Consilience the unity of knowledge
E. O. Wilson

Sixteen years after publication, it stands as a book for the ages.

Though not his last, “Consilience” will probably stand as Wilson’s capstone book. It is a magnificent survey of all of science. It is a cri de coeur for the reconciliation of all bodies of human knowledge – natural science, social science and humanities – and for saving the planet.

The sixteen years since publication have not revealed the full horrors of which Wilson was so apprehensive. Population growth has abated more than he or anybody could have foreseen, sinking below replacement level in most of the developed world. Global warming experienced an inflection point just after he wrote. It appears that greenhouse gases are only one among several contributing factors, the others of which are declining form cyclical maxima, as a result of which the warming trend has stalled. See “Climate Change Reconsidered” and “Die Kalte Sonne.” As the authors of these books point out, greenhouse gases are certainly an issue with which we have to deal, but not as urgently as was thought. The world is even turning around somewhat on deforestation, and the endangered species stubbornly hang on, though the situation should still be cause for great concern.

The consilience he advocates seems to be coming about by the process he described. Funeral by funeral. The social scientists and philosophers whose work is not anchored in scientific method – Freudians, Marxists, and the whole of the luxurious fauna of liberal arts departments, are becoming less relevant. There is a problem, however. Doing the kind of work Wilson advocates takes dedication and brainpower, attributes that are always in short supply.

Wilson begins his book with an outstanding recap of the intellectual history of scientific age, from Francis Bacon at the dawn of the Enlightenment forward to our own times.

His stated goal is to demonstrate the possibility of “conciliation,” the harmonious merging of all branches of knowledge, for the ultimate betterment of mankind and the world. He would like to believe that the clashes among disciplines – natural science, social sciences and humanities – stem from incomplete understanding rather than unbridgeable chasms between their views of the world.

His intellectual history is beautifully written and concise. I will use it as a frequent reference, like the magnificent short history of electricity and magnetism in Derman’s “Models Behaving Badly.”

He describes the paradox of the clockwork universe envisioned by the Enlightenment philosophers. If it truly is clockwork, set in motion by God himself, then we do not have free will. Everything that happens is preordained. Yet, our very research assumes free will, that we have the freedom to investigate our universe.

Wilson defines layers, or echelons which build upon each other in science. Physics is the foundation upon which is built chemistry, upon which is built biology, upon which is built systems of behavior such as human culture. Each depends on the prior, lower level, and each has its own sets of rules. He would like to come up with a consilience that would at least have the rules which operate at each level appear somewhat congruent to one another.

Via a series of well-constructed chapters, Wilson leads the reader on a tour of contemporary science, building up from physics to chemistry to biology to genetics and from there into evolution and human civilization. At each level he contrasts the scientist's two tasks; that of analysis, or decomposition, and that of synthesis. It is easier to go down the chain, from high levels of complexity into the simple than to ascend, synthesizing the complex from the simple. As an example, scientists are doing a good job of describing how a living cell operates at the chemical level. Chemists are good at providing explainations of how the chemical reactions take place through rules from the realm of physics. At that most elemental level, it is a matter of matter, electricity and magnetism and other forces. On the other hand, it is very difficult to even conceive of synthesizing intelligent life forms from the ground up, beginning only with the rules of physics.

Wilson says it is difficult. I believe it is impossible, and that Wilson dances around to the reason that it is impossible without actually expressing it until his closing chapter. Pure randomness. He does write about chaos, but Mandelbrot's rather orderly chaos in which the patterns are predictable. However, the world of physics has some processes which by my layman's understanding are purely random. It is impossible to know, per the Heisenberg principle, exactly where an electron is at any given moment. It is impossible to know when any given atom in an unstable isotope will decay. Randomness operates in much larger scale events. Unless one had a computerized model of the entire universe, that is, every galaxy, I believe it would be impossible to predict when the earth would suffer a meteor strike such as the one which caused the Cretaceous–Tertiary extinction event. Thus, a huge turning point in the process of evolution was driven by a random event.

I am also quite certain that much less significant evolutionary events happen by random. Einstein quipped that "gravitation is not responsible for people falling in love." The eggs and sperm that united to form Adolf Hitler, Mao Tse Tung and Joseph Stalin were not forordained. There was undoubtedly some random Brownian motion in the parental gonads, or random cosmic ray strikes that sparked their parents' libido, affecting the exact timing and hence the exact combination that created these monsters, without whom twentieth-century history would've been vastly different. Bottom line, I do not think it will ever be possible to synthesize to the point of making history predictable. Randomness is built-in at every level, starting with the particle physics at the most fundamental level of analysis.

Wilson's notion that there may be consilience between the arts and natural sciences strikes me as a flight of fancy. If anything, artistic movements would seem to map to chaos thory. One artist, random per the Hitler-Mao theory above, starts something and the herd charges off in his random direction. A random historical event occurs, another random personality appears, and another movement crops up. While there may be consilience because the basic themes are ultimately grounded in human nature, the

most I would expect is little better than what Wilson provides – speculation about broadly recurrent themes.

Another major oversight in this notion of consilience is the discrepancy among the interests of any given individual, the interests of the human species as a whole, and the interests of the planet. I do not believe that human beings, invested with free will, will concede their individual evolutionary self-interest to the interests of the human species, or that the human species will subordinate its interests to those of the entire biosphere. Even before we even get to the point of discussing these things, we are confronted with the impossible task of defining the self-interest of the planet or even of the human race. Remaining within the evolutionary, atheist Dawkins/Dennett context, one can posit many different value structures for deciding what the human race should do with itself. A quick, easy, and far from exhaustive list of possible values for shaping the future of the human race might include:

1) Saving a maximum of human lives in this generation, Bjorn Lomborg, Bill Gates, Warren Buffet et al's current project
2) Minimizing human suffering, favoring robust health over life itself in this generation
3) Maximizing human fulfillment, as per the Maslow triangle, in this generation
4) Maximizing the economic life of the Earth's resources, giving priority to future generations.
5) Maximizing humanity's potential for achievement, per Charles Murray, favoring the evolution of intelligence and hence reproduction of the most intelligent.
6) Ensuring humankind's long term survival, sacrificing the present for the future.

It is easy to see that these are at odds with each other, and that each position would be supported by various constituencies claiming the moral high ground. For Wilson to imagine that looking to the principles of particle physics is ever going to resolve these ethical and political issues is nothing more than fantasy. No conceivable political regime short of absolute dictatorship, and certainly not democracy, will be able to do it.

Wilson speaks patronizingly of the fundamentalist religion of his upbringing, lacking as it does any sort of empirical confirmation. The God of the Bible, and the moral order proclaimed by the religious, are no more than things hoped for. What Wilson fails to accept is that his dogmas are equally without support. He devotes this book to a search for consilience, not in any effort to prove that it will come about, but rather in an effort to raise hope that it might. His 2003 book, "The Future Of Life," suffered the same problem. At that point in time it was easier to accept that global warming was an impending disaster, and Wilson's hope of that moment was that the world would recognize its common interest and band together to fight this disaster. The past decade has shown that (1) the world has found no mechanism, and no particular will, to come together to fight such a problem, and (2) thank goodness the problem is not as serious as was envisioned then. One witticism of my youth was "God is dead – Nietzsche" "Nietzsche is dead – God." Somehow the people who would have us abandon our religious superstitions and dogmas always seem to fall prey to their own. The problem is not that there are no clear-sighted thinkers among us, but rather that seeing the future clearly inevitably results in pessimism. Fortunately, for reasons we can never discern in advance, the pessimism usually turns out to be ill founded. Malthus was wrong about our starvation, Herbert Spencer's eugenic projections were wrong about our becoming a world of idiots, so far Robert Oppenheimer has proven wrong about our nuclear self-destruction, and

now global warming is coming to naught. Perhaps there is a God who looks out for fools and drunks – and public intellectuals.

I easily give this book 5 stars – it is a great book. Wilson has earned his place in history for a vast number of contributions, sociobiology being perhaps the most notable. But this book is not a celebration of his own triumphs. Rather, it is his excited and erudite recounting of information he has learned in a vast number of scientific spheres. It may be a somewhat eclectic collection, but it includes a lot of science with which I was not previously familiar, and I read quite a bit. Wilson is above all things a scholar, gifted with both genius and a driving curiosity to inquire about the natural world, and blessed with the ability to express it in language of poetic beauty. I may not share his optimism that we will someday find the consilience which will bring the sciences together and focus human attention on the preservation of ourselves and our mistreated planet, our island home and in the space, but I don't have anything to offer in place of his optimism. For the sake of humanity I hope he is right. For the sake of my family, I am forced to take a less sanguine view of humanity's ability to look out for itself and prepare them to survive despite what disasters the mass of humanity brings upon itself.