

Wilson and Gould: The Engagement of the Sciences and the Humanities

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Abstract This article looks at two evolutionary theorists, E.O. Wilson and Stephen Jay Gould, whose differing notions of consilience reflect a fundamental divide on the nature of the relationship between the sciences and the humanities. This article reads Wilson as seeing a need for the social sciences and humanities to move toward the reductive methods and principles of the natural sciences. It charts a brief intellectual history of Wilson's argument. This article presents Gould and his wish to approach the sciences and the humanities as independent domains of investigation. At issue between Gould and Wilson is the weight given to analysis and synthesis. Wilson is keen to argue that both methods, the analytical breaking down of parts via reduction and the synthetic rebuilding of knowledge, are important in his endeavor of consilience. This article argues that reduction is weighted heavier by Wilson (if only because the sciences are better at it). However, Gould's approach values the sort of synthesis that can also be found in the humanities, predicated on the basic understanding that the parts cannot always describe the whole. In this way, the synthetic move upward from analysis is considered to be a different process altogether. Thus, Gould looks to the humanities as an example of how this might be done. In such a way, Gould promotes an equal engagement by both domains instead of marginalizing one at the benefit of the other.

Every college student should be able to answer the following question: what is the relation between science and the humanities, and how is it important for human welfare.

E.O. Wilson, *Consilience*.

1. Introduction

Just over a decade ago, entomologist and evolutionary theorist, E.O. Wilson published a stunning comment on how to unify knowledge between the sciences and the humanities. *Consilience: the Unity of Knowledge* (1998) reasserted the centuries old debate over the proper relationship between science and the humanities and continued a project of unification that he'd begun decades before. By the time of *Consilience*, Wilson was a two time Pulitzer Prize winner and a highly acclaimed scientist and social theorist. He was in a position to finally offer a challenging disquisition of how this inclusion might occur. His argument is that the reductive unification of knowledge might be used to centralize biology as a locus discipline, with aspects of the social sciences and humanities adopting methods developed in the natural sciences. This article argues that Wilson presents two primary modes for consilience (analysis and synthesis) but that he gives short shrift to the latter. Through a critique of Wilson's version of consilience by Stephen Jay Gould, this article argues that Wilson's themes of unification regarding the relationship of science and literature is problematic. Science and its methods are foregrounded, while those of a literary bent are marginalized.

Wilson has argued for a comprehensive reworking of institutional knowledge along a new vector that values biology as an umbrella discipline encompassing the social sciences, as well as the arts and humanities. What he sees as a grand mission of the academy is the *consilience* (coined by philosopher of science, William Whewell, as a term to mean the jumping together of knowledge) between sciences and humanities so that the broad sphere of human culture (and, by default, its academic realms in the humanities and social sciences) will be defined and encompassed with the reductive/synthetic methodologies and assumptions from the empirical-rational natural sciences. In such a move, Wilson takes a stand with "science" and asks everyone else to follow.

2. Wilson: Sociobiology, Gene/Culture Coevolution, Biophilia, Consilience

2.1 Sociobiology

Wilson has been at unification for a while. His groundbreaking book *Sociobiology: the New Synthesis* (1975) imagines considering the human species “as though we were zoologists from another planet completing a catalog of social species on Earth” (1975, p. 271). With *Consilience* Wilson later offers a prediction that in some ways was tangential to the political and scientific uproar over the publication and ideas of *Sociobiology* (see Segerstråle 2000):

It may not be too much to say that sociology and the other social sciences, as well as the humanities, are the last branches of biology waiting to be included in the Modern Synthesis. One of the functions of sociobiology, then, is to reformulate the foundations of the social sciences in a way that draws these subjects into the Modern Synthesis. Whether the social sciences [and humanities] can be biologicized in this fashion remains to be seen (1975, p. 4)

Right at the beginning of *Sociobiology*, then, Wilson provides a few key concepts that prefigure much of what comes later in his work. He not only provides a definition (see below) of sociobiology and his hopes for its integration within the knowledge structures of the natural sciences, he casts his vision wider and details how the social sciences and, even, the humanities are to be affected. Fitting, then, that he begins his groundbreaking book with the name, Camus, the famous French Algerian existentialist philosopher who offered us a remarkable vision of humanity, that of Sisyphus tirelessly pushing his rock up a hill, and who suggests we must, even through his turmoil, imagine him to be happy. However, Wilson begins with Camus to challenge the writer’s notion “that the only serious philosophical question is suicide.” Wilson does this to reframe how one might address ethical questions from a biological perspective. He suggests that such questions of self knowledge require one to consider physiology, such as how emotions develop in the first place. Mentioning their centers in the hypothalamus and the limbic system provides a quick descent through physiology into natural history where evolution becomes foregrounded. He asks, “What, are we then compelled to ask, made the hypothalamus and the limbic system? They evolved by natural selection.” His next line provides a key into his thinking that will resurface again and again, acting as a refrain, through much of his career. “That simple biological statement must be pursued to explain ethics” (1975, p. 3). The link from Darwinism to the humanities couldn't be made more simply and attempts to answer Camus. Wilson's project of consilience, then, begins with such notions and in this context of sociobiology proves important because of evolutionary theory's centrality.

Sociobiology, though, has a problem. Wilson echoes the Neo-Darwinist concept that evolution concerns the differential success of genes within populations—in essence, genes propagating in successive generations of organisms. This central concept caused some thinkers to try to explain how it is that some organisms (from insects to humans) sacrifice their own reproductive success and, even, survival. The problem of altruism is one that seems, at first, to challenge the Neo-Darwinian notion that evolution primarily concerns the passing on of one's genes. Following the work of men like Bill Hamilton and Bob Trivers, Wilson repeats the idea that altruism makes sense when one is helping one's immediate kin.

The central theoretical problem of sociobiology: how can altruism, which by definition reduces personal fitness [surviving long enough to reproduce], possibly evolve by natural selection. The answer is kin selection (1975, p. 3).

If your sacrifice helps the fitness of your immediate kin (those with whom you share a

percentage of genes), then the problem of how natural selection could still work is solved. Wilson echoes Camus that the struggle of Sisyphus should be enough (although he doesn't mention Camus's famous last line that we should imagine Sisyphus happy), but then suggests that our true motivations are reproductive and survival oriented and that any ambivalences (like those leading to the contemplation of suicide) we feel stem from the inhibition of these primary drives.

Helpfully, Wilson admits his goal has been heuristic: to demonstrate the resolution of an ethical problem via concepts from within evolutionary theory. "I have raised a problem in ethical philosophy in order to characterize the essence of sociobiology," Wilson tells us so that he can introduce his new field of study, from animal societies to human societies. Obviously, making such a claim requires him to move beyond the fields within his own discipline and into those within the social sciences and the humanities. He explains that the rise of evolutionary biology as the "Modern Synthesis" (of Darwin and Mendel, to reduce such a rich intellectual history to two such labels) has already begun to impede upon sociology and that soon "it may not be too much to say that sociology and the other social sciences, as well as the humanities, are the last branches of biology waiting to be included in the Modern Synthesis (1975, p. 4).

Wilson has just introduced us to the first (on social evolution) of three sections in his book. It is an introduction how to consider sociobiology as a new field in the discipline of biology. The following chapters of the section deal with key concepts, such as the defining of what is meant by an individual, a group, a population, etc., on to central tenets, such as the reiteration that "the pervasive role of natural selection in shaping all classes of traits in organisms can be fairly called the central dogma of evolutionary biology" (1975, p. 15). He then asks how adaptive traits can be tested, recognizing an issue in understanding what adaptation actually is. This first steps towards such a problematization can also be seen in Wilson's utilization of concepts like traits being "monadaptive" or "polyadaptive" (1975, p. 16) to demonstrate a wide range of effects. Wilson, though, doesn't stay too long on mere definitions, jumping quickly into chapters about such difficult stuff as the basics of population genetics.

The final chapter of the section, though, "Group Selection and Altruism," is helpful because it explains the primary concepts by which we will come to understand sociobiology. It is directed to the explanation of such vital questions as do how organisms that sacrifice their own reproductive success (and even survival) exist in a Darwinian world of descent with modification via natural selection. It is with this challenge, Wilson reminds us, that Darwin knew his theory might fail. Altruism, as Wilson explains, is simply sacrificing one's own fitness for the fitness of another (1975, p. 55). The answer was to extend the range of selection from the individual to the group. If one is helping a family member (someone who shares one's genes, to a degree) to achieve fitness, one may sacrifice one's own fitness and not challenge the concept of natural selection. Kin selection was later detailed, as well as more refined forms of altruism called reciprocal altruism to explain these sorts of behaviors and selection pressures. By engaging in discussion of such behaviors, though, evolutionary theorists have entered the realm of ethical philosophy and religious morality. And Wilson knows this. He ends the first section with a dramatic statement of recognition:

In the opening chapter of this book, I suggested that a science of sociobiology, if coupled with neurophysiology, might transform the insights of ancient religions into a precise account of the evolutionary origin of ethics and hence explain the reasons we make certain moral choices . . . for the moment, perhaps it is enough to establish that a single strong thread does indeed run from the conduct of termite colonies and turkey brotherhoods to the social behavior of man (1975, p. 63).¹

¹ Fittingly, Wilson provides us with a literary metaphor ("a single strong thread") that he will utilize again in *Consilience* (the thread of Ariadne).

The following section of the book, "The Social Species," which ends with the infamous chapter on "man," begins with an explanation of how the different major animal groups vary regarding their sociability. Chapter 17 is titled "The Four Pinnacles of Evolution," reflecting Wilson's arrangement of 1) colonial invertebrates 2) social insects 3) non-human mammals and 4) humans (what he calls "man"). Wilson sees this list in order of decreased sociability, with humans being an exception. He calls this a paradox: that the older and less complex forms demonstrate greater degrees of sociability; in essence, there is a decline or downward trend with the move toward more recent and complex life forms. What is interesting with humans is understanding how we have reversed this trend. Wilson sees the use of intelligence, not as a tool to reduce the selfishness seen in other mammals, but to "consult the past and plan for the future" (1975, p. 180). This foresight allows us to form social contracts, which requires the mechanism of reciprocal altruism (you scratch my back; I'll scratch yours). Of course, some of the strongest bonds of this type can be found among families. What Wilson leaves us with, then, is not a caricatured picture of humans as aggressive, selfish, and dominating animals. His move is to try to understand why we are not when he would expect us to be.

The last chapter, "Man: From Sociobiology to Sociology," has been the subject of intense scholarly debate (see for a comprehensive look at the history of sociobiology Segerstråle 2000). Wilson's decision to end his book with a chapter on "man" might seem problematic for any number of reasons, but Wilson's overall project of consilience is evident right up front and, this alone, seems enough to have ruffled a few feathers. He begins the chapter with the imaginative thought experiment quoted above in which we consider "man" as if we were zoologists from another planet. Wilson's main goal in this chapter isn't merely the depiction of humans as animals or humans as mired in their current social roles; he wishes to explain how human mental evolution happened, in that we have taken typical primate behaviors and expanded them. He argues that it is the task of sociobiology to answer these questions. He wants to know why human culture displays such plasticity and, yet, still is a result of a Darwinian natural history. With such a desire, we see why Wilson turns toward neurobiology as the guide which will help answer such questions. Furthermore, Wilson addresses a few key topics that return in his later work on consilience (e.g., language, ritual, religion, aesthetics, etc.), these higher emergent aspects of human culture typically addressed in the social sciences and humanities. And it is to this unity-building that we should look for a key that binds his intellectual history.

Wilson ends the infamous chapter with a segment titled "The Future" and suggests that by the end of the 21st century biology as a discipline "should be at its peak with the social sciences maturing rapidly" (1975, p. 299). How this will occur will be the rise of neurobiology and its mechanisms of probing the brain. "Only when the machinery can be torn down on paper at the level of the cell and put together again will the properties of emotion and ethical judgments become clear." His use of metaphors here reflects a fundamental concept of Wilson relating to consilience: his analysis/synthesis dyad. There must be a tearing down and a building up. At this point in his history, the publication of *Sociobiology: The New Synthesis*, Wilson wants to utilize his new social based investigation into animal society to engage in this enterprise. He tells us his new field will address "the history of the machinery and to identify the adaptive significance of each of its functions" (1975, p. 300). The groundwork of a Darwinian evolutionary psychology is being laid, one that will find fruition in the work of later thinkers.

Wilson, though, isn't simply after the unity of knowledge theme and its restructuring via consilience. He wants to present a picture of human nature fully informed by evolutionary theory. We see this emerge in the few remaining paragraphs of the book. His argument is simple. He wants the new discipline of sociobiology to act as a type of monitor of human behavior. He speculates that with the rise of human populations and the spreading of human genes via drift, in essence, the reduction of the power of natural selection because of the expanse of human culture, key human attributes (built up in our genes) such as altruism may be lost. How? He suggests that some attributes are "linked genetically to more obsolete, destructive ones." And

what he is really after are "planned societies" that would somehow negate some of the negative aspects of our human nature. He speculates that if we fully curb aggression, somehow this will negate cooperation.

If the planned society—the creation of which seems inevitable in the coming century—were to deliberately steer its members past those stresses and conflicts that once gave the destructive phenotypes their Darwinian edge [e.g. aggression], the other phenotypes might dwindle with them [e.g., cooperation]. In this, ultimate genetic sense, social control would rob man of his humanity.

With such drama, he provides another paragraph that begins with, "It seems that our autocatalytic social evolution has locked us onto a particular course which the early hominids still within us may not welcome" (1975, p. 300). What we have here in very indirect language is a subtle yet powerful rejection of social engineering and, most likely, a rejection of one of the 20th century's most dominant form: Marxism. Wilson ends with the suggestion that once we've delved deep enough into our neurobiology, "the result might be hard to accept" (1975, p. 301), suggesting that our human nature might run contrary to what is needed for an egalitarian society. He ends with a quote from Camus's, *The Stranger*, in which the narrator comments about being exiled in a world that no longer feels like home. Wilson fears that with the subjugation of the behaviors of our natural past, we might remove them genetically and, with them, other coupled behaviors that we appreciate. And, here's the key, in so doing we lose our humanity. For Wilson, then, the human is framed through this insistence we maintain our "natures," even if undesirable.

2.2 On Human Nature

Following the eruption of Wilson's 1975 publication, he returned with *On Human Nature* (1978), a book that seeks to show how sociobiology is the proper instrument "to close the famous gap between the two cultures." Wilson's final book in the trilogy that began with *The Insect Societies* (1974) is not a scientific text. And he admits that the book "is a speculative essay" (1978, p. x), as well as offers a sense of fair-play by admitting he might be wrong about his conclusions and, even, his grand project of examining the unity of knowledge via the natural sciences. It is with this sense of honesty and candor that Wilson unpacks many of the implications of his previous texts. The parallels are fascinating and worthy of comment, but for this article, the key is understanding how he formulates two things: 1) his ground upon which to define human nature and 2) the precursor concepts of consilience.

What Wilson poses in this book is the solution to three dilemmas facing human beings. In a move that plants him squarely within the naturalistic/materialistic camp, Wilson explains that any inquiry into understanding ourselves must address the sticky issue of our brains/minds. He admits that "we are biological and our souls cannot fly free" (1978, p. 1), a poetic line followed by a direct statement denying the need for a theistic god to account for biological life (yet still allowing it/him/her a place deep in the underbelly of physics where human rationality has yet to plumb). Following Darwin, Wilson feels that any important hypothesis about the "human condition" must begin here with an understanding of our place in natural history. For Wilson, this appeal to a naturalistic mechanism of explanation will remove the metaphysical baggage of the humanities and social sciences. He calls this the "new naturalism," new since Darwin, and that it has led and will continue to lead to a few fundamental dilemmas. The first removes any ultimate teleology from our worldview. "No species, ours included, possesses a purpose beyond the imperatives created by its genetic history" (1978, p. 2). It is with such a sentiment that Wilson wipes the slate clean of any ideology (from religious to philosophic) that would provide an ultimate ground or *telos*. In its place, he suggests we have no place to go

beyond what is natural to (i.e., given to us genetically via our evolved natural history). Wilson wisely recognizes this as a sort of lament. It has surfaced in many guises since the Enlightenment Project began to crumble. Humanities thinkers have called it a crisis of disenchantment and many other terms to reflect a fundamental loss. Wilson does not go into this intellectual history. But, he does recognize the need for a restructuring of our concepts.

In order to search for a new morality based upon a more truthful definition of man, it is necessary to look inward, to dissect the machinery of the mind and to retrace its evolutionary history. But that effort, I predict will uncover a second dilemma (1978, p. 4).

This second dilemma extends from the first, which is the loss of ultimate purpose (as typically defined in our traditional religions and philosophies). The second is the formulation of a working ethics, which Wilson believes is quite doable because our evolutionary history has provided us with a working morality. The trick is knowing how to navigate between these primary emotions and drives (the stuff of our evolutionary morality); the choices we make will then define who we are as a species.

Which of the censors and motivators should be obeyed and which ones might better be curtailed or sublimated? These guides are the very core of our humanity . . . at some time in the future we will have to decide how human we wish to remain--because we must consciously choose among the alternate emotional guides we have inherited (1978, p. 6).

And for this to happen, according to Wilson, this proper creation of a working evolutionary-based ethics, the branches of knowledge must be grafted together; moreover, these decisions to be made about how to frame the human will be the conjunction not just between biology and the social sciences but between the humanities as well. Wilson recognizes that a challenge will be posed by those in the humanities. He sees that his thesis of unity is opposed by one of dichotomy and even uses the Nietzschean terms Apollonian and Dionysian to describe this possible divide. But Wilson is unwilling to subscribe to the idea that the Dionysian is somehow separate from description by scientific means. His solution: a method of analysis/synthesis that (taken together) can not only drill down to describe atomistic properties but can build up to describe truly emergent properties. All well and good, but the question remains whether Wilson's dedication to synthesis is as promising as he claims (see below).

We are not left with the lament, though; Wilson ends his book with a chapter entitled, "Hope," wherein he presents his hopes that a biology of ethics will understand the "learning rules" that will lead to a working human morality and the search for working values. This, of course, will be contentious with the humanities acting as a final anti-discipline for a philosophized and ethical biology (1978, p. 204). But, Wilson doesn't consider this conflict enough to rate it a third dilemma. He sees it as a necessary process of consilience whereby the inherent turf wars and internal jockeying between disciplines naturally occur. Echoing his fears at the end of *Sociobiology*, he ends his last chapter with a nod toward a possible third dilemma: he sees a possible "final spiritual dilemma" when "the human species can change its own nature" (1978, p. 208). This is the concept now known as transhumanism, a term Wilson doesn't use. The genetic turn in which we may be able to engineer ourselves in ways that extend our "natures" is what Wilson sees as a potential problem. He asks, what will our natures choose? To remain as we are, the inheritors of our evolved histories? Or to extend ourselves and possibly lose something in the process? The resolution of this dilemma is sidestepped, Wilson telling us it will be for future generations to address. He ends with a nod toward our shared literary history with an admission that our evolutionary epic requires mythic metaphors. He has used Sisyphus and Arjuna and provides a comment from Aeschylus' *Prometheus*.

2.3 Promethean Fire

This literary allusion of Prometheus is picked up in another of Wilson's books (1983), where he teams up with Charles J. Lumsden to detail for the scientific community just how genes and culture might work together to shape human behavior. Before it, though, they present *Gene's, Mind and Culture* (1981), a barely readable text for the non-specialist, even requiring a hefty amount of time for someone like John Maynard Smith to work through the mathematics to see if the proposed models work or not (Seegerstråle 2000, p. 162). The authors provide *Promethean Fire: Reflections on the Origin of Mind* (1983) to rectify this problem.²

What Wilson has set before himself is an investigation into how the human mind has evolved into what it is today. No small feat. Of course, Wilson searches for this in our evolutionary past where the findings of paleo-anthropology help us chart the phylogenies of early hominids. Wilson knows that at some time in the past the intelligence faculties of *Homo sapiens* evolved. When? And what sort of process was this?

We believe that the secret of the mind's sudden emergence lies in the activation of a mechanism both obedient to physical laws and unique to the human species. Somehow the evolving species kindled a Promethean fire, a self-sustaining reaction that carried humanity beyond the previous limits of biology. This largely unknown evolutionary process we have called gene-culture coevolution: it is a complicated, fascinating interaction in which culture is generated and shaped by biological imperatives while biological traits are simultaneously altered by genetic evolution in response to cultural innovation (1983, p. 19).

What we have here is a clarification of Wilson's idea that genes hold culture on a leash (1978, p. 167). In this new formulation equal weight is given to the idea that the leash (culture) simultaneously pulls on the genes. How this works is through the influence of epigenetic rules (inherent behavioral biases that lead humans to make certain choices) on culture. Certain rules lead to certain cultural choices that help humans better survive and reproduce. Those choices then are vetted by a Darwinian like process that reinforces the epigenetic rules. "Hence, culture affects genetic evolution, just as the genes affect cultural evolution" (Lumsden and Wilson 1983, p. 20). Of course, for Wilson, the key discipline for understanding such an interaction is sociobiology.

But sociobiology, the discipline, and its mechanisms of gene-culture coevolution are only one corner of the foundation of Wilson's thought. Wilson hints at the direction his thinking will take when he mentions that at the moment when humanity may be able to understand the mind, this process may become crucial for our survival as a species (1983, p. 18). His move toward a conservationist stance can be seen early with this focus on the loss of ever increasing biodiversity. While this observation only makes a brief appearance in *Promethean Fire*, he does link it to a parallel theme that is also vital to our understanding of his notions of human nature defined via consilience: that the naturalism of modern society must replace the old-myths of religion with a secular religion. This is not a mere luxury of a freethinking intellectual class but a necessity, according to Wilson, that will reinvigorate our understanding of nature with a neo-divinity, a move he believes we must make in order to save our own biosphere and ourselves.

2.4 Biophilia

From the publication of *Biophilia : the Human Bond with Other Species* (1984) to his recent comment

² Since I will be critiquing aspects of this book from within the context of Wilson's overall intellectual project, I will address the authors as "Wilson."

The Creation: An Appeal to Save Life on Earth (2006) Wilson has demonstrated a consistent march toward greater focus concerning themes of conservation. For this article, his use of academic disciplines like sociobiology and models and conceptual mechanisms like gene-culture coevolution and biophilia are helpful in situating ourselves relative to Wilson's humanistic thought (i.e., importance of determining a working human nature, the need for a conservationist ethic, the primacy of the analytic/synthetic model, etc.), but my ultimate aim is to understand how these elements are glued together through his notion of consilience. Still, it is helpful to briefly address his notion of how biophilia leads him to posit the need for a replacement of the old religious architecture with one grounded in a fully naturalistic and materialistic worldview.

What is this intriguing concept of Wilson's, *biophilia*? It is "the innate tendency to focus on life and lifelike processes" (Wilson 1984, p. 1). For Wilson, there is a genetic aspect to this. In some way our "urge to affiliate with other life forms" (Wilson 1984, p. 85) comes to us from our evolutionary history and is alive and well today. Again, Wilson is quick to admit this is mere intuition and speculation on his part, but he has submitted the hypothesis to the rigor of a formal investigation by top thinkers (Kellert and Wilson 1993), yet the verdict is still out regarding its scientific merits.

Much of his argument stems, not only from his very real naturalist's love of nature, but from what he believes to be cultural clues that reflect our innate biophilia. "Perhaps, the most bizarre of the biophilic traits is awe and veneration of the serpent" (1984, p. 85). For Wilson, the term "serpent" is a cultural reference for the biological organisms we generally label snakes. What he does is use the framework of Darwinian evolution to explain how "the agents of nature appear to have been translated into symbols of culture" (1984, p. 97). Its deductive simplicity is hard to miss. Our ancestors who feared deadly snakes tended to avoid them, while those who did not often got bit and died. Those who survived tended to pass on this aversion. Over time, the genetic predisposition was reinforced with culture via veneration, fear, and awe of the serpent as seen in many of our myths. Thus, culture's transformation of the snake into the serpent, is a perfect example of gene-culture coevolution and the development of an epigenetic rule. This is simply one fundamental block in the structure Wilson is building of an edifice called our evolved human nature. He wants to elucidate the rules of mental development and behavior so that he can argue that even the naturalist's biophilic instinct was an adaptation, like snake avoidance. "The naturalist's trance was adaptive: the glimpse of one small animal hidden in the grass could make the difference between eating and going hungry in the evening" (1984, p. 101). Wilson even extends this argument to suggest that our inclination for elevated views over water reflects our original evolution in savanna like environments, that our aesthetic choices are still with us in our deep genetic makeup (1984, p. 109-12). But the landscape is only part of the picture. Wilson's real goal is to create a definition of human nature predicated on our relationship to other species. "We are human in good part because of the way we affiliate with other organisms" (1984, p. 139). And it is awakening this sense that Wilson believes will provide us with clues to save ourselves and our environment. What must occur for this neo-religious conservationist ethic? Consilience of the sciences and humanities.

2.5 Consilience

Arguably his most important book for the humanities, *Consilience: The Unity of Knowledge* (1998) arrived at a time after Wilson's major intellectual projects like sociobiology and gene-culture coevolution had seen their peaks. The move toward the domination of conservationist thinking began earlier than *Consilience* but finds a parallel argument in support of biophilia in Wilson's attempt to explain, philosophically, what must happen for a working approach to biological conservation. In *Consilience* we see Wilson present an argument for the unification of knowledge wherein the great branches of learning are fastened together. The metaphor is important because for Wilson the two great branches (the sciences and the humanities) must come together like two

vines wrapping around each other. But, what is evident is that the sciences are viewed as stable, while the humanities are viewed as more pliable and, thus, more readily able to shift closer to the sciences. For Wilson, this means, that the humanities (and the social sciences) can only make this move by adopting the methodologies of the natural sciences—in particular, both the analytic and synthetic approach to knowledge building that has worked so well for physics, chemistry, and (not quite so well) biology. The problem, though, is that while Wilson argues the need for both an analytic/reductive and a synthetic/holistic dyad, the former is given precedence, while the latter receives only lip service. My critique stems from an account given by Wilson's past colleague, Stephen Jay Gould, who in his last book argues for a different type of consilience than Wilson's (see below). What Wilson presents is actually an argument for the power of reductive thought and methodologies, not only for the science but for the humanities. A close look at his text is required, primarily, because it so well encapsulates Wilson's approach and acts as a guide for how Gould's thought more closely echoes humanistic thinking. In short, Wilson values analysis over synthesis, while Gould represents a more synergistic balance between the two (without offering how this might actually work).

Wilson's book, *Consilience*, is organized much like *On Human Nature*, with broad concepts addressed in each chapter, with a progression from his general idea, to particulars found in the natural sciences, and ending with the ephemeral (and difficult stuff) of the humanities. Wilson uses a few working metaphors to describe this process of consilience. He begins his introductory chapter, "The Ionian Enchantment," with this charming metaphor of the unity of knowledge, hearkening back to the Greeks (Thales, for one) and their well-inspired but often misguided searches for unity within nature (1998, p. 3). For Wilson, this dream, this spell of enchantment is the most precious form of enthrallment for a modern, secular thinker. "I found it a wonderful feeling not just to taste the unification of metaphysics, but also to be released from the confinement of fundamentalist religion." Wilson's theme of replacing traditional religious belief with modern evolutionary theory (and all that goes with it) can be seen here as a sort of impetus for his entire project. In this way, Wilson is very much a secular thinker. Where he differs from other colleagues is in his blatant admission that his worldview can be conceptualized as religious. He explicitly states he has "no desire to purge religious feeling" (1998, p. 4), his time as a young, evangelical Christian in the South strong enough to make a lasting impact. Wilson sees science very much an extension of the psychological need for explanations (such as Biblical elements about origins or our place in the universe). In the grandest tradition of inspired system building, Wilson eschews the actual construction of systems of thought for the inspiration of a single objective: the unification of knowledge. It is this quest that he is after. In fact, Wilson sees his project as a defining aspect of what it means to be human.

If those committed to the quest fail, they will be forgiven. When lost, they will find another way. The moral imperative of humanism is the endeavor alone, whether successful or not (1998, p. 5).

Chapter 2, "The Great Branches of Learning," is a companion piece to the initial chapter on the Ionian Enchantment. Here, Wilson extends his picture of humanity's quest—via first through our religious stories, then through science—of explaining the natural world. "The greatest enterprise of the mind has always been and always will be the attempted linkages of the sciences and the humanities" (1998, p. 6). But, Wilson admits that what he is doing is not science, but something else. "The belief in the possibility of consilience beyond science and across the great branches of learning is not yet science. It is a metaphysical worldview, and a minority one at that." Wilson realizes he will be opposed in his worldview, accused of such things as "conflation, simplism, ontological reductionism, scientism" to which he says "I plead guilty, guilty, guilty" (1998, p. 7).

Without the slightest hint at irony, Wilson then briefly addresses the role philosophy might play in such an endeavor but suggests that "philosophy, the contemplation of the unknown, is a shrinking dominion" (1998, p. 8). What is ironic is that his assessment of philosophy is quite minimal but that the endeavor itself, while certainly affected by the dominance of positive science, is no less an important part of many vital investigations (to name one: the still pressing need for a philosophy of mind and consciousness). Having thus sidestepped the question of the role of philosophy within science, he does not even attempt to address the role of philosophy within culture. One particular sticking point for anyone trained as a scholar in the humanities would be Foucault's argument that the Enlightenment is actually an attitude wherein one continually critiques one's own culture (Foucault 1984). In this role, Foucault has found a place for philosophy to continue its vigilance, regardless of how well positive science does in explaining the natural world. What is needed, especially for human culture, is a continued posture of self-critical analysis.

Wilson, though, skips the messy stuff of cultural critique, but has no problems explaining that the humanities will soon be encompassed by the natural sciences. A telling paragraph, following directly after his admission that philosophy doesn't have much left to do, is worth stating nearly in full:

I believe the enterprises of culture will eventually fall out into science . . . and the humanities, particularly the creative arts . . . The social sciences will continue to split within each of its disciplines . . . with one part folding into or becoming continuous with biology, the other fusing with the humanities . . . In the process the humanities, ranging from philosophy to history to moral reasoning, comparative religion, and the interpretation of the arts, will draw closer to the science and partly fuse with them.

It is important to note that Wilson here allows some wiggle room for the humanities. His language clearly is not arguing that the humanities will be fully and totally subsumed within biology. Still, his language is one in which the humanities will move in the direction of the sciences (not the other way around). After providing such wiggle room, he proceeds with "science offers the boldest metaphysics of the age," (1998, p. 10) honestly and succinctly encapsulating his agenda in a few short, direct words.

I have found this chapter to be highly illuminating as a lynchpin holding together this article's views of the internal structure of Wilson's thought. In fact, his claim that "every college student should be able to answer the following question: what is the relation between science and the humanities, and how is it important for human welfare" (1998, p. 11) acts as a springboard for this article. It is to the notion of consilience that we must press ourselves. Surely, no one would deny that consilience in its most benign (non-imperialistic) forms is an admirable thing. How, then does Wilson truly define consilience, and what (if any) are there any working alternatives (see below for Gould's response)?

The problem for Wilson, which he openly admits, is that his picture of the humanities (especially literary studies) is undermined by a caricature. He provides a reading of postmodernism that sounds merely like the echoing of simplicities from the "science wars". There is a real sense that Wilson believes that those he labels postmodernists or poststructuralists really think in such anarchistic ways, but Wilson undermines his own project by not allowing more room for description. Chapter 3, "The Enlightenment," begins with a charming intellectual history that jumps through the 18th century like a mad dash to the end. Wilson can actually be praised for such a condensed, well-packaged picture of why the Enlightenment project failed (even if one who is even vaguely familiar with any of the many conversations regarding this crisis sees his depiction as highly simplistic). But the real motive may be to setup a fall-guy: postmodernism. Wilson wants to state by fiat that the Ionian Enchantment that began with the Greeks, diminished, then after briefly flowering in the 18th century, "astonishingly—it failed"

(1998, p. 13). It did so for a reason, according to Wilson, who pins the blame on the back of intellectuals losing "faith in the leadership of science" (1998, p. 40) and thus leading to the inevitable split of the two professional academic cultures. Again, such a simplistic picture should make one wary, especially since this terrain has been surveyed many times.

What is evident is that Wilson is leading up to something: his rejection of postmodernism, the bugbear by which some thinkers are said to have responded to the critique of science begun by Kuhn and the later science studies thinkers. Wilson provides us a useful statement that "Postmodernism is the ultimate polar antithesis of the Enlightenment" (1998, p. 42). A nod to Wilson must be made in that he demonstrates recognition there are "radical" postmodernists, implying there are also moderates. Yet, his real enemy is the broad philosophical movement in sociology often called social construction, wherein the battle is viewed as an epistemological struggle to define reality. But Wilson does not provide an overview of the field within sociology until later in the book. Instead, he jumps to the curious crossover of French linguistic theory/philosophy to American literary studies with the thinking of Jacques Derrida and deconstruction. This is followed by the other usual suspect, Michel Foucault. But, as with Derrida we only get passing glances at these thinkers. In a spirit of fair-play, it must be noted that Wilson ends his chapter with a gentlemanly admission: "Nevertheless, here is a salute to postmodernists. As today's celebrants of corybantic Romanticism, they enrich culture. They say to the rest of us: Maybe, just maybe, you are wrong" (1998, p. 46). But ultimately, Wilson sees the entire endeavor of such skepticisms as leaning more toward mere sophistic obscurantism reinforced by the academy than as a true Dionysian antipode to an Apollonian science.

In the next chapter, "The Natural Sciences," Wilson provides his antidote for the skepticism of postmodernism and the perceived failure of the Enlightenment project: *Science* (with a capital S). Wilson provides a working definition: "the organized, systematic enterprise that gathers knowledge about the world and condenses that knowledge into testable laws and principles" (1998, p. 57). He then provides a list of attributes: repeatability, economy, mensuration, heuristics, and finally consilience. This standard definition provides a base upon which he props up a singular concept within the study of science: *Reductionism*. "The cutting edge of science is reductionism, the breaking apart of nature into its constituent parts." But Wilson is quick to tell us the reductive endeavor is only half the struggle. "But dissection and analysis are not all that scientists do. Also crucial are synthesis and integration" (1998, p. 58). I cannot agree more with Wilson, and this article seeks to understand whether he backs up his claim. Does he, indeed, present synthesis and integration as more than a lofty goal? Does he give it equal time and emphasis as he does the analytic/reductive elements of his thought?

The rest of the book is his elucidation on an extension of the Ionian Enchantment metaphor, this time focused with the metaphor of Ariadne's thread. Chapter 5 is an elucidation of this, while the remaining chapters work through such difficult stuff as the mind, genes and culture, human nature, the social sciences, eventually ending with arts and ethics. What Wilson does is describe the interrogation of these subjects as an epic endeavor, similar to Theseus' journey into the labyrinth. A few elements to this metaphor are worth briefly describing. The labyrinth represents "the uncharted material world." Theseus is humanity in our search to understand the natural world. The thread is consilience, the combined knowledge of both the arts and sciences. And the Minotaur is the danger of irrationality. Wilson's particularly interesting take on this is that he places the hard sciences like physics at the entrance to the labyrinth, while the "social sciences, humanities, art, and religion" follow an increasing difficult pathway toward the center (1998, p. 72). The thread, though, is a powerful metaphor for Wilson that represents how to conceptualize causal explanations leading from the hard sciences to the humanities and back again. How? Via the well laid bath of analysis/reduction toward the center and the less understood path of synthesis/holism back outward.

It is this less understood path that gets lip service but no real exegesis. The problem, though, may be in the very real limitations of science (and or human cognition) to tackle such

endeavors. Wilson provides a wonderfully helpful and honest example from cytology to demonstrate the problems with moving upward toward synthesis regarding how a cell is constructed. He provides us two rubrics for the opposing symbiotic processes. "Consilience by reduction" vs. "consilience by synthesis" (1998, p. 73). The idea with synthesis is reconstruction: in essence imitating nature in a science laboratory. Wilson does offer that first steps have been made toward synthesis. He suggests that certain types of predictions "qualify as consilience by synthesis" (1998, p. 76). But, he admits, that in his own discipline of entomology science cannot yet make the bold move from physics and chemistry to predictions concerning the exact nature of certain molecular structures of functions in ants. I imagine Wilson might be able to update a book that is over a decade old within his own discipline, as well as others. But, his cogent admission that consilience by synthesis is the most daunting of tasks parallels the very real lacuna in his book and reflects the ultimate problem with his project for humanities thinkers. Wilson uses the metaphor of an "unexplored terrain" to represent the area between the science and the humanities that must be mapped. As if in contradiction to the extreme skepticisms about Derrida and Foucault briefly mentioned at the beginning of his book, Wilson writes, "The misunderstandings arise from ignorance of the terrain, not from fundamental differences in mentality" (1998, p. 138). What he means by mentality is unclear because he has made it very clear that aspects of literary studies in the academy seem like nothing more the sophistic, rhetorical obscurantism. His conciliatory gesture at this point is, therefore, more likely explainable because he shifts emphasis in his book in the end toward the center of the labyrinth and the more complex and messy (irrational?) areas of the social sciences and humanities.

Wilson ultimately wants to give equal weight to both genes and culture, having spent a good portion of his intellectual thought attempting to explain how they work through coevolution and, even, going out of his way in *Promethean Fire* to explain that, yes, genes do hold culture on a leash but that culture sure can tug on the leash. Again, this instinct to attempt an even assessment between science (genes) and the humanities (culture) is admirable and evident in much of Wilson's work. But, Wilson betrays his hope for détente and then consilience when he writes, "It's time to call a truce and form an alliance." The metaphor has shifted from unexplored terrain to a battle ground (in this chapter, between positive science and the social sciences). He writes that "the social sciences are intrinsically compatible with the natural sciences" (1998, p. 208). The two disciplines must be made consistent—which means, the social sciences must move toward the methodologies of the natural sciences. This is an admission by Wilson that the social should be collapsed into the natural. And, it is a primary fault with his thinking.

3. Gould: A Different Definition of Consilience

Instead of presenting a range of reviews of Wilson's most intriguing book, *Consilience*, I will offer one critique in the form of a monograph, Stephen Jay Gould's, *The Hedgehog, the Fox, and the Magister's Pox: Mending the Gap between Science and the Humanities* (2003). Gould, as a colleague of Wilson's at Harvard, and a benchtop scientist himself is in a curious position to champion methods from the humanities. In fact, Gould has feet in both worlds. Not only a scientist, he is a natural historian. Where Gould proves his worth for a literary studies look at the relationship between science and the humanities is in his insistence that synergy is preferable over unification.

Gould, though, would care to present an even more balanced approach. As a way to represent this, he provides a guiding metaphor: that of the hedgehog and the fox (and the hybrid of both). Using Archilochus' famous example, he tells us the hedgehog is very good at one thing, while the fox is good at many things. What he attempts to do is locate the former as the search for the attainment of a single, overarching goal (2003, p. 5), while the latter is the ability to maintain necessary flexibility. In essence, how do we attain wisdom and knowledge without the destruction of the many particulars of human experience? A parallel metaphor Gould works with demonstrates this as well. *E pluribus unum* (one from many) reflects Gould's insistence that

consilience must be conceptualized along lines that value a variety of knowledge and methods, over Wilson's dream of unification. In this way, we see how Gould is inspired by the idea of liberal democracy so that he may write, "I offer the same basic prescription for peace, and mutual growth in strength, of the sciences and humanities" (2003, p. 6). What is that? The recognition that the sciences and humanities work within differing domains but that, together, they can attain the goal of "wisdom." Regardless of whether Gould's project is mere détente in a world of increasing tension between the two domains, his more specific argument against Wilson regarding consilience is helpful in seeing how the humanities might respond to Wilson's notion of unification of the great branches of learning.

Before addressing the specifics of his opposing view of consilience, it may be wise to ask how Gould views the relationship between science and the humanities. What he does in his very idiosyncratic book is argue that something curious happened during the "scientific revolution," that time when thinkers like Bacon and Descartes broke from the largely still humanistic ways of thinking. Gould suggests that by looking at how the new philosophers viewed their predecessors and themselves, we might understand why the tensions have erupted (with science on one end in supposed opposition to theology and literature, or the humanities on the other) (2003, p. 15-16). Gould is helpful because he admits that during this time of change, the "struggle at the birth pangs of modern science," there was a valid conflict between new and old ways of thought; however, Gould sees this as largely antiquated in a world where science has proven so powerful, yet with its own limitations. What Gould calls for is simply the combination of all that is best in both domains. He uses the metaphor of "quilting a diverse collection of separate patches into a beautiful and integrated coat of many colors, a garment called wisdom" (2003, p. 19) over metaphors of subjugation or imperialism. For Gould, the idea of integrating as many insights and methods from the humanities along side those from science would be prudent. There are many reasons for this. Gould sees himself as a lover of literature, and even his book reflects this, with historical excursions into Renaissance texts, wherein he provides exegesis supporting his theme. Furthermore, something fundamental in his thought drives his insistence.

Gould argues that dichotomous thinking does a great injustice to this issue. His guiding metaphors of the hedgehog and fox demonstrate this. He does not want us to think of science and humanities as opposed. He wants a hybrid. For Gould, continua as a mental category is much more helpful (2003, p. 82). He says our very natural tendency to break up phenomena into two fundamentally opposed categories may have something to do with our natural history. His reliance on an evolutionary epistemology here is a nod to why we tend to prefer to use dualities to describe such things. However, for Gould, this tendency represents "baggage" from a time when it might have been helpful to think in such simplistic terms as "fight or flight, sleep or wake, mate or wait" (2003, p. 83). Gould even cites Levi-Strauss and his approach to human nature and culture via controlling dualities as somehow inherent in our fundamental cognitive structures. What Gould argues is that phenomena that began with real conflict like that of the new science and the old humanistic ways of thought may remain like revenants when the actual conflict has actually dissipated. For example, he details four main episodes he reads as less about real conflicts and more about our tendency to dichotomize and caricature: the 1) Ancients vs. Moderns 2) "Warfare" between science and religion 3) Two Cultures debate and 4) The "science wars." Regardless of how accurate his readings are of these events, what Gould has done is laid the groundwork to explain how other notions he has like N.O.M.A. can be utilized when thinking about science and the humanities (as opposed to simply religion) (2003).

Why Gould admits a conflict did occur but then demonstrates how times have changed is because he believes the initial conflict was short lived. Moreover, his ultimate aim is to demonstrate that science cannot completely explain what it means to be human. Thus, the only way to achieve such "wisdom" is by using as much insight from as many avenues as possible. What he sees is that the humanities support his more ecumenical approach. He sees the importance of thinking from the humanities in:

- 1) acknowledging and analyzing the social influences and cognitive biases within all creative work, including empirical studies; 2) emphasizing the importance of stylistic and rhetorical concerns in the presentation and acceptance of any good argument; and 3) developing certain modes of knowing that science needs (2003, p. 138).

All of this is leading up to his final chapter, "The False Path of Reductionism and the Consilience of Equal Regard," wherein he details the difference between his and Wilson's visions. Gould argues that he and Wilson, primarily, are simply presenting different metaphors and conceptions of the relationship between science and the humanities. For Wilson, Ariadne's thread. For Gould, the hedgehog and the fox. But, these metaphors represent a broad difference in these thinkers' hopes. Gould questions why the dream of unification is so enticing for some thinkers. "I have often wondered why the dream of unification (in our horrendously messy, yet so wondrously multifarious world) holds such power over the scholarly mind" (2003, p. 195). And Gould states plainly his own desire and assumptions: that he wants the great branches of learning to operate on friendly terms, working together when possible, but each maintaining its own autonomy. This, of course, assumes that such a relationship can exist and that the opposing imperialistic view is less preferable.

Of course, Gould even provides a metaphor for this. The example of the Ugly Duckling (the humanities) that can be viewed as a misfit but can also be viewed as simply a different kind of thing (a beautiful swan). Gould prefers the latter (2003, p. 200). He argues that Wilson's approach views the humanities as an ugly duckling that needs to be made right through its incorporation into the natural sciences. Gould challenges Wilson over two key concepts: reductionism and consilience. Reductionism, according to Gould, works well within its own domain of the natural sciences but fails outside because it doesn't address emergence or contingency. Gould does not address the debates within the philosophy of science over the efficacy of reductionism (Callebaut 1993). Instead, he offers the simple but powerful idea implicit in the concept of emergence: that the combination of parts do more than simply make a whole; the description of this whole resists definition via the simple description of its parts. Gould also addresses one of his favorite concepts, contingency, to argue that complex things like history are highly contingent and thus a problem for charting causal processes or definitions (2003, p. 202). This leads Gould to argue that natural science can only offer us an anthropology of morals not (as the humanities might) a morality of morals. What Gould is after is the problem of the naturalistic fallacy, the problem of arguing that "what is" in nature "ought to be." Of course, no right minded thinker actually fully follows this. For example, it is natural for human beings to tend to lose the ability to see well as they age, so we create and wear glasses to rectify this. It is morally accepted to do so. What Gould suggests is that this morality cannot be justified or explained through the sciences. The other domains of human knowledge must be addressed, those of the humanities. He doesn't explain how they do this. Simply, that they can (2003, p. 243). From here, Gould offers his antidote to what he calls Wilson's focus on a consilience of reductive unification with his own, a consilience of equal regard.

I have attempted a reading of Wilson's intellectual history to demonstrate that his presentation of consilience is one wherein a second-class humanities must adopt aspects of the sciences, while Gould offers a challenge to this. What is up for grabs, among many things, is how we are to conceptualize this relationship and what it, ultimately, may say about what it means to be human. For Wilson, there is much constraint by our evolved pasts, while Gould allows for much more freedom. The major distinction is that Wilson understands and argues for a combined effort between analysis and synthesis, but that the latter does not actually get the same description as the former. For Gould, he sidesteps the construction and suggests a metaphor of continua, that thinking in terms of science vs. the humanities or analysis vs. synthesis may be part of the problem. It is here that Gould's thought goes a long way. The first step in the proper

problematization of a concept such as the relationship between the sciences and the humanities may be to see how false dichotomies are being applied. Gould utilizes this convention from literary studies and helps us see a way to orient ourselves toward notions like the Third Culture.

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