

Rethinking Darwin: A Vision for the 21st Century

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The word revolution has been over-worked. There is fairly general agreement, however, that with *The Origin of Species* Darwin seeded the 19th century's major revolution in science. But his impact went far beyond this. Because of science's increasing impact on the shaping of our minds - which in turn shape everything we feel or do - *Origin* also seeded a major revolution in society.

If we now consider what we have uncovered in the lost world of the private notebooks and *The Descent of Man*, it is evident that here are the seeds of revolution for the 21st century.

It is not that this revolution is new with the recovery of the "new" Darwin. All of it is already underway - every last positive and hopeful thing he thought and felt and wrote about not only the origin but also the future course and possible destination of our species has been said again, and spawned hope and action throughout the 20th century. But again and again throughout science, society, and within the intimacy of every aspect of our lives, this vision -which actually has been the central vision of humanity over thousands of years - has been blunted and blocked by the ageold difficulty for our species of shedding the shells of old paradigms for the new.

The problem is compounded for us today by the fact that, contrary to what many of us think, the revolution of *Origin* is not behind us and only the other now lies ahead. Worldwide we are caught in the maelstrom of *both* Darwinian revolutions simultaneously.

Within the more educated and modernized segment of humanity - that is, those of us in countries and socioeconomic classes wealthy enough to provide us with schools and computers and the like - rapidly increasing numbers of us are not only ready for, but everywhere strain to move on

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through the second Darwinian revolution, which this book articulates. A survey by sociologist Paul Ray becoming widely known, for example, identifies those of us who feel this way as being actually not some tiny minority, but *one out of every four Americans*. This is Ray's projection for the segment of the American population he identifies as "the Cultural Creatives." Working in Europe, he finds a similar configuration. But as this is the only direction into the future that makes any sense, I believe those ready for the second Darwinian revolution may also include a large number of those identified by Ray as "the Modernists," as well as what might even be found to be a surprising number of those among Ray's "Traditionalists," or "Heartlanders."¹

But the greater part of our species - still globally locked into ignorance, poverty, and lacking freedom and equality in both the less developed world, as with the Islamic Taliban, and in the so-called developed world, as with the Christian Creationists - has yet to work through the first Darwinian revolution's liberation of mind and aspiration.

Moreover, everywhere the electronic juxtaposing of the two Darwinian revolutions further unsettles our species. Via television, I can see the starving peasant with a child in rags in the village, for example. Through my resonance to the higher call and caring of the second revolution, I can feel the guilt and frustration of one whose privileged position was gained by the first Darwinian liberation. Via the same medium the starving peasant sees someone like me in a sumptuous living room filled with well-fed children. And is it so surprising that he or she is overwhelmed with rage because the liberation of her or his world is yet to come?²

What can the "new" Darwin offer us at this difficult and painful juncture? Many things, I believe, but these two above all.

He can, first, in the grandeur and hope of this lost theory, offer us a grounding for science and society in a completion for the humanistic theory of evolution and the humanistic story of evolution in which each of us is again meaningful, with an active part to play in building the destiny for our species.

Secondly, he offers us a vision of ourselves and our future grounded in the truths rather than the fictions of morality.

The "Old" Theory and the "New" Theory

A first essential point is that the "old" theory is not "bad." This may seem overly simplistic, but unfortunately at this stage of our own evolution,

advance in either science or society seems to usually require the kind of fierce fighting among ourselves that forces us into thinking that either this or that is true. It is often the case, however - as here - that both perspectives are "true." The difficulties rise from ignoring differences of scale, or level, or mistaking a part for the whole.³

Scientifically, the general feeling is that the theory of *Origin* is not fundamentally in error. It is in error in details and emphasis and scope, as Darwin tried to tell us himself only to be ignored, as all theories are as a matter itself of evolutionary progression. Technically speaking, we can never know the whole truth about anything. We can only more closely approximate the truth step by step over time. But for this stage of the evolution of the knowledge of our evolving, within their proper limits, the theory of *Origin* is not in error as far as the ideas of natural selection and random variation that Darwin helped establish are concerned.

As again and again the story of Darwin's lost theory makes evident, the problem is mainly with what the ruling economic, political, religious, and educational forces for society do with science. The problem is paradigmatic hang-up - or the consequences of belief solely in the theory of *Origin* and its biological elaboration as the be-all and end-all of wisdom regarding evolution. The critical difference all too often blurred in the minds of most of us, scientist and non-scientist alike, is between the fiercely "truncated" Darwinian first half and an alternative that - as it has been so hard to get in focus - has been unable to dislodge the "old" Darwin from either the textbooks or the minds of most of us.

It is the difference between, for example, the neat, tight, clockwork theories in biology of E.O.Wilson, Robert Trivers, W.D.Hamilton, and Richard Dawkins, and the more loose and shaggy theories of Stuart Kauffman, Richard Lewontin, Brian Goodwin, Vilmos Csanyi, Stanley Salthe, Mae-Wan Ho, Lynn Margulis, Humberto Maturana and Francisco Varela that provide the vital biological first step into the larger social and systems scientific territory we have only barely begun to enter in this book.⁴

Though the theories of first half or *Origin* Darwinism vary in detail, what they tend to share is a view of evolution as a great machine whereby all life - human as well as prehuman - is shaped in only the two basic ways. We are constructed either by forces that are largely external to us and blind to our will or wishes - specifically the ruthless and inexorable force of Natural Selection and Random Variation - or by the conflict, bloody or otherwise, of organism competitively pitted against organism in an eternal struggle for Survival of the Fittest.⁵

Up to a certain point, this is true, the Darwin of the "lost theory" tells us in *Descent*. But what he repeatedly stresses is that this is not the whole truth and nothing but the truth. It is only half of the truth. Moreover, it is only half of that half! For out of the seed already planted and anticipated in the Darwin of *Descent*, his successors as we move into the 21st century are revealing the counterpart power of cooperation, the "biology of love," and all else - for example, the drive of dialectical and self-organizing processes - contained within Darwin's invisible rediscovery of "organic choice."

In other words, we have been told that the Darwinian theory of *Origin* tells us that we are inherently, predominantly, and indeed overwhelmingly selfish and aggressive. But the theory that emerges in *Descent* tells us that both over the short term and the long term we can be - and generally are - more powerfully driven by concern for the regard of others and by love.

The old theory tells us that we are driven mainly by the need to perpetuate our own genes or the genes of our closest kin. The new theory tells us that we are also driven by much else including the need to transcend ourselves in a resonance to the whole of humanity and to the whole of life.

The old theory tells us that we are alone in the universe. The new theory tells us, in the phrase picked up in simultaneous book titles by both biologist Stuart Kauffman and physicist John Wheeler, that we are "at home in the universe" - that we are linked to one another and to the universe by something that is just "out there," whether we call it spirituality, God, the cosmic connection, or the quantum vacuum.⁶

The old theory tells us that our destiny is whatever chance and forces larger than ourselves select for us. The new theory tells us something immeasurably more difficult to understand, but immeasurably hopeful once we do understand it. It is that - although we are massively constrained by all that really is larger and more powerful than ourselves - we are also driven by self-organizing and self-regulating processes that open up within the constraints a surprisingly large leeway, or "window of opportunity." Given then our capacity for the *will* to shape it, the choice of destiny to a vital degree is ours.

The old theory tells us there is nothing inherent within us to help us tell good from bad or right from wrong - that throughout our lives from birth to death "moral sense" must always be hammered into us by self-appointed authorities who know better. The new theory tells us that moral sensitivity has been embedded within us over at least one billion

years. It tells us that, by providing an inner voice of basic guidance, it has escalated upward level by evolutionary level to reach the culmination of choice within ourselves.

The old theory encourages us to just sit back and enjoy the medium, for supposedly the message is settled. Having been scientifically worked out and certified by people much smarter than we are, who are we to question what we have been and will again and again be told? Oh sure, the message may not be what we want to hear, but the old theory affirms that this is the grim reality we must each - as best we can - *adapt* to.

The new theory tells us that the message is open-ended and eternal, stretching out of the dim past into the mists of the future for our species. It tells us that we have a voice in the shaping of the message - but that this message needs a great deal more nurturance, and understanding, and the assignment of much more of the power of the media to its spreading. Above all, it tells us that we are not just what we more or less dutifully adapt to. Much more importantly, *we are what we refuse to adapt to*.

The old theory tells us with scientific precision why we are driven by what used to be called our vices. The new theory scientifically accounts for, and offers hope and encouragement for, expansion of the kind of values that used to be called our *virtues*.

For example, Darwin's lost theory, as expanded by a powerful component for the science of the 21st century, accounts for and offers hope and encouragement for our gaining more of such virtues as the *courage* of a Gandhi, the *compassion* of an Eleanor Roosevelt, the *perseverance* and *self-discipline* of a Helen Keller or a Stephen Hawking in the face of inconceivably debilitating handicaps.

It celebrates the *cheerfulness* and *friendliness* that lighten the life of others, which distinguished Franklin Roosevelt, Will Rogers, Darwin himself, or the Dalai Lama today. It further explains the *helpfulness* that psychiatrist Robert Coles points to in Dorothy Day's leadership of the Catholic Workers Union, or the all-too-often unappreciated *responsibility* that countless political leaders take on in giving of themselves to look after the rights, livelihoods, and betterment of others throughout the world.

These "virtues" are not just "nice" things for embroidery on Victorian walls or the Boy Scout or Girl Scout Manual. As I will probe in depth in *Darwin for the 21st Century*, in terms of what seems to be their evolutionary function, all the virtues I identify within these paragraphs are among those either experientially defined by Darwin in the development of the theory of *Descent*, or empirically defined by psychologists Milton Rokeach, Abraham Maslow, and Darwin's other modern successors in psychology.⁷

Most of all, the theory of *Descent* accounts for the majesty of mind - for the virtues of the *intellect*, of *logic*, of *imagination*, of being "*broadminded*" and of *wisdom* embodied in an Einstein, Freud, Marx, in Darwin himself, in the legendary Hypatia, or a Marie Curie, or a Maria Montessori.

The theory of *Descent* also begins to account for the *love of beauty* of a Mozart, Chagall, Schubert, the *passion* of a Van Gogh, or how Isadora Duncan could throw herself into dance or Sarah Bernhardt into drama.⁸

It certainly accounts for the virtue of *self-transcendence* that Darwin writes of in the human rescuers of others from fires and from drowning. It is also clearly what he has in mind in what I identify as the third level for his theory of the moral agent. It is this virtue of self-transcendence he also sees emerging among prehumans: the rabbits who stamp their feet, the sheep that whistle, and the monkeys that cry out to warn others.⁹

In short, what Darwin gives us is what everybody who hungers for intelligence, decency, stability and hope in our world today is seeking. In this second half for his thinking about evolution, he gives us the most extensively grounded and carefully reasoned vision of the wonder of what is within all of life - including, most of all, what is within ourselves, as well as where this force can take us.

He gives us this vision of a completed theory of evolution, where out of the truncated first part - in which the educated mind of the 20th century was decade after decade embedded - rises the thrust of what used to be called heart and soul as well as mind into the vast hopeful expansion of a second stage or level for our evolution and our understanding of evolution.

He gives us the challenge for 21st century science that I will further pursue in the sequel that all that has been uncovered here calls for. In other words, here we can go just so far, and then one needs to stop for a breather. We will pick up again from where I must leave off here in *Darwin for the 21st Century*.

In terms of the scientists and science I could only barely touch on here, we will look at prospects for a reconciliation of natural science and social science in joining the parts together to build the *completed* theory of evolution we so urgently need. There, too, we will examine the prospect that Darwin's agonizing over the relationship between science and religion raises - of the possibility for their reconciliation, or more generally speaking, of the prospects for a new working partnership of science with spirituality on the behalf of a better future for all of us.

The Centrality of Darwin's Moral Vision

On the subject of evolution and much else, our minds have been not only fixed but indeed at times ferociously hammered in place for over a century, so it is hard to change them. Thus, to many of us it may still seem impossible that someone who died in 1882 could have much to say of relevance to the problems and prospects for the science and society of the 21st century.

Could Darwin really have anticipated the Butterfly Effect of chaos theory? Come now, let's be realistic here. Or could he really have rediscovered "organic choice" by tapping into the islands of self-organizing processes that lie at the heart of what is today called complexity theory? Or could he have foreseen the need for and dimensioning of what we know today as humanistic psychology, the human potentials movement, or the resurgence of interest in the power of love?

As I have explored elsewhere, the capacity for rising above one's own age to look far forward as well as backward into time is the hallmark of a particular kind of genius.¹⁰ But I am also convinced that the reason why Darwin's capacity for scientific prophecy is so striking is, most of all, a matter of moral positioning.

It may be hard for the stereotypically anti-religious and hard-headed scientific mindset to accept, but Darwin could speak to the ages beyond him for the same reason that Jesus and Buddha and other great religious figures spoke to the future as well as to their own time. Moral vision seems to be a matter of anchoring oneself in a perception of - in Darwin's terms - the dynamics of the moral sense. What could this mean? It is the idea that to some degree Darwin was able to foreshadow the future through his perception of, or feeling for, what the evolutionary thrust of moral sensitivity will favor as well as what works against it, and where this is likely to lead us over time. In this sense, looking out upon the world, it is a matter of standing on rock, instead of sand, in the midst of the whirlwind of time.

In other words, in this book we have seen how Darwin's central driving interest in the origin and evolution of the moral sense drove him to consider everything else that goes into the building of the human mind. Most importantly and meaningfully, we have seen how he was driven to integrally relate to the moral sense - as providing both the core drive and structure for mind - everything else that is involved in the development of our minds. Go the next step then, and we see that beyond ourselves he is writing of the moral impact of the evolving mind of humanity as a whole

upon the shaping of ourselves, and upon all else that constitutes the human world.

Alas, that this should be so difficult for us to see this! But having for so long lost the language or the social encouragement to know ourselves and the meaning of life in this way, it is asking for mind to step out into the unknown. But we must try, for the future hangs on the effort.

However ignored, however discounted, however misperceived, distorted and degraded - or laughed at and dismissed as merely quaint and outdated - in Darwin's vision the moral sense remains in the background shaping our personal, social, economic, political, educational, and religious world. That is, it is the hidden driver of our cultural world, as well as emergent out of the wider environmental world affecting all other species along with ourselves.

Thus, his interest in what constitutes intelligence, creativity, love, et cetera - and how habit and language work to cement together and generation after generation advance all of this - emerges from an evolutionary perspective in which all else that constitutes our mind is shaped by moral sensitivity as the central integrating force in whole systems terms.

This is to say that everything else, like players on a stage, can seize the foreground. But the stage itself was constructed over time at two levels. And it is the higher level of this stage, emergent out of but built upon and now transcending the lower level, that shapes the course of evolution for our species. It is to say that all else is dependent on, or constrained by moral sensitivity - if only to provide the systems requirement that as we journey into the future, seeking to achieve our potential and again and again failing, we make up moralistic cover stories, or moralistic excuses, for all that the ancient voice from within ourselves tells us is possibly wrong or immoral.

"The moral faculties are generally and justly esteemed as of higher value than the intellectual powers," Darwin has told us in expressing his conviction of the centrality of the moral vision to the functioning of true intelligence - as opposed to what we so often seem to be drowning in through the often empty overload of our highly touted Information Age.

Defining the Good and the Bad

Given this beginning for the upward flowering of moral sensitivity over the ages according to Darwin, how might we then we define the good and the bad for the 21st century?

An increasingly critical problem that Darwin can help with is defining what good is *not*. It is clear, for example, that it is *not* the use of "morality" by rightist and authoritarian religious and political interests as a club with which to try to beat - and even at the extreme kill - all who might in any way disagree with them.

Large buildings, even hundreds of people, are being blown up; people trying to check a potentially disastrous population explosion globally and save rape victims are being machine gunned; being poor is being re-labeled evil; our right to bear assault rifles is being defended as a holy cause; whole villages are being slaughtered down to the last woman and child; and, via the booming persuasion of the media in all its forms, political character assassination and actual assassination is becoming an advanced art - all in the name of Jesus, Allah, or some other supposedly unquestionable source of "moral" law.

This is *moralism*, not morality. And how may the difference be defined? If we examine closely both what Darwin in his own time and we in ours find appalling, we see that *moralism* can be defined as a false, fake, or hypocritically self-promotional "morality," generally designed to put down, intimidate, or terrorize rather than be helpful to others. But what then is morality?¹¹

As we have seen, building on the earlier groundwork of Hume, Adam Smith, and the Darwin family friend and in-law Sir James Mackintosh, Darwin's central concept of the *moral sense* is what today would be called *moral sensitivity*. As he makes evident in the warm wonder and all the ins and outs of his tales of goodness at work in the so-called animal world, but also more abstractly at our level, this is the ability to empathize, to feel sympathy for, to care for, to resonate to, to want to nurture, or heal, or help - in short, to be *morally sensitive* to others. But what his exploration makes clear is that he is writing about considerably more than moral sensitivity.

If we are morally sensitive to another we may resonate to their needs or plight with mind and heart - or cognition and affection. This, however, doesn't necessarily mean we are going to get up from our easy chair with book or watching television to do anything to help them. This depends on courage and all the other components of what we call the *will*, or in psychological terms, conation.

Throughout Darwin's explanation of how the moral sense developed and operates in both animals and humans, we can see that what holds everything together - advancing the individual over its lifetime and the species over aeons - is this more active involvement in the fate of one another. It is the drive of *moral agency*.¹²

An agent *acts on the behalf of another*. Moral agency is then the force of action on the behalf of moral sensitivity and of another. A *moral agent* is then the person who acts in such a way.

This is why Darwin's is actually a theory of moral agency rather than of the moral sense, which carries only the more passive meaning that the old philosophical term conveys.

And what is *moral intelligence*? Out of the grand sweep of the second and third levels for his theory of the moral agent, the evolutionary picture Darwin provides is of the drive of moral *sensitivity*. Through inspiration and education, this drive is given the edge of moral *agency*. Then comes what builds true wisdom for our species. For out of the thrust of moral agency comes the *learning experience* that builds within us the core to higher mind of *moral intelligence*.

And what is *morality*? It is the codes, the programming, the human software of whatever evolutionarily prevails at any point or place in time. It is the huge inbuilt user's manual that provides the guidelines for human-to-human and human-to-prehuman behavior.

It is everything that, based on the experience of the past, we have collectively agreed to be ruled by. It is the norms, the rules, the customs, the laws, the commandments whereby out of the power of caring, the power of reflection, the power of language, and the power of habit, we establish social expectancies for moral sensitivity, moral intelligence, and moral agency.

Ethics is then all the sub-booklets in mind, the sub-routines or more finely-tuned differentiations, of how these codes are to be applied in specific situations.

The "moral sense" for Darwin and more broadly considered is all this. *But still it is more*. Yearning for comfort and reassurance, sensing a transcendent reality and source of meaning, for the sake of a word that might bring this concept to earth, for thousands of years most of us have called this "more" God, or earlier and again increasing in our time, Goddess.

For many of us - including at least four of the greatest Asian spiritual visionaries, Gautama, Lao Tsu, Confucius, and Mencius, as well as Darwin historically - this has posed difficulties.¹³ However this may be, more important than what now or in the future this Greater Force may be called, it is something that is more surely *felt* than named, and seems to me undeniable - and here, too, a groping in this direction can be detected in Darwin.¹⁴

Out of something that is timeless and larger than ourselves, embracing the future as well as the present and the past, there works within us something else that additional to our experience of the past also seems to speak to us in the shaping of all moral codes. It is simply there. Out of the evolution of the cosmic mystery that is both within ourselves and that surrounds us, unknowable by that part of our self we think of as our mind, yet at times most surely felt within all our being, there seems to be this voice that quietly but persistently urges everything emergent on this earth, including ourselves, to be the best that is in us.

Let It Be

In the end, then, beyond improving things within this person we see in the mirror and are to live with throughout our lives - or improvement within our own families, towns, cities, nation, the world as it today - where does consideration of all this take us?

Though Darwin seems to have glimpsed other vistas ahead in time, the over-riding question before our species today is one he could in no way have foreseen. Who 100 years ago could have predicted what has happened in so short a span of time to our species?

Emerging four billion years ago out of a sequence of nebular explosion and then cellular eruption, eventually a small reptile becomes a form of ape, becomes Neanderthal then modern homo sapiens sapiens. The first digging tool or sewing needle becomes a wheel, and in succession thereafter, a stirrup for the horse, a boat, a bridge, a whole city, a whole nation, a train, a car, an airplane, movies, radio, television, computers and the wondrous new worldwide web linking of mind to mind. So we survive and miraculously grow in capacity and ingenuity for over 100,000 years. But who could have guessed that within the eyeblink of a single century our species would reach the brink of self-extinction?

Living before the devastation of two world wars, nuclear bombs, population explosion, the hole in the ozone layer, global warming, the rise of the new terrorism, and so on and on, Darwin could look with equanimity and confidence to a long future for our species. We, however, are forced to ask ourselves what does the 21st century - as the all-too-short span of time that can make or break us - hold for us, and for our children and grandchildren?

Of the things that are said of us at this junction perhaps the most frightening is not that we lack the capacity to save ourselves, but that

increasing numbers of us lack the vision of why this is even important any more - that is, of who we really are, who we can become, and where to go from here.

And yet, out of its hiding during the rise of a century of inhumanity, there is this vision that the re-emergent Darwin now provides us. In an age awash in either a mindless consumerism or the agony of deprivation, this lost top half to his theory shows us not only what is hopeful but also what is of the highest and what is of less and least priority.

If he were alive today, what would Darwin himself say was most hopeful about us? I think that he might just point to the courage and the heroism that he found in the animals, which he writes of in chapters six and seven of this book.

"If it can be found here with such consistency and frequency," he might say, "why not more consistently among ourselves? Can't we see past the doubts, fears, and distrust of one another that are now entrenched in the worst of both religious and scientific dogmas, which have been robbing us of our rightful future? Can't we believe in and work to strengthen what is so much more widely prevalent among ourselves?"

The media focus on the killing, the murders, rapes, the frauds and scandals now considered the big news of our time. But isn't the greater news that the vast majority of people who worldwide at present make up our species are *not* on any one day making the news in this way? Isn't the big news instead that, on any one day, they are going about the business of life with courage, kindness, and confidence?

If we stop to think about it, we see this all about us every day. The woman at the counter in the drug store leaves off chatting with the customer ahead of us, obviously an old friend, and in turning to us has the same smile for us, the stranger. The boy along the railroad track waves for no reason other than to establish recognition, being to being. Working ourselves at a counter, we know we can always depend on a certain old man for a joke. Or suddenly out of nowhere there appears on the computer screen the email lines from an old friend, long forgotten, who has just rediscovered us, or our work or our company, on the web.

And there are the gatherings - the masses of us who knowing nothing of each other except our humanity in common gather to celebrate the unusual accomplishment of some member of our species, or to protest injustice, or to mount social and political action.

And more and more, there is the global sharing of these moments of both a higher reality and a higher destiny that the media provides in the

interstices between the twisted fictions as well as the grim realities of the other side. Indeed, isn't what Darwin has both shown us and foreshadows the progressive globalization of *moral* mind?

It has been said we are entering the age of global mind, with the point to point hook-up of electronic linkings acting as a global brain.¹⁵ But is this to be the globalization of the lower levels and kinds of mind that Darwin tried to free us from - but that in subtle turnabout seized and buried him? Or is it to be the globalization of the moral mind the awakened Darwin reveals?

There are these moments of a global sharing, of a neighborhood intimacy across thousands of miles that we may now experience through the new electronic liberation. And isn't *this* the shape of our future - if those who ferociously cling to the past, who are so determined to undermine and delude and fight us every step of the way, will just step aside and let us go there?

Isn't this larger and warmer and more comfortable vision of the future for our species ours - if they will just let it be? Or rather if those of us who believe in the vision will work, and if need be, *fight* for it - and if those who don't believe in it, but could believe in it if it were already here, will just let it be?

While our formally classical composers mainly focused on the zeitgeist of fragmentation and alienation during the 20th century, we can see now how in sharp contrast an unlikely group of rock musicians from Liverpool focused on the themes of longing, love, and renewal foretold by the lost Darwin.

As the Beatles sang, and as our hearts have called out to the best in ourselves and in others over the ages - but now more than ever before, with the fierce new longing for the vision born of the fear that it may be denied us:

Let it be. Let it be. Let it be.

Notes

1. See Paul Ray, What Might Be the Next Stage in Cultural Evolution? In Loye, *The Evolutionary Outrider*. His basic report, funded by and available from the Institute for Noetic Sciences and the Fetzer Institute, is "The Integral Culture Survey: A Study of the Emergence of Transformational Values in America."
2. For the most devastating picture of the situation of the bypassed and denied peoples of our world that I know of, see Thom Hartmann, *The Prophet's Way and The Last Hours of Ancient Sunlight*.

3. See Salthe, *Development and Evolution*, re differences of level and scale. The inadequacy of first half Darwinism is really horribly simple to see, or rather that the horror is in how for so long most of us could fail to see the simple fact of its inadequacy even in terms of the most basic of considerations of methodology for science. Not, for goodness sake, as a matter of blaming, but to help us rapidly get the past behind us and move on together, I will develop this thought in terms of sampling, set, and systems perspectives and methodologies in *Darwin for the 21st Century*.
4. See Introduction and references for specific works.
5. The reader who feels this may be an exaggeration is invited to consider this definition by one of the chief architects of *Origin* level Darwinian theory, Julian Huxley. Here Julian Huxley is contrasting the operation of natural selection with his proposal for the counterpart operation of *psychosocial selection* on the human level. "Though natural selection is an ordering principle, it operates blindly," Huxley observed. It "pushes life onwards from behind." It "brings about improvement automatically, without conscious purpose or any awareness of an aim." Psychosocial selection also "acts as an ordering principle. But it pulls [us] onwards from in front. For it always involves some awareness of an aim, some element of true purpose." In *psychosocial evolution* "the selective mechanism itself evolves as well as its products. It is a goal-selecting mechanism, and the goals that it selects will change with the picture of the world and of human nature provided by [our] increasing knowledge." (*Huxley, Essays of a Humanist*, p.34). Many "first halfers" do concede the operation of other mechanisms besides natural selection and random variation - but this is incidental to the basic operation as stated here and by Huxley, who was ostracized by many of his peers in biology for daring to so speak out.
6. See Kauffman, *At Home in the Universe*; Wheeler, *At Home in the Universe*; also Laszlo, *The Interconnected Universe* and *The Whispering Pond*.
7. This is not just an arbitrary selection of values. All, which Darwin identifies operating either at the prehuman or human level, or both, have been extensively empirically defined by Rokeach. See chapter ten here: also Rokeach, *The Nature of Values*; Loye and Rokeach, "Ideology, Belief Systems, Values, and Attitudes"; or Loye, *The River and the Star* for an account of Rokeach's great cross-cultural study of values within the context of the scientific exploration of morality.
8. The love of beauty, or aesthetic sensitivity, is not commonly thought of as being related to moral sensitivity. Hence, we have the abysmal drive by moralizing rightists to abolish the National Endowment for the Arts. However, the linking of "the true, the good, and the beautiful" by philosophers is not coincidental. Nor is the fact, as I bring out in *The River and the Star*, that the three were one by one explored by Immanuel Kant in the pivotal Critique of Reason, *Critique of Practical Reason*, and *Critique of Judgement*. See chapter six here, "If Music be the Food of Love," for a touch of Darwin's thought di-

rected toward trying to scientifically root this connection in evolution. See also the book I have found most enjoyable to write, *Darwin in Love*, for more here.

9. Ah ha! says the sociobiologist. Proof positive of both the reciprocal altruism of Trivers and the kin selection of Hamilton. Yes - but follow it from its rooting in the self-transcendence of the sexual instinct (see chapter one here) and Darwin's theory of the moral agent indicates that, by whatever name one chooses to call it, self-transcendence too is involved. Self-transcendence as a value is extensively explored by Maslow in, e.g., *The Further Reaches of Human Nature*.
10. See Loye, *An Arrow Through Chaos*, *The Knowable Future*, *The Healing of a Nation*.
11. In *The Glacier and the Flame* and *The River and the Star*, I go much more extensively into the definition of all aspects of morality, including the vast difference for meaning according to whether one is dealing with "dominator" or "partnership" morality. See also Loye, "The Concept of Evil" in *The Encyclopedia of Violence, Peace, and Conflict*.
12. Significantly, a very clear statement of the relation of the moral sense to moral agency (and of emotion and reason to will) was offered by Darwin's theological mentor on the subject, James Mackintosh. The following is a passage in Darwin's copy of Mackintosh's *A General View of the Progress of Ethical Philosophy* that Darwin not only marked, but underlined in regard to the phrases "emotion" and "impell the will." "That the main, if not sole, object of conscience is to govern our voluntary exertions, is manifest. But how could it perform this great function if it did not *impell the will*? and how could it have the latter effect as a mere act of reason, or indeed in any respect otherwise than as it is made up of *emotions*, by which alone its grand aim could in any degree be attained?" (See "Old and Useless Notes," p.412, in Gruber and Barrett, *Darwin on Man*).
13. This seems a fair conclusion if one reads what these four great Asian minds actually had to say about life and how it was to be lived, rather than apply to them the model for western religious mind. See also Loye, *The Glacier and the Flame*.
14. In sizeable portions of *The Descent of Man* as well as in his private notebooks and *Autobiography*, Darwin did considerable more ruminating about the possible existence, nature, and social and psychological function of God than most people realize.
15. See James Lovelock, *Gaia: A New Look at Life on Earth*; Peter Russell, *The Global Brain Awakens: Our Next Evolutionary Step*; Ralph Abraham, *The Web Empowerment Book*

