late periods of life. With their shared understanding, the connection between growth and aging helped to foster an interaction between biological and social scientists.

The multidisciplinary that developed from this interaction was the organizational platform upon which gerontologists could generate their biosocial visions. Although these visions did initially derive from biological and medical scientists’ experiments and

social experience, the multidisciplinary scholars in gerontology including social scientists further promoted them with the goal of attaining prolonged activity and health in elderly people's advancing years. This goal was indeed of interest to social scientists, since many of them were studying seniors' employability, income, and health-care resources. Because these latter subjects were also relevant to biological phenomena occurring at the level of cells, tissues, and organs, it was thought that social and life scientists should cooperate in responding to the multilayered needs of aging people with regard to both their bodies and places in society. Apart from the question of the actual success of this cooperation, social scientists shared their biosocial concern with biological and medical investigators and promoted the visions of a satisfactory and meaningful later life.

## THE SCOPE OF THE BOOK

Being a reinterpretation rather than a reiteration of the early history of gerontology in the United States and the United Kingdom, my analysis addresses the activities of early gerontologists, most of whom had academic backgrounds in biology and medicine. In this study, however, I do not deal with geriatrics, a medical specialty for treating illnesses of elderly patients. Although several physicians' contributions to gerontology will be discussed, I focus on their research rather than patient care, which is a subject of a distinct historical inquiry.<sup>37</sup> Previous monographs on gerontology, including Achenbaum's *Crossing Frontiers* (1995) and Katz's *Disciplining Old Age* (1996), address the entire disciplines constituting gerontology and pay special attention to the social sciences of aging. Insofar as the social sciences have already been covered in those books and other scholarly publications,<sup>38</sup> here I concentrate on biological and medical investigators of aging who deserve historians' attention due to their crucial role in creating gerontology. One might ask why I claim to study gerontology rather than biogerontology, a biomedical subfield within the multidisciplinary science of gerontology. A simple answer would be that nobody used the term *biogerontology* when Cowdry, McCay, and others started creating the field in the 1930s and the 1940s. More significantly, the absence of this term indicates that these early gerontologists explicitly hoped to create a multidisciplinary field rather than a biomedical subdiscipline.<sup>39</sup> This effort, I think, was made possible in the



context of the emergence of their biosocial visions that reflected and shaped both gerontologists' and lay seniors' experiences in their varying social circumstances. Whereas previous works have treated biological and medical scientists of aging as if they had unchanging and unified norms, agendas, and standards, I analyze the early gerontologists' historical emergence through their research and shifting social situations.

Since the book concentrates on a group of the life scientists, it pays special attention to the first six decades of the twentieth century, when these scientists made their crucial contribution to the creation of gerontology. The starting point should be the 1900s and the 1910s, because several life scientists such as Carrel and Minot started their novel research on aging with biosocial implications around these decades. Many of the key events contributing to the growth of gerontology took place thereafter. For example, the Macy Conference on Aging, which had begun in 1940 as the meeting of the Club for Research on Ageing, ended in 1953, after creating the Gerontological Society in 1945 and the *Journal of Gerontology* in 1946. The Gerontological Society underwent a major reorganization in 1952, which led to the incorporation of "social work and administration" as well as "psychological and social science" as the new sections in their group. In 1956, aging research vastly expanded at the NIH through the creation of the Gerontology Branch, which soon started the Baltimore Longitudinal Study of Aging, the longest-running research project on aging. In addition, the Center for Aging Research, an organization managing the NIH's extramural funding for gerontology, was formed in 1956, making possible the creation of major regional gerontology centers at Duke, Yeshiva, Miami, and Western Reserve Universities from 1957 to 1960. My analysis thus concludes at the end of the 1950s, when American gerontologists set up their own professional societies, funding provisions, and other institutional infrastructure with their visions of the future of the elderly and their field.

Chapter 1 explores the earliest phase of this story by describing new works in the biological and medical studies of aging in America from the 1900s to the early 1930s. Focusing on his understanding of the social meaning of biology and his experience as a textbook editor and cytologist, chapter 2 tracks Cowdry's effort to organize gerontology into a multidisciplinary field, especially when the Great Depression brought chaos to the entire country. Chapter 3 continues following the American gerontological com-

munity after Cowdry's work in order to delineate how early gerontologists elaborated their biosocial visions on old age, which were ingrained in their effort to organize gerontology and interact with seniors. Focusing on the 1940s and the 1950s, this chapter describes the place of their visions in their emerging multidisciplinary field, in public relations, and in their effort to define successful aging during the discussion on public assistance for the elderly. Chapter 4 traces the growth of an exemplary research program, the work of the American nutritionist Clive McCay, who involved the cooperative participation of gerontologists engaged in the multidisciplinary science in the 1940s and the 1950s. The chapter aims to show how these gerontologists developed a common point of reference for themselves and how this point fostered an individualistic conception of managing one's body in preparation for old age. As a comparative study, chapter 5 discusses the reasons why British scientists of aging were less successful at developing institutions and research programs in the United Kingdom. Finally, by analyzing an indirect yet important consequence of the underdevelopment of welfare provisions in the United States, chapter 6 reveals how American gerontologists at the NIH dealt with the increasing budget for extramural funding for gerontology and the enlarging intramural biomedical research program during and after the 1940s. The chapters are loosely ordered chronologically. Whereas chapter 1 deals with the first three decades of the twentieth century, chapter 2 traces the period from 1910 to 1940. The other chapters roughly encompass the 1940s and the 1950s, although events in later or earlier years are also mentioned.

This organization of chapters explains the development of gerontology by focusing on its important topics and actors, who were the early champions of gerontology, including Cowdry, McCay, and Shock. More specifically, I place attention on their biosocial visions as a key to the formation of the conceptual basis of gerontology's institutionalization and the shaping of popular discourses on old age. The visions reflected the society in which the field was born and in turn influenced society through early gerontologists' interaction with seniors. But their limited scope in regard to race, gender, and class, as well as their strongly individualistic undertone, would demand a revision, when gerontology further expanded its institutional constitution after the 1960s.