A consilient approach to human existence

E. O. Wilson´s ´The Meaning of Human Existence´: A Conspectus

E.O. Wilson has provided a consilient evolutionary approach to anthropology, and to the problems of human nature, action and ethics in his book ´The Meaning of Human Existence´ (New York: Norton, 2014). Here follow my notes providing a conspectus of the book — with some parenthetical comments, from a narratological evolutionary perspective (JAGL).

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I. The Reason We Exist

"History makes little sense without prehistory, and prehistory makes little sense without biology. Knowledge of prehistory and biology is increasing rapidly bringing into focus how humanity originated and why a species like ours exists on this planet."

1. The Meaning of Meaning.

Meaning is either "intention", "design", or seen as the result of "overlapping networks of physical cause and effect" —the 2nd view is more inclusive. Understanding brings about the capacity to decide—and the greatest moral dilemma: "how much to retrofit the human genotype". "We are not predestined to reach any goal, nor are we answerable to any power but our own. Only wisdom based on self-understanding, not piety, will save us" (15).

2. Solving the riddle of the human species.

This cannot be entrusted to the humanities. "The time has come to consider what science might give to the humanities and the humanities to science in a common search for a more solidly grounded than before to the great riddle of our existence" (18). Eusociality (the "true" social condition) is an extreme biological rarity, arising only 19 times in biological history. It originates in social life around a protected nest, with parents and children cooperating in raising additional generations. (*Note that, from this point of view, humans are a greater rarity still, with the institution of grandparents, especially grandmothers, as supplementary child-rearing individuals. Hrdy has emphasized the sociobiological role of grandmothers, and other biologists have noted the adaptive value of an extended lifespan after menopause—JAGL).* "Such primitive assemblages then divide easily into risk-prone foragers and risk-averse parents and nurses" (21). (*Not just females, in the case of humans, but also grandparents and, perhaps too, the celebrated home-sustaining 'dads' as opposed to the carefree 'cads' adventurous females often fall for. It's a story that's being told in many a plot and many a life story; see Helen Fisher's books*

on evolutionary sexuality for further details from a sociobiological perspective—JAGL). Australopithecine eusociality may be interpreted as a result of a shift in diet and foraging strategies. "A premium was placed on personal relationships geared to both competition and cooperation among the members" (21). There follow cognitive improvements in memory, prediction, and in "the ability to invent and inwardly rehearse compeing scenarios of future interactions." All this allows the evaluation of social interactions: "They allow us to evaluate the prospects and consequences of alliances, bonding, sexual contact, rivalries, domination, deception, loyalty, and betrayal. We instinctively delight in the telling of countless stories about others, cast as players upon our own inner stage. The best of it is expressed in the creative arts, political theory, and other higher-level activities we have come to call the humanities." The origins of social intelligence are ascribed to either kin selection (now discarded by Wilson, who was a prominent advocate of the theory some decades ago) and the theory he now favors, in which "the grand master is multilevel selection. This formulation recognizes two levels at which natural selection operates: individual selection based on competition and cooperation among members of the same group, and group selection, which arises from competition and cooperation between groups" (24). Multilevel selection is a sustainable model, kin selection is unrealistic.

There is consistent human interest in details of social behavior, in gossip, in social evaluation of others. "We are compulsively driven to belong to groups or to create them as needed, which are variously nested, or overlapping, and in addition ranging from very large to very small" (*Note here the analogy of social networks in electronic media. And, most important—perhaps it is these shifting borders and embeddings of social groups that give our minds the most powerful model and analogue for the spontaneous syntax of frame theory—JAGL).* Competition and belief in the superiority of our own group. Teaching evolution and prehistory: "Students will be taught prehistory as well as conventional history, and the whole properly presented as the living world´s greatest epic." (25). Wilson advocates ecological realism and responsibility: "It is folly to think of this planet as a way station to a better world. Equally, Earth would be unsustainable if converted into a literal, human-engineered spaceship." (*Which is a sensible argument against the lessons on mankind´s survival being taught in such movies as* Interstellar.—JAGL). "Human existence may be simpler than we thought. There is no predestination, no unfathomed mystery of life" (26). "What counts for long-term survival is intelligent self-understanding, based upon a greater independence of thought than that tolerated today even in our most

advanced democratic societies." (*Wilson seems to be thinking of religion-ridden USA.—JAGL).*

3. Evolution and Our Inner Conflict.

Are human beings inherently good, or inherently bad? "Each of us is inherently conflicted. Team player or whistle-blower? Charitable donation or personal certificates of deposit? Admitted traffic violation or denial?" (27) "We are all genetic chimeras, at once saints and sinners, champions of truth and hypocrites"—because of our evolutionary history (28). Source of the mystery: "The leading candidate is multilevel selection, by which hereditary social behavior improves the competitive ability not just of individuals within groups but among groups as a whole" 828). Genes promoting group behavior have been selected by natural selection, we tend to belong to groups and to assume group behavior. There is a development of group sociality starting from competing individuals; this results in a complex dynamics of competing altruism and selfishness: "a conflict ensued between individual-level seleection, with individuals competing with other individuals in the same group, on the one side, and group-level selection, with competition among groups, on the other" (33); "Within groups selfish individuals beat altruistic individuals, but groups of altruists beat groups of selfish individuals. Or, risking oversimplification, individual selection promoted sin, while group selection promoted virtue" (33). This dynamics characterizes the human mind, human nature and human sociality. An inherent conflict, which "might be the only way in the entire Universe that human-level intelligence and social organization can evolve." We should understand that this conflicting dynamics is the source of human creativity.

II. The Unity of Knowledge

"Although the two great branches of learning, science and the humanities, are radically different in the way they describe our species, they have risen from the same wellspring of creative thought." (35).

(Here we might usefully refer the reader to Wilson's concept of Consilience, *'the unity of knowledge' as expounded in extenso in his 1998 book. See also my paper on "Consilience and Retrospection", for some narratological*

considerations. —JAGL).

4. The New Enlightenment.

Disappointment with the Enlightenment led to Romantic subjectivism, and "For the next two centuries and to the present day, science and the humanities went their own ways" (39). "Yet the Enlightenment was never proved to be impossible. It was not dead. It was just stalled" (39). "Studying the relation between science and the humanities should be at the heart of liberal education everywhere, for students of science and the humanities alike" (40). There has been an excessive emphasis on specialization for academic success. But creativity is associated to poetic thought, analogies, metaphors, curiosity. Anthropocentricity sharpens social intelligence. "We are devoted to stories because that is how the mind works—a never-ending wandering through past scenarios and through alternative scenarios of the future" (43). Science specialises in the study and measurement of continua in every field, "The exploration of continua allows humanity to measure the dimensions of the real cosmos, from the infinite ranges of size, distance, and quantity, in which we and our little planet exist" (50). The insights of the humanities are limited to our human perception, and they must be placed within the context provided by science. And this understanding will give new insights to the humanities to express our existence in ways that further the Enlightenment.

5. The All-Importance of the Humanities.

From the point of view of aliens, the humanities would be our most specific and unique kind of knowledge (the rest is objective science). "They are the natural history of culture, and our most private and precious heritage" (57). Soon humans will have the power to control their own genome and future evolution. An unprecedented dilemma is created. "Now we are talking about a problem best solved within the humanities, and one more reason the humanities are all- important. While I´m at it, I hereby cast a vote for existential conservatism, the preservation of biological human

nature as a sacred trust" (60). *(A well-wishing but doubtless simplistic or overly optimistic view of the actual forms the biological self-design of humans is going to take, from health care through cosmetic surgery to the genetic design of offspring, or cyborg enhancements... all of it within a context of competing services for those who can afford them, and competing national legislations—JAGL).*

6. The Driving Force of Social Evolution.

Paradoxical effects of natural selection in cooperative behaviour. Selfishness benefits the individual but weakens the group and eventually the individual too. Altruism damages the individual but benefits the group. "The two levels of natural selection, individual and group, illustrated by these extremes, are in opposition. They will in time lead to either a balance of the opposing genes or an extinction of one of the two kinds altogether. Their action is summarized in this maxim: selfish members win within groups, but groups of altruists best groups of selfish members." For inclusive fitness, the individual (not the gene) is the unit of selection. But it is unrealistic. "The use of the individual or the group as the unit of heredity, rather than the gene, is an even more fundamental error" (64). Inclusive fitness has been the dominant model to explain advanced social behaviour (from J.B.S. Haldane and William D. Hamilton, in the form of kin selection). "Also in 1964, Hamilton took the kinship principle one step further by introducing the concept of inclusive fitness. (...) With inclusive fitness the unit of selection had passed subtly from the gene to the individual" (69). Wilson himself promoted the model, and "the eloquent science journalist Richard Dawkins" popularized it in *The Selfish Gene. (Now this is a naughty jab—calling Dawkins a 'science journalist'!)* By 2000,

> It was a common practice for writers of technical papers to acknowledge the truth of the theory, even if the content of the data to be presented were only distantly relevant to it. Academic careers had been built upon it by then, and international prizes awarded.
>
> Yet the theory of inclusive fitness was not just wrong, but fundamentally wrong. (70)

But through the system of peer review the militant advocates of kin selection and 'inclusive fitness' hindered publication of contrary evidence and opinions en leading journals (71). The theory was a house of cards, risking collapse. "Pulling

cards, however, was worth the price to reputation. There existed in the air the promise of a paradigm shift, a rare event in evolutionary biology" (72). Wilson, together with Martin Nowak and Corina Tarnita, discredited inclusive fitness in the cover article of *Nature* (2010). Dawkins "responded with the indignant fervor of a true believer" (73). *(My oh my.... Dawkins, our Official Atheist, as a 'true believer'. These are the culture wars of science, indeed! - JAGL).* But Dawkins could not refute the refutation. The argument is summarized in the appendix. The driving force of human sociality was different from that of social insects. "As brain size more than doubled, the bands used intelligence based on vastly improved memory. Where primitively social insects evolved division of labor with narrow instincts that play upon categories of social organization in each group, such as larvae and adults, nurses and foragers, the earliest humans operated with variable instinct-driven behavior that made use of detailed knowledge of each group member by all others" (75). "The origin of the human condition is best explained by the natural selection for social interaction (...). Social intelligence enhanced by group selection made *Homo sapiens* the first fully dominant species in Earth´s history" (75).

III. Other Worlds

"The meaning of human existence is best understood in perspective, by comparing our species with other conceivable life-forms and, by deduction, even those that might exist outside the Solar System."

7. Humanity lost in a pheromone world.

"The humanities treat the strange properties of human nature by taking them as ´just is´" (79). But science must identify the causes of this nature. Our species won "the grand lottery of evolution. The payout was civilization based on symbolic language, and culture, and from these a gargantuan power to extract the nonrenewable resources of the planet—while cheerfully exterminating our fellow species" (80). But our biological nature makes us perceive only a fraction of reality—our olfactory reality is very limited. Other species communicate mainly through pheromones, detected to an infinitesimal proportion. There are pheromone attacks in ants, chemical defenses in plants, etc. "In a nutshell, the evolutionary innovations that made us dominant over the rest of life also left us

sensory cripples. (....) We cannot talk in the language of pheromones, but it will be well to learn more about how other organisms do it, in order better to save them and with them the majority part of the environment on which we depend" (90-91).

8. The Superorganisms.

Colonies of ants are superorganisms, some more highly organized than others. We can learn a lot from studying them, but nothing applicable to human morality —these are a different kind of being. "The advanced superorganisms of ants, bees, wasps, and termites have achieved something resembling civilizations almost purely on the basis of instincts" (99). With complexity also comes fragility, because of their connection to many aspects of their environment. Human societies are not superorganisms, because the labor division is based on the transmission of culture, and human individuals are too selfish: "They will always revolt against slavery: they will not be treated like worker ants" (101). (*I would argue that many societies of hierarchical human predators have found the techniques to deal with that selfish and rebellious potential, and keep the faces under the boots. Now that Wilson is rightly warning us not to see human societies as so many anthills, one should not lose sight of the similarities either. —JAGL).*

9. Why Microbes Rule the Galaxy.

There is a potential for life within a narrow "Goldilocks" limit. But there is a great versatility of microbes in many ecosystems within that limit (e.g. SLIMEs (subterranean lithoautotrophic microbial ecosystems) under the earth surface). There are extremophiles too, candidates to having analogous life forms on Mars, Callisto, Europa, Titan or Ganymede. Finding extraterrestrial life would tell us about the degree to which Earth and humans are exceptional. "If, on the other hand, the code of extraterrestrials is basically the same as that of native Earth organisms, it could suggest (but not prove, not yet) that life everywhere can only originate with one code, the same as in Earth´s biological genesis" (108).

10. A portrait of E.T.

The extreme complexity and rarity of intelligence at the human level makes it far more unlikely than the simple existence of extraterrestrial life. "The final

evolutionary steps prior to the human-level singularity, that is, altruistic division of labor at a protected nest site, has occurred on only twenty known occasions in the history of life. Three of the lines that reached this final preliminary level are mammals, namely two species of African mole rats and *Homo sapiens*—the latter a strange offshoot of African apes." (111). So, "intelligent E.T.s are also likely to be both improbable and rare" (112).

But, guessing in an informed way: they would be land-dwellers, relatively large animals, biologically audiovisual, with a distinct, big head located up front, and with light to moderate jaws and teeth. They have a very high social intelligence and a small number of "free locomotory appendages, levered for maximum strength with stiff internal or external exoskeletons composed by hinged segments (...) and with at least one pair of which are terminated by digits with pulpy tips used for sensitive touch and grasping" (116). They are moral (as a result of natural selection at individual and especially group level). And they may have found ways to extend their memory or to change their biological makeup, but not drastically, just like we ourselves "will be existential conservatives" (118).

But there are likely no extraterrestrial colonizations; the aliens would have to destroy all native life in order to reconstruct a viable ecosystem for themselves. It is more feasible to avoid planetary destruction, given the advanced technology needed. "There live among us today space enthusiasts who believe humanity can emigrate to another planet after using up this one. They should heed what I believe is a universal principle, for us and for all E.T.s: there exists only one habitable planet, and hence only one chance at immortality for the species" (121-22). (*Immortality? Never forever. Let's rephrase, rein in Wilson's optimism, and settle AT BEST for extended life span as a species, which is the most we may be able to aspire to. And I don't mean "realistically" but "optimistically".—JAGL).*

11. The Collapse of Biodiversity.

Even as we discover more species, extinction goes on at an alarming rate as the result of our action—some call this the Anthropocene. Taxonomy and the investigation of biodiversity: an important activity. Identifying ´keystone´ species, those on which the life of an ecosystem depends. "The human impact on biodiversity, to put the matter as briefly as possible, is an attack on ourselves" (127).

A bad, bad HIPPO: Habitat loss, Invasive species, Pollution, Population growth, Overharvesting. Conservationism has real effects, but it is too limited. "The remainder of the century will be a bottleneck of growing human impact on the environment and diminishment of biodiversity" (131). We are responsible for this, we understand the problem, and we have moral values. "Might we now extend the same concern to the living world that gave us birth?" (132).

IV. Idols of the Mind

"Humanity´s intellectual frailties identified by Francis Bacon, in one of the principal achievements of the first Enlightenment, can now be redefined by scientific explanation."

12. Instinct.

The human mind originated as, and remains, "an instrument of survival that employs both reason and emotion" (135)—not an instrument of pure reason or emotional fulfillment. "The particular conglomerate of reason and emotion we call human nature was just one of many conceivable outcomes" (136). Our self-image is biased, as Bacon showed. E.g. extremes of human nature as entirely cultural and constructed, vs. extreme of genetic determination. "Both views, it turns out, are half wrong and half correct, at least in extremity. The paradox created, often described as the nature-versus-nurture controversy, can be solved by applying the modern concept of human instinct, as follows" (137). Instincts in humans exist, but they are flexible, "What is inherited is the likelihood of learning one or a few alternative behaviors out of many possible. The strongest among the biased behaviors are shared across all cultures, even when they seem irrational and there are plenty of opportunities to make other choices" (139). E.g. a bias toward phobia for snakes (as against the more dangerous automobiles). The intensity of biases is a product of evolution by natural selection. "For example, human beings are born gossips. We love the life stories of other people, and cannot be sated with too much such detail. Gossip is the means by which we learn and shape our social network. We devour novels and drama. But we have little or no interest in the life stories of animals—unless they are linked in some way to human stories" (142).

"What we call human nature is the whole of our emotions and the preparedness in learning over which those emotions preside. Some writers have tried to deconstruct human nature into nonexistence. But it is real, tangible, and a process that exissts in the structures of the brain. Decades of research have discovered that nature is not the genes that prescribe the emotions and learning preparedness. It is not the cultural universals, which are its ultimate product. Human nature is the ensemble of hereditary regularities in mental development that bias cultural evolution in one direction as opposed to others and thus connect genes to culture in the brain of every person." (143) E.g. we share a bias towards a kind of habitat (gardens, etc.)—we have some innate propensities.

*13. Religion. "*The brain was made for religion and religion for the human brain. In every second fof the believer´s conscious life religious belief plays multiple, mostly nurturing roles. All the followers are unified into a vastly extended family, a metaphorical band of brothers and sisters, reliable, obedient to one supreme law, and guaranteed immortality as the benefit of membership." (149). Priests have an important social role: "They sacralize the basic tenets of civil and moral law, comfort the afflicted, and take care of the desperately poor. Inspired by their example, followers strive to be righteous in the sight of man and Go. The churches over which they preside are centers of community life." (150) "The great religions are also, and tragically, sources of ceseless and unnecessary suffering. They are impediments to the grasp of reality needed to solve most social problems in the real world. Their exquisitely human flaw is tribalism." (150). There is a human need for membership in a group. Religious groups are defined by their creation story and by privileging their own members. "Faith is biologically understandable as a Darwinian device for survival and increased reproduction. It is forged by the success of the tribe, the tribe is united by it when competing with other tribes", —etc. (151-2). "For ages no tribe vould survive unless the meaning of its existence was defined by a creation story. The price of the loss of faith was a hemorrhage of commitment, a weakening and dissipation of common purpose." (152-3).

Religion fosters tribalism: "Faith is the one thing that makes otherwise good people do bad things" (154); "faith has hijacked religious spirituality" (155). Intellectual compromisers face Kierkegaard´s dilemma of the Absolute Paradox,

the intellectual inconsistency of a personal God. "As Carl Jung once said, some problems can never be solved, only outgrown. (...) The best way to live in this real world is to free ourselves of demons and tribal gods." (158).

14. Free will.

"I don´t believe it is too harsh to say that the history of philosophy when boiled down consists mostly of failed models of the brain" (161). Project of neuroscience (the Brain Activity Map) to connect all processes of thought to a physical base. It should be feasible to study the emergence and nature of consciousness in a scientific way, as it is the result of evolution. "The second point of entry into the realm of consciousness and free will is the identification of emergent phenomena—entities and processes that come into existence only with the joining of preexisting entities and processes. They will be found, if the results of current research are indicative, in the linkage and synchronized activity of various parts of both the sensory system and the brain." (165). The nervous system can be conceived as a superorganism, analogy with termites. Selective nature of human perception, we are aware of a small part of the space-time and energy fields in which we exist. Our perception allows us to see and know the events that matter for our survival. Another elemnto for our understanding of decision and consciousness is our current understanding of "the human necessity for confabulation. Our minds consist of storytelling." (167).

Stories can be seen as a means to organize and use information, applying past stories—"Then we look forward to create—not just to recall this time—multiple competing senarios. They are weighted against one another by the suppressing or intensifying effect imposed by aroused emotional centers. A choice is made in the unconscious centers of the brain, it turns out from recent studies, several seconds before the decision arrives in the conscious part." (167). (*Conscious awareness is then in part an emergent result of these competing scenarios, and a way to manage them through increased attention. An important issue here—Wilson proposes a narrative theory of consciousness, in which fiction and possible stories play an all-important role for decision-making and generate our impression of freedom—JAGL).* "Conscious mental life is built entirely from confabulation. It is a constant review of stories experienced in the past and competing stories invented for the future. By necessity most conform to the present real world as best it can be processe by our rather paltry senes. Memories of past episodes are repeated for pleasure, for reharsal, for planning,

or for various combinations of the three. Some of the memories are altered into abstractions and metaphors, the higher generic units that increase the speed and effectiveness of the conscious process. // Most conscious activity contains elements of social interactions. We are fascinated by the histories and emotional responses of others. We play games, both imaginary and real, based on the reading of intention and probable response" (168). (*And all this might be related to our account of the symbolic-interactional theatre of interiority—JAGL).*

"The self cannot exist as a paranormal being living on its own within the brain. It is instead the central dramatic character of the confabulated scenarios. In these stories it is always on center stage, if not as participant then as observer and commentator, because that is where all of the sensory information arrives and is integrated. The stories that compose the conscious mind cannot be taken away from the mind´s physical neurobiological system, which serves as script writer, director, and cast combined. The self, despite the illusion of its independence created in the scenarios, is part of the anatomy and physiology of the body" (169). That does not mean it can be fully analyzed or reconstructed; so we can believe in the illusion of free will. "And that is a very fortunate Darwinian circumstance. Confidence in free will is biologically adaptive. Without it the conscious mind, at best a fragile dark window on the real world, would be cursed by fatalism." So, free will exists "if not in ultimate reality then at least in the operational sense necessary for sanity and thereby for the perpetuation of the species." (170).

V. A Human Future.

"In the technoscientific age, freedom has acquired a new meaning. Like an adult emerging from childhood, we have a vastly wider range of choices but also a comparably larger number of risks and responsibilities."

15. Alone and Free in the Universe.

"What does the story of our species tell us? By this I mean the narrative made visible by sicnece, not the archaic version soaked in religion and ideology. I believe the evidence is massive enough and clear enough to tell us this much. We were created not by a supernatural intelligence but by chance and necessity as one species out of millioins of species in Earth´s biosphere. Hope and wish for otherwise as we will, there is no evidence of an external grace shining down

upon us, no demonstrable destiny or purpose assigned us, no second life vouchsafed us for the end of the present one. We are, it seems, completely alone. And that in my opinion is a very good thing. It menas we are completely free. As a result we can more easiy diagnose the etiology of the irrational beliefs that so unjustifiably divide us. Laid before us are new options scarcely dreamed of in other ages. They empower s to address with more confidence the greatest goal of all time, the unity of the human race.

The prerequisite for attaining the goal is an accurate self-understanding. So, what is the meaning of the human existence? I´ve suggested that it is the epic of the species, begun in biological evolution and prehistory, passed into recorded history, and urgently now, day by day, faster and faster into the indefinite future, it is also what we will choose to become" (174). "The self-contained worldview of the humanities described *the human condition*—but not why it is the one thing and not another. The scientific worldview is vastly larger. It encompasses the meaning of *human existence*—the general principles of the human condition, where the species fits in the Universe, and why it exists in the first place" (174).

Can we accomplish the goal of achieving a harmonious, paradisal existence in our biosphere environment? "We can plausibly accomplish that goal, at least be well on the way, by the end of the present century. The problem holding everything up thus far is that *Homo sapiens* is an innately dysfunctional species" (176)—hampered by the Paleolithic Curse. "And it is still taboo to bring up population policies aiming for an optimum people density, geographic distribution, and age distribution. The idea sounds ´fascist´, and in any case can be deferred for another generation or two—we hop" (177). "Scientists who might contribute to a more realistic worldview are especially disappointing. Largely yeomen, they are intellectual dwarves content to stay within the narrow specialties for which they were trained and are paid" (178).

There is a dysfunctional element in the human makeup: "Selfish activity within the group provides competitive advantage but is commonly destructive to the group as a whole. Working in the opposite direction from individual-level selection is group selection—group versus group. When an individual is cooperative and altruistic, this reduces his advantage in competition to a comparable degree with other members but increases the survival and reproduction rate of the group as a whole. In a nutshell, individual selection favors what we call sin and group selection favors virtue. The result is the internal conflict of conscience that afflicts all but psychopaths" (179).

"The products of the opposing two vectors in natural selection are hardwired in our emotions and reasoning, and cannot be erased. Internal conflict is not a personal irregularity but a timeless human quality. No such conflict exists or can exist in an eagle, fox, or spider, for example, whose traits were born solely of individual selection, or a worker ant, whose social traits were shaped entirely by group selection" (179). There is a resulting instability of the human mind: "They created a mind that is continuously and kaleidoscopically shifting in mood—variously proud, aggressive, competitive, angry, vengeful, venal, treacherous, curious, adventurous, tribal, brave, humble, patriotic, empathetic, and loving. All normal humans are noble and ignoble, often in close alternation, sometimes simultaneously" (180). "We must learn to behave, but let us never even think of domesticating human nature" (180).

Destructive traits of social life can be seen as parasites of the mind: they must be kept within tolerable bounds. E.g. tribal religions should be subject to historical and critical scrutiny; Wilson calls disingenuously for debates among leaders to defend their supernatural beliefs in a rational way. (*But surely the point of having churches at all is to avoid such rational debate! —JAGL).* "It would be far from irrational in today´s better-informed wolrd to reverse the practice and charge with blasphemy any religious or political leader who claims to speak with or on behalf of God"; ""It might eventually be possible to hold seminars on the historical Jesus in evangelical churches, and even to publish images of Muhammad without risking death" (182). Wilson advocates a rational scrutiny on beliefs, politics, evolution, etc. He opposes the social prestige of faith: "Faith is the evidence given of a person´s submission to a particular god, ane even then not to the deity directly but to other humans who claim to represent the god" (184). The cost of religious enmity to evolutionism: "Evolution is a fundamental process of the Universe, not just in living organisms but everywhere, at every level. Its analysis is vital to biology, including medicine, microbiology, and agronomy. Furthermore, psychology, anthropology, and even the history of religion itself make no sense without evolution" (184)—vs. Creationists. The force behind blind faith is evolution: "The welfare of the group and defense of its territory is biological, not supernatural in origin" (185). Another misconception: "the belief that the two great branches of learning—science and the humanities—are intellectually independent of each other. And more, the farther apart they are kept, the better" (185). Scientific knowledge will become unified, but the humanities will continue to grow and diversify. (*Actually*

both will grow and diversify and also be unified; consilience also takes place within the humanities, as Wilson well knows—JAGL). "Although the details of the creative arts are potentially infinite, the archetypes and instinct they are designed to exemplify are in reality very few" (186). "Science and the humanities, it is true, are fundamentally different from each other in what they say and do. But they are complementary to each other in origin, and they arise from the same creative processes in the human brain. If the heuristic and analytic power of science can be joined with the introspective creativity of the humanities, human existence will rise to an infinitely more productive and interesting meaning" (187).

(Yes, but... perhaps this enlightened view of mankind is not for everyone. "Where ignorance is bliss, ´tis folly to be wise." And most people make do with simpler, more simplistic and proactive, shorthand accounts of human existence and purposes. That´s also what religion is for, in part. And just as there are individuals who choose to believe blindly, no matter the contrary evidence, there will be whole groups, nations and civilizations, which will choose, to the end, to hold on to their belief as identity glue. And who will use that as a lever in group competition, a competition which will favour, if we have to believe Wilson, the groups made up of altruists driven by collective ideals, not groups of individualists. The Enlightenment had better become a collective ideal, soon.—JAGL).

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Appendix:

An argument for the limitations of inclusive fitness, summarizing "Limitations of Inclusive Fitness" by Wilson et al, in *PNAS* 110.50 (2013)—a mathematical argument.

"It is immediately obvious that the additivity assumption which is essential for the concept of inclusive fitness need not hold in general. (...) It is clear that in general fitness effefts cannot be assumed to be additive" (192-3). Many biologists signed a manifesto in opposition to this, holding that "inclusive fitness is as general as the genetical theory of natural selection itself."But this assumption "rests on an alternative approach, which deals with the additivity

problem in retrospect. In this approach, the outcome of natural selection must already be known or specified at the outset, and the objective is to find additive costs and benefits that would have yielded this outcome—regardless of whether they correspond to actual biological interactions" (194). *(As I see it, Wilson is accusing the inclusive fitness theory of resting on hindsight bias, the cognitive fallacy consisting in articulating prophecies after the facts are known).* But the *"Regression Method Does Not Yield Predictions".* "We now evaluate the various claims made regarding the regression method, starting with the claim that it predicts the direction of selection. This claim cannot be true, because the allele frequency change over the considered time interval is specified at the outset. The ´prediction´ merely recapitulates what is already known, such that the sign of *BR-C* [*Benefit . Regression - Cost*] agrees with the predetermined outcome" (195)—*(So, a case of "foregone conclusions" in the method—JAGL).* The *"Regression Method Does Not Yield Causal Explanations"* (196). Hanger-on traits, supposedly leading individuals to interact with individual of high fitness, cannot be understood as "cooperative" traits, "However, of course, this gets causality backward—the high fitness causes the interaction, not the other way around" (197). Without additional assumptions, the regression methods explains nothing, in the scientific sense. *"There Is No Universal Design Principle"* (199). "Because experiments have shown that finess effects in real biological populations are nonadditive, these results cannot be expected to hold in general" (200). Models which are explanatory must take into account special assumptions and make them explicit. "Having realized the limitations of inclusive fitness, sociobiology now has the possibility to move forward. We encourage the develoopment of realistic models grounded in a firm unserstanding of natural history. With the aid of population genetics, evolutionary game theory, and new analytic procedures to be developed, a strong and resilient sociobiological theory can emerge" (202).

JAGL: Richard Dawkins replies to E. O. Wilson (without naming him) in "This is my vision of ´Life´". But he does not address the mathematical argument, nor the accusations of hindsight bias.

[Spiritual dilemma]

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