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The Seven Sisters: Subgenres of *Bioi* of Contemporary Life Scientists

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Abstract. Today, scientific biography is primarily thought of as a way of writing contextual history of science. But the genre has other functions as well. This article discusses seven kinds of ideal–typical subgenres of scientific biography. In addition to its mainstream function as an *ancilla historiae*, it is also frequently used to enrich the understanding of the individual construction of scientific knowledge, to promote the public engagement with science, and as a substitute for belles-lettres. Currently less acknowledged kinds of scientific biography include its use as a medium for public and private, respectively, commemoration. Finally, the use of scientific biography as a research (virtue) ethical genre, providing examples of 'the good life in science', is emphasized.

Keywords: scientific biography, genre, history of science, belles-lettres, public engagement with science, virtue ethics

I will use the opportunity of this thematic issue to start a discussion about the aims of writing biographies of life scientists, especially contemporary life scientists. I will draw on my own experiences of writing the biography of a particular scientist, the immunologist Niels Jerne (1911–1984) (Söderqvist, 2003a, 2004), and the discussion will therefore occasionally become somewhat autobiographical. However, the questions I am raising will hopefully have a broader significance: Why write about the life and work of contemporary life scientists? What is the use

of the genre? Is it just history by other means, or does biography writing have other uses as well?[1]

I will approach these questions by outlining seven kinds of ideal–typical subgenres of scientific biography that I considered, more or less seriously, in the course of my research for the biography of Jerne. My point of departure for the analysis is the most common use of scientific biography today, namely to see it as a method for writing contextual history of science (biography as an *ancilla historiae*). I will then discuss three other acknowledged contemporary uses of the genre: as a means for understanding the construction of scientific knowledge, as a way of promoting the popular understanding of and engagement with science, and as novel writing (or more generally, as belles-lettres). After considering two important, but presently less acknowledged kinds of biography—as a medium for the public commemoration of an alleged great person (eulogy) and as private commemoration (labor of love)—I end the analysis with a discussion of the use of biographies of life scientists as a virtue ethical genre that focuses on how to live a 'good life' in science.

These seven kinds are somewhat arbitrary analytical distinctions. Genres (and subgenres) are not fixed species of writing; most literary theorists today emphasize that they are constructed in on-going, and largely tacit, negotiations between authors, publishers, reviewers, librarians, and readers about how to classify and label a book. One can therefore expect boundary cases and (sub)genre transgressions, not only between biography on the one hand, and history and novels on the other hand, but also between the kinds discussed here (Duff, 2000). However, I have not pulled these seven kinds out of the blue either; it is easy to find examples of them in the history of the genre of scientific biography (Söderqvist, 2007b). Furthermore, my aim is not to settle on any of these kinds of biography of life scientists. Even though I ended up emphasizing one of them (biography as a virtue ethical genre) for the biography of Jerne, my point is not to recommend this particular use as nicer or wiser than any of the others. The purpose of this article is simply to highlight some of the decisions one has to make as a biography writer, and I hope it will thereby stimulate further discussions of the range of opportunities in writing about the life and work of contemporary life scientists.

[1] This paper is a revised and shortened version of a chapter on biographies of recent scientists (Söderqvist, 2006).

Biography as Contextual History of Science (*ancilla historiae*)

Using biographies of scientists for historical purposes—especially for demonstrating the larger social, cultural, or political context of science—is probably the most commonly acknowledged aim there is for the genre today among historians of science. One of the seminal articles that laid the foundation for a more positive view of biography among historians of science in recent decades was Thomas Hankins' "In Defence of Biography" (1979), which argued that biography writing is "a way to tie together the parallel currents of history at the level where the events and ideas occur." Hankins saw a biographical narrative as a kind of microcosm that could shed light on history of science at the macro-level: "We have," he wrote, "in the case of an individual, his scientific, philosophical, social and political ideas wrapped up in a single package" (Hankins, 1979, p. 5). Later, others have suggested that biography is a kind of micro-history taken to its logical extreme (Lepore, 2001).

Justified by its usefulness for the cultural understanding of science—"by opening out [the] individual to social and cultural contexts," as Michael Shortland has put it (Shortland, 1996, p. 17), or for understanding how historical actors fashion their cultural identities—scientific biography has become fully integrated into the armamentarium of historiography of science. "Studies of individuals are proving invaluable in probing the values, behavior, and social life in complex societies", wrote Elizabeth Garber, adding: "The idiosyncracies of the subject even help to shed light on the characteristics of the collective" (Garber, 1990, p. 9). Thus in the 30 years since "In Defence of Biography", the genre has become yet another method for writing contextual history of science (and 'context' here is almost invariably understood as the larger social, cultural or political context, rather than the personal context, see further below). In analogy to Aquinas' famous definition of philosophy as an *ancilla theologiae*, scientific biography has acquired the identity of a hand-maiden of history of science—it has become an *ancilla historiae*.

Accordingly, no serious historian today rejects the genre of biography out of hand, at least so long as it contributes to a socially and culturally informed history of science. Adrian Desmond's life of Thomas Henry Huxley is a good example: "This is a story of Class, Power and Propaganda," he states, this is "a contribution to the new contextual history of science." And he continues with a series of rhetorical questions that reveal his view of the genre as an *ancilla historiae*: "Isn't it the modern function of biography to carve a path through brambly contexts? To become a part of history?… And isn't that our ultimate aim, to

understand the making of our world?" (Desmond, 1997, pp. 235–236). I take for granted that Desmond would follow this program for biography also if he were also to write about John Sulston or Craig Venter.

This *ancilla historiae*-approach to biography no doubt influenced my early thinking about how to write the life of a contemporary immunologist, especially as my history of science colleagues were at that time beginning to pay interest to the history of recent immunology (the first book-length study was Silverstein, 1989). Jerne's rich collection of private and scientific documents provided abundant material for a contextualized history of the heroic decade of immunology, from the early 1960s to the early 1970s, when the clonal selection theory became the unifying theory of the new discipline, the role of the thymus in the immune response was clarified, the molecular structure of antibodies were elucidated, and the B/T cell distinction was established (Söderqvist et al., 2008). Jerne was at the centre of these developments; he corresponded with almost everybody of significance, attended all the important scientific meetings, and took detailed notes of the discussions. All of this had survived in his rich archive (see below), which thus functioned as a lens into these exciting early years of cellular and molecular immunology. Jerne and his archive was indeed a "single package" that could "wrap up" the many bewildering currents of immunological thought and practice. Accordingly, the biography of Niels Jerne can to some extent be read as an *ancilla historiae immunologiae*, and some reviewers certainly have had that expectation.

Yet biography is not just history by other means. Already two thousand years ago, Plutarch and other classical authors made the distinction between βίος and ιστορία as two distinct ways of writing about the past. ιστορία originally meant 'an inquiry', but in the course of time such inquiries into the past have come to mean studies of collective historical phenomena, like nations, classes, economic institutions, political movements, social interactions, cultural constructs, and the like. βίος, on the other hand, meant (and still means) 'a life' in the sense of 'an individual life course'. Even if some historians today use the term 'biography' metaphorically for histories of entities like cities, countries or even diseases (see, e.g., Oxford University Press' current series Biographies of Disease, with title like *Asthma: The Biography*, *Diabetes: The Biography*, etc.), it is still best thought of as the art of writing about individual human beings (only living beings have a βίος, cities do not). While historiography by tradition deals with the collective phenomena of the past, biography by definition deals with individuals. One past, two genres (cf. Söderqvist, 2007a).

The classical distinction between βίος and ιστορία remains instructive for today's discussions about the uses of scientific biography. Even though most historians of science today think of scientific biography as a genre, whose major role is to serve her more influential master, this is not the whole story. Writing lives of scientists have other, and more independent, roles to play.

Biography as a Means for Understanding the Construction of Scientific Knowledge

Besides using biography as a means for understanding science in context, historians also have used the genre to understand the origin and construction of experimental findings, concepts, theories, and innovations. The idea is that scientific results should be understood, not primarily with reference to social, political or cultural circumstances, but with reference to individual mental states and actions, such as motivations, ambitions, ideas, feelings, personality traits and personal experiences.

Indeed, one of the major motivations for writing about the life and work of individual scientists has been to understand science as a primarily individual achievement. This is not something particular to the historiography of science, but a methodology which historians of science share with literary historians, art historians, historians of music, and other historians of cultural artefacts. This was the kind of biographical history that the French literary critic Charles-Augustin Saint Beuve advocated in the mid-nineteenth century (Jefferson, 2002) and which late-twentieth century literary scholars (first the New Criticism movement and then different brands of poststructuralists) have reacted so strongly against. Whatever accusations of naïve individualism can be levelled at it, however, it is a genre of writing that is still viable, both in the historiography of science and other hyphenated historical disciplines.

I had formidable precedents to learn from. Larry Holmes' meticulous day-by-day account of how biochemist Hans Krebs came to the understanding of the citric acid cycle in the 1930s had just been published when I was about to start writing the manuscript for the Jerne-biography. Relying heavily on Krebs' laboratory notebooks and many hours of interviews, Holmes presents a fine-grained insight into the interaction between daily bench-work and biochemical ideas (Holmes, 1991; Holmes, 1993). Although Holmes paid due respect to the social and larger scientific setting of Krebs' life and work, the result was nevertheless primarily a thoroughly individualistic understanding of scientific creativity.

It was tempting to emulate Holmes' painstaking reconstruction of Krebs' experimental pathway. Jerne had, without much co-operation with others, proposed two very influential immunological theories—the selection theory of antibody formation in 1955 and the idiotypic network theory in 1973. The archive, now in The Royal Library, Copenhagen, contained hundreds of experimental protocols, letters to his peers, in which he tried to make sense of his experimental observations, and drafts to his final published papers, and it was therefore particularly well-suited to reconstructing the experimental and theoretical pathways that led to the theories. We also engaged in many hours of discussion to try to open up his memory. So I thought I would be able to do for Jerne and his immunological theories what Holmes had done for Krebs and his cycle.

I was indeed able to reconstruct almost every step in the interaction between experimental work and theoretical argument in the construction of the selection theory (Söderqvist, 2003a, Chaps. 13–14). In addition, Jerne's document collection provided a unique opportunity to go a step further than Holmes had done. From his childhood and onwards, he seemed to have kept almost every piece of paper that had passed through his hands, and some of these could be used for making a true biographical explanation of his work, particularly the selection theory. Among his papers were for example letters and notes which demonstrated how he understood his own social self: how he had characterized himself as a person who always had "a set of viewpoints in stock, which can be put to use on different occasions," or as "a wrench that fits all kinds of bolts" (Söderqvist, 2003a, Chap. Parabasis).

The picture emerging from these and other documents revealed a man who felt he had a number of given mental states or conditions in stock to draw on in order to cope with influences from the outer world. Even more interesting was that the selection theory of antibody formation appeared to be isomorphic with this view of self. I could therefore show, not only that there was a striking cognitive structural similarity between Jerne's self-understanding and the selection theory of antibody formation, but also that the best explanation for the origin of the theory was that Jerne had metaphorically projected this understanding of himself on his experimental data in the local situation where the theory was conceived. Most of the elements in the theory were taken from the earlier immunological research literature and after it had been published it was adopted by others and transformed into the central dogma of immunology (the clonal selection theory). But the core idea (that antibodies are preformed) was a private, individual construction which nourished on Jerne's own life experience and self-understanding.

I had been lucky to find an archival material that allowed for a biographical explanation of the individual origin of a major theory in the contemporary life sciences. Few archives contain such material, because few scientists have had the impulse to search their souls like Jerne did, even fewer have written their introspective views down, and fewer still have agreed to donate such private notes and letters to a public archive together with their scientific documents. Accordingly, the biography of Niels Jerne was partly conceived and later reviewed as a case study in the biographical construction of a scientific theory. However, I realized that the same archival material could lend itself to other aims, and I will now attend to these.

Scientific Biography and the Popular Understanding of Science

A third important ideal–typical use of biographies of life scientists is that they constitute a major source for the public understanding of science. In an overview of the field of public understanding of science, Gregory and Miller (1998) discuss popular science books and magazines, science in the mass media, in museums, etc., but make no reference to biography; an amazing omission since throughout most of its long history, the genre of scientific biography has been dominated by lives deliberately written for a general public.

Around the turn of the last century, British publishers like Longmans-Green, John Murray, and Macmillan poured out popular biographies about scientists, often as a part of series like "Immortals of Science" and "Famous People, Famous Lives." The German language area had some of the most impressive popular biographical series in the first half of the twentieth century, including "Grosse Männer" and "Große Naturforscher", and in the early postwar period, Teubner's (then in Eastern Germany) published hundreds of titles of popular biographies in the series "Biographien hervorragender Naturwissenschaftler, Techniker und Mediziner." Some popular scientific biographers have been extraordinarily productive; for example, between 1960 and 1985 Ronald William Clark published fifteen major biographies of scientists, primarily contemporaries like J. B. S. Haldane, Julian Huxley, Ernst Chain, Bertrand Russell, and Sigmund Freud.

Many of these thousands of popular biographies have been based on former scholarly work, and some (including Clark's) have also involved original research. But few pretend to have scholarly ambitions. John Rowland's fifteen biographies about recent or near-recent scientists, with titles like *The Mosquito Man*, *The Penicillin Man*, *The Insulin Man*,

The Polio Man, etc., published between 1955 and 1975, were not based on original research (and were not very good either), but evidently sold well and certainly contributed to the popular understanding of the contemporary science of the time. Others have deliberately been written as pieces of 'edutainment', like the many volumes in John and Mary Gribbins "90 min" series, which librarians in the Science Museum Library in London claim are mostly borrowed by students who want "a short cut to the science" (oral communication).

The acceptance of scholarly biographical writing in the last decades has not stemmed the tide of writing scientific biographies for consumption by general readers (Söderqvist, 2007a). It is often difficult to draw the line between scholarly biographies written for academic historians of science and popular biographies read by a generally educated audience. For example, Desmond and Moore's (1991) meticulously researched and historiographically sophisticated biographical portrait of Darwin is also a bestseller. From the perspective of the authors and most scholarly reviewers this and similar works are part of the historiography of science, but from the perspective of the publishers they are probably considered as contributions to the public understanding of science. In this way, most biographies of life scientists today probably occupy a broad middle ground between scholarly history of science and popular understanding of science. Shane Crotty faithfully renders the scientific work of David Baltimore but also makes recent molecular biology and science politics accessible to a broader readership (Crotty, 2001); likewise Georgina Ferry's skilfully researched biographies of Dorothy Hodgkin and Max Perutz are excellent contributions to the popular understanding of the recent life sciences (Ferry, 1998, 2007).

Throughout my work on the biography of Jerne—from the moment I came up with the idea to the proof-reading—I was thinking about it as a contribution to academic scholarship only; I had no particular wish to inform the general reader, and accordingly I chose an academic press rather than a trade publisher. But as it turned out, some reviewers nonetheless noticed its value for the public understanding of immunology (e.g., Nossal, 2004). So even if writers of scientific biographies do not intend to contribute to the popular understanding of science, they are sometimes doing it anyway, unintentionally. In other words, the identity of genres and subgenres is not entirely in the hands of authors but is co-constructed together with publishers, reviewers and readers.

Scientific Biography as Belles-Letters

In spite of the fact that the genre of scientific biography plays such a central role in the public understanding of science and that readability is a precondition for the readers' appreciation, discussions about the use of scientific biography rarely refer to the genre's status as belles-lettres, that is, that the biographical text may have a primarily aesthetic value. Even if few scientific biographies are probably read solely for their aesthetic qualities, life-writing is nevertheless a genre in which literary features play a major role; it is common knowledge in today's publishing world that readers tend to choose biographies as substitutes for novels. Historians may be excused for mediocre writing skills if they present previously unknown archival material about an important historical event, or if they construct new and interesting interpretations and explanations. But biographers can hardly get away with lack of care for the literary qualities of their text; it is difficult to imagine a successful scientific biography that is a middling read.

Even if biographies of scientists rarely match the highest literary standards of the biographical genre as a whole, there are some good exceptions, also with respect to biographies of life scientists. Janet Browne's two volumes on Darwin (Browne, 1995, 2002), for example, are not only an excellent example of scholarship, receiving the History of Science Society's Pfizer Prize in 2004, but have also been awarded two prestigious literary prizes (the National Book Critics Circle Award in 2003 and the James Tait Black Award in 2004). Yet historians of science tend to value such literary qualities as just an extra bonus on top of the allegedly more important historical functions of the genre. Reviewers of scientific biographies are partly to blame for this ignorance of the literary aspects because most reviews of scientific biographies in history of science journals follow a standard format: first, the reader is reminded that biography is making a comeback in history of science; then comes a long descriptive summary of the narrative; and finally, the review ends with one or two sentences about how good (or sometimes bad) a read it is. Rarely, however, do reviewers expand on the composition, style, or other textual, literary, or aesthetic qualities of the book; in other words, scientific biographies are rarely discussed from the viewpoint of literary criticism.

During my earlier postgraduate studies, I was steeped in the Swedish tradition for history of ideas and history of science, a tradition which grew out of literary history and emphasized the literary qualities of scholarly writing. I soon realized, however, that crafting the life of a recent life scientist poses special problems for writers with aesthetic

ambitions. Whereas biographers of nineteenth century life scientists are standing on the shoulders of dozens of earlier lives, on up-dated critical editions and well-ordered archival collections, and on a huge historical corpus dealing with the times of their subjects (and therefore can focus more freely on new, interesting interpretations and on the form, composition and aesthetic qualities of the text), biographers of contemporary life scientists usually have no earlier biographies, critical editions, or much historical scholarship to rely on. The lack of familiarity with the contemporary life sciences among readers furthermore forces the author to spend undue amounts of textual space on explicating the technical content—pages which are difficult to imbue with aesthetic qualities and even more difficult to weave seamlessly into the less-technical parts. In addition, with few exceptions (for example, Max Perutz), recent life scientists have not yet entered the general cultural canon, which means that a biography of a life scientist (irrespective of its potential literary qualities) is bound to remain on the shelves of the science (or worse, medical) department of bookstores, together with textbooks on immunological methods and high-throughput microarray analysis; not exactly the place where a literary sophisticated public will look for biographical belles-lettres.

On the other hand, if biographers of contemporary life scientists become successful in raising the literary qualities of the genre, the general public will hopefully gradually realize that molecular biology, genetics, immunology, etc. is part and parcel of contemporary culture. The acknowledgement of the aesthetic functions of scientific biography (alongside its use as an *ancilla historiae* and its power to explain the construction of science) thus goes hand in hand with the appreciation of the genre for science communication and public understanding of science purposes.

Scientific Biography as Public and Private Commemoration (Eulogy and Labor of Love)

To pay one's respect with good words (εὔλογοι) to the deceased and to erect a symbolic gravestone in speech and paper is not only the oldest use of the biographical genre as a whole; it was also the function of the first *vitae* of natural philosophers in the seventeenth century, and it has remained a strong aspect of the genre of scientific biography ever since. This public commemorative use of biography has always had strong institutional and political overtones. Scientific lives were often written as part and parcel of national, professional, or organizational interests; for

example one of Charcot's biographers was propelled by a strong nationalistic sentiment: "My mission in writing these pages is to show that J.-M. Charcot should not be forgotten… The glory that Charcot brought to French medicine in the nineteenth century should survive; our country should derive from it a genuine pride" (Guillain, 1959, p. xvi).

Most historians of science regard such explicit eulogistic aims as an embarrassing phenomenon of the past (e.g., Abir-Am, 1998), which today is produced only at the margins of history of science by amateurs and scientists, who write about their heroes in scientific journals. The eulogist impulse is still strong among scientists, and I must confess that I took advantage of it. In my application for funding from the Swedish Humanities Research Council, I emphasized Jerne's Nobel status, knowing that the Swedes were eager to promote this most Swedish of all awards. And although Jerne had no clear national identity, I solicited the Danish version of the book to my publisher with the argument that he was one of the most famous Danish scientists of all times. But besides such opportunistic motives, I did not feel any need to write a eulogy of Niels Jerne. I had no special nationalistic reasons for hailing him, and, having no stakes in the success of immunology, I did not have the urge to glorify him for his scientific achievements. I was simply fascinated by him as the begetter of a stream of documents that allowed me to reconstruct the interaction between life and work in close narrative detail. The fact that biographical commemoration today is kept in such low regard by professional historians of science helped me curb whatever eulogistic impulses I might have had left.

That said, the commemorative component is not absent from mainstream scientific biography either. Eulogies for nationalistic or professional purposes have given way to biographies written for gender or ethnic identity political reasons, for example, Linda Lear's hagiographical account of Rachel Carson and Georgina Ferry's unashamedly eulogistic biography of Dorothy Hodgkin, which were both praised by the reviewers (Lear, 1997; Ferry, 1998). Thus the eulogistic impulse as such has not disappeared from today's biography writing, it has just changed political orientation. And historians of science only need to look at their own practice to realize that the eulogistic tradition is strongly ingrained in its own profession—today's history of science journals are frequently publishing eulogistic obituaries of deceased famous colleagues.

Commemoration is also a private practice. Traditional commemorative biographies were not only written for nationalistic and professional purposes, but also by family members to pay homage to the life

and achievements of a recently deceased father, or by scientific colleagues who wanted to celebrate the memory of a dear teacher, friend or mentor. Anne Sayre's energetic, passionate, and wonderfully ironic defence of her old friend Rosalind Franklin against James D. Watson's unflattering picture is not a historical analysis, does not provide deeper insights into the practice of science, is not intended as belles-lettres, and does not help the public to understand science better (Sayre, 1975). Nor should it be read as a public commemoration – it is simply a labor of love, in contrast to Brenda Maddox's more detached and balanced recent portrait (Maddox, 2002). This does not make Sayre's biography less interesting or valuable, it is just another subgenre.

Biography as a labour of love is fuelled by strong positive emotions between the author and the subject. Both historians and biographers have rightly warned against too much personal closeness in the relation (Edel, 1984; Tuchman, 1986; Smocovitis, 1999). The longer the association, the more the outcome risks being affected by strong emotional ties. Again, the disturbing spectre of hagiography comes to mind. But the problem of attachment is more subtle. In the case of the biography of Niels Jerne, I was neither his student nor a friend nor member of the family. My major problem was not one of reverence. I admired his intellectual capacity and abilities as a scientist, but I rapidly became much more critical of him as a human being and became increasingly uneasy about how to handle the less virtuous parts of his character. A short session in April 1994 with Chicago therapist George Moraitis, who specializes in working with biographers (Moraitis, 1985) led me to release some of these emotional ties: I allowed myself to not like Jerne. Only after his death did I begin to see him with the attitude that philosopher Iris Murdoch calls 'attention'—a more detached view, which allows one to see both the brighter and darker sides of the other with neutral detachment (Murdoch, 1970). Put another way, Jerne changed from being an object of emotional attachment and means for my academic career to being a "Thou" in Martin Buber's sense (Buber, 1958).

I doubt that any biographer of a living scientist can altogether avoid being involved in some kind of emotional attachment. The trick is not to try to repress the emotional demons, but build on them and transform them. One can hardly set out to write a biography without being in some way emotionally involved with the central figure. But one has to work hard on establishing a more distant yet attentive stance in the process of writing. The final result should emerge as a happy divorce: the book should be a certification that the writer has freed herself or himself from the central figure.

Scientific Biography, Research Ethics, and 'The Good Life'

The six kinds of biographies of recent scientists outlined above more or less occupied my mind while I was interviewing Jerne and browsing his papers. But as I worked myself through his archive, I began to consider yet another and, as I later understood, much older idea of what biography is good for. This seventh ideal–typical subgenre grew out of my discovery of documents that testified to Jerne's character and personality, especially letters and notes that disclosed his views on the personal dimension of scientific work. Was it really sensible, he once wondered in a letter to his wife: "to develop this part of your life [working in a lab] as a dilettante in peripheral abstractions, while the pulsing purple-red blood in your veins and the feelings in your heart have to take care of themselves until 'later'" (Jerne to Tjek Jerne, 12 July 1943. Jerne collection, The Royal Library, Copenhagen). This and similar reflections led me to consider a new set of biographical research questions.

The achievements are almost always the major rationale for writing a biography of a scientist in the first place. Other, and more personal, aspects of life are usually considered secondary. Yet I found myself turning the usual biographical priorities around. I increasingly made Jerne's entire life situation, including his private life, the center of attention and began to ask questions like: What choices did he make during his life? What brought him to pursue science instead of a career in business, or becoming a physician, or a writer, or living a life in care of his family and children? And how did he bring together (or separate) his life in the lab, at home and among friends? In other words, the more I dived into the archive, the more Jerne's personal and private life moved into the centre of the biographical enterprise. Instead of seeing a successful scientist who also happened to be a troubled man, I began to see a troubled man who also happened to be a successful scientist.

I found support for inverting the traditional priorities of scientific biography in Robert Skidelsky's (Keynes' biographer) declaration that "with the life, rather than the deeds, the achievement" we enter "a new biographical territory, still largely unexplored" (Skidelsky, 1988). I soon realized that this is not at all new biographical territory: Plutarch claimed this ground almost two thousand years ago in his *Parallel Lives* (Duff, 1999). But today this territory is largely forgotten, especially when it comes to biographies of scientists. I found this Plutarchian world terribly exciting as an antidote to the biographical doxa. Drawing on philosopher Soren Kierkegaard—who I found out had once suggested that "the scientist and scholar has his personal life in categories

quite different from those of his professional life,'' and that ''it is precisely the first [categories] which are the most important''—I began to think about it as an 'existential' approach to biographies of scientists (Kierkegaard, 1967). In deliberate contrast to psychobiography, which aims to explain the work, an existential biography, as I see it, focuses on the life as an achievement in itself. From this perspective any life is a deed, which incorporates the (scientific) achievements as one out of many in life. (For a criticism of this existential approach, see Prüll, 2004.)

In this way to decenter the scientific achievements in favor of the personal and private life can be seen as a mirror image to the way that historians of science have decentered science in favor of the cultural context. In an analogous way, the new biographical territory I am thinking of here is a narrative about the personal and private life that provides the context for the work and the public achievements. Such a conscious reversal of the priorities between life and work has other interesting consequences for the way we judge the use of writing biographies of contemporary life scientists. Rather than simply aid a historical, philosophical or didactical discourse, or contribute to the readers' aesthetics sensibilities, or serve as public commemorations or labors of love, biographies also can contribute to a new frame for research ethics.

Moral philosophers have traditionally based their argument on the two metaethical positions of deontology (for example, is it right or wrong to do research on fetal stem cells?) and consequentialism (for example, what kind of medical treatment will be best for a majority of patients?). Recently, however, a growing number of moral philosophers have revived Aristotelian virtue ethics as a third metaethical position, which opens up for reflection about the way persons carves out a life course, builds a personality and character, and cultivates or wastes their talents (Statman, 1997). Virtue ethical reasoning thus supports the argument for decentering the work, achievements and social context in biographical writing. From the perspective of virtue ethics, biographies of scientists can be written (and read) to answer the crucial question: How to live a life in science in a good way? (Söderqvist, 2001, 2003b).

This virtue-ethical function of biographies of life scientists can be underpinned further by the reinterpretation of ancient philosophy made by the French classical philologist, Pierre Hadot, who argues that already in classical antiquity there was a pronounced difference between doing philosophy in the sense of systems, concepts and theoretical discourses on the one hand, and philosophizing as a mode of life on the other: a practice based on the classical maxim γνωθι σ□υτόν (know thyself) and the Socratic recommendation in Plato's *Apology* that the

unexamined life is not worth living (Hadot, 1995). Hadot traces this distinction through the history of philosophy, from Plato, via Petrarch, Montaigne and Descartes, to Kant, Nietzsche, Wittgenstein and Foucault. They all agree that it is one thing to think about what the world is like or what characterizes true knowledge (questions at the center of academic philosophy today), but that it is another and very different thing to live and practice truth and other virtues. Reviewing this history, Hadot suggests that modern academic philosophy has largely gone astray in its attempt to objectify (externalize) its object of study, and that it should be more concerned about how philosophical practice influences its practitioners. Hadot's discussion of the two kinds of philosophy has in fact had a seminal influence on the thinking of the late Michel Foucault, especially his notion of 'souci de soi' (care of self) in the third volume of *L'histoire de la sexualité* (Foucault, 1988; titled *The Care of Self* in the English translation).

Hadot restricts his analysis to philosophy, but the argument is applicable also to scientific practice. That is, one could say that it is a good and admirable thing to do science or medicine in order to understand the physical world and the human body, but it is another, and equally good and venerable thing, to be a scientist as a mode of life. The same reasoning is also applicable to the historiography of the life sciences: it is a good thing to understand the history of the life sciences, but another, and equally good thing, to study the history of the life sciences as a way of practicing 'souci de soi'. Similarly, one could argue that it is a good thing to write about recent life scientists in order to understand their work and their lives, but it is an equally good thing to write about them as a way of practicing the care of one's own scholarly self. Writing the history of the life sciences and writing βίοι of contemporary life scientists are thus ways by which historians, biographers, and scientists alike can explore the perennial question of how to craft a worthwhile life-course out of talent and circumstances.

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