INTRODUCTION

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If we take a careful look at what happened to our species scientifically and socially during the 20th century two rather unsettling facts become apparent. The first is that we are being shoved into a 21st century laden with immense challenges and the most serious kind of questions bearing on the human future with a scientific theory and story of evolution based almost entirely on the study of the past and the *pre*human and the *sub*human.

The second is that some day it will likely be recognized that the single greatest shortcoming of 20th century science was its failure to achieve a *fully human* theory and story of evolution.

By "fully human" theory and story I mean this. 20th century science did a magnificent job of probing and making both the theory and story of cosmic evolution come vividly to life for us via physics. It also probed and gave us what seemed to be a reasonably solid and gripping theory and story of biological evolution via chemistry and biology. But when it came to deal with the explosion out of nature of higher brain, mind, consciousness, and everything else that came to characterize the emergence of our species and our impact on this planet it fell so far short of what was needed as to be laughable if it weren't so tragic.

Tragic? How so? I have found the quickest way to make the point is to consider this line of thought. We live by story—on this most of us will agree. But what about the completion for this thought that logically seems to follow today from the drum beat of the daily news? We live by story—and the story we live by is driving our species to extinction.

Is this true? Isn't this increasingly the message of the futurists and environmental scientists who on the behalf of our species keep looking ahead?

If this is true, then what do we do? Could it be that if we change (i.e, update and *complete*) the theory, we can change the story, and by changing theory and story thereby we can bypass the road to extinction and go on to build the better world?

This is the question we will explore via the two historical streams within science that led to this book's papers and purpose, which is to accelerate the development of a full spectrum, action-oriented—that is, fully human— theory of evolution.

One of these historical streams was and is that of the incisive power of *systems science*. The other is the stream out of the diversity of psychology that branched into the heady originating vision of Abraham Maslow and others for *humanistic, transpersonal*, and *positive* psychology.

If we are to achieve the fully human theory of evolution that the situation of our species requires, more and more it looks like it must primarily involve a new working partnership between people in these fields with thereafter a widening of involvement throughout all fields of social science as well as natural science. This book— with the good news of what looks like a significant new advance in evolution theory to report— is to that end.

GERG and Evolutionary Systems Science

Among the great or "way station" names in the vision and development of evolutionary systems science were Ludwig von Bertalanffy, Kenneth Boulding, Eric Jantsch, and Ilya Prigogine.[1]

The original set of papers that have been expanded into this book were the culmination of a particularly dramatic but still relatively unknown development in late 20th century science involving a fifth notable founder, systems philosopher Ervin Laszlo. This was the formation of the General Evolution Research Group, or GERG as became its acronym. The world was still shuddering under the threat of potential nuclear holocaust when in 1984, toward the close of the cold war, those of us who later formed the Group were called by Laszlo to Budapest, then still under Russian control, to see if we might help

him build what I have ever since thought was one of the great visions out of the often radically diminished horizon for the science of the 20th century.

This was Laszlo's vision of an action-oriented theory of *general* evolution that might be used by humanity to end the endemic insanity into which our species has fallen. Long range, it was the vision of an evolution theory that might go beyond the scientific stalemate of a fixation on biology and the past to incorporate the vast advances in social, systems, and futures science that for a century were almost wholly neglected in the development of mainstream evolution theory. It was the vision of an evolution theory with ourselves— we humans, *our* species— at the leading edge equipped to focus on gaining a better *future* for this earth and all living systems.

However pressing this might be, the short range prospect was of more immediate and indeed very great urgency. We were meeting in a Hungary still then ringed with a double wall of barbed wire and armed Russian guards, with in the background the thousands of tons in nuclear overkill for both sides of the cold war. What rather quickly gripped us was the vision of a theory that might be used not merely to understand but to *save* ours and all other species. Chaos theory was then just coming into vogue. The idea was immense but basically simple: why not use chaos theory to find a way of guiding our species through the social, political, and economic chaos we faced to an evolutionary stage of a higher and better order?

In other words, why not find funding for and get underway with the development of a theory of evolution that might be used by the thinking people of this earth and an enlightened social leadership to guide our species through the time of immense troubles now facing us to reach the higher plateau for humanity, long the dream of the great spiritual as well as scientific visionaries?

It was an awesome, electrifying, and at times very funny experience none of us who were there will ever forget. It was the beginning of what I am still convinced—particularly if driven by the fresh energies and vision of the *student* and *teacher* involvement I spell out in the last two chapters of this book— can become the great adventure for both the science and the everyday life of our time.

In the years after Budapest, with Laszlo acting as an impresario might in personally selecting singers for an opera or members for an orchestra, GERG expanded to include 35 scientists in all the major fields of social as well as natural science. Truly multinational as well as multidisciplinary in scope, coming from 14 nations throughout Europe as well as in Asia and from the U.S., we met in Florence, Bologna, Vienna, Finland, Germany, Sardinia, and again in Budapest to try to move toward the goal of building the better theory.[2]

Like thousands of other scientists worldwide who have tried to expand and update a paradigm for evolution theory that has fallen woefully, if not disastrously, behind the times, we also published an immense amount of work in this direction in our journal *World Futures: The Journal of General Evolution* and other scientific journals.[3] But such have been the difficulties facing every attempt to move beyond the death grip of old scientific as well as old political and social paradigms that attaining even small gains was a frustrating and painful experience. Indeed, so little progress was made by us or by anyone else toward the originating goals for our General Evolution Research Group that by the winter of 1999-2000 I came to the conclusion that something must be done to light a new fire under the original vision.

Under the sponsorship of the International Society for Systems Sciences (ISSS) and 20 other organizations, the kickoff for 21st century systems science was to be a World Congress of the Systems Sciences drawing scientists from all regions of the planet to Toronto July 16-21, 2000. Hoping for the best, I pulled together some fellow GERGites for two panels and a general discussion on the subject of what the "full spectrum, action-oriented" theory should look like and how to build it. The precursors for most of the papers that became the chapters in this book were the result.[4]

The Fitful Courtship of Psychology and Evolution Theory

In the formation of GERG I was one of two psychologists concerned. By the time of the Toronto World Congress another with a paper in this book, Allan Combs, had joined us. A third psychologist, Ruth Richards, is a co-author here.

The history of the relation of psychology to evolution theory is pivotal to understanding where we have been and where we now must go. Looking back, as a whole it seems to me this relation may best be characterized as the prolonged courtship of a most enticing prospective mate with great hopes, but which again and again led to immense frustration and disaffected withdrawal by the "lovesick" psychologist.

As I bring out in my introductory paper in this book, this courtship began with Darwin himself in regard to cognitive and humanistic psychology. On his death he left all his papers on psychology to his disciple George Romanes, who went on not only to become a leading British psychologist. Romanes was also the first to lament what was again and again to block any chance that psychology might successfully mate with evolution theory. The problem was the "rival"—i.e., the fierce possession of evolution theory by biology and its adroit exclusion of all other suitors.

Already, only ten years after Darwin's death, why was there a move afoot by biologists to "hide certain parts of Darwin's teaching, and give undue prominence to others," Romanes asks in *Darwin and After Darwin* published in 1892.[5] Whether "the misrepresentation be due to any unfavourable bias against one side of his teaching, or to sheer carelessness in the reading of his books," it was inexcusable that the "neoDarwinians"—for it was Romanes in this book who first coined the phrase—should "positively reverse" Darwin's teachings. Too often chest thumping and otherwise ostensible Darwinians were "unjustifiably throwing over [their] own opinions the authority of Darwin's name," Romanes charged.[6]

"I myself believe that Darwin's judgement with regard to all these points will eventually prove more sound and accurate than that of any of the recent would-be improvers upon his system," Romanes predicted—a prediction I believe this book and one other now fulfills over 100 years later.[7]

The next attempt to court evolution theory came with no less a founding father for humanistic psychology than William James, although the ill-fated James Mark Baldwin and Romanes' disciple Lloyd Morgan were more heavily involved. Perceiving the need for a new concept to account for evolution at the level of human emergence they

proposed— in keeping with Darwin's own already forgotten observation and admonition— the idea of "organic selection" as the higher developmental alternative to natural selection. The concept was meant to provide a way of bringing the psychology of learning, experience, and choice by both group and individual into a theory of evolution that might then seamlessly segue from biological into cultural evolution.

But fate then intervened to further set up biology not just as the rival for the hand of evolution theory but as really the only proper suitor. Baldwin— who in pursuit of Darwin's most important ignored emphasis on moral evolution happened to be pioneering the psychology of moral development— was discovered in a black brothel in Baltimore by a newspaper reporter (Richards, 1987). The scandal not only forced Baldwin to flee to France but also seemed to help slam the door on the whole field of psychology through guilt by association.

It also so effectively scuttled the disruptive insight of "organic selection" that it took much of a whole century for the idea to fight its way back into mainstream scientific consciousness. This came with rediscovery not only of what came to be called "the Baldwin effect" (Depew, 2000). In a touch of the irony that repeatedly overlays the underlying tragedy of this story, what had in fact been blanked out was the reality—again originally perceived by Darwin and then ignored— of what by the end of the century was to spread like wild fire throughout both natural and social science as the evolutionary relevance of "self-organizing processes." (Jantsch, 1980; Capra, 1996).

Next out of the field of psychology along came John Dewey and Jean Piaget as suitors for the hand of evolution theory (Dewey, 1922; Piaget, 1965). Their try was especially meaningful as, in keeping with Darwin's long ignored and Baldwin's ill-fated passion for *moral* evolution theory, both were eminent moral theorists. Piaget was also uniquely equipped as a biologist as well as a psychologist. But as Dewey and Piaget became celebrities in the field of education, and other interests took them elsewhere, their suit was again easily deflected by the hordes of biologists who came to the courtship ready equipped with the seemingly safe and familiar tale and the proper cologne of the neoDarwinian paradigm. From grade school through graduate studies they were also

always there, by now entrenched seemingly beyond all contesting in the textbooks.

Next came the psychologist most likely headed for a major revival of interest in the 21st century. If we look at his work again today—of which Ray Bradley's paper provides a glimpse in this book—it can be seen that Kurt Lewin was not just the so-called father of social psychology and group dynamics. It becomes increasingly apparent that here was the prime precursor genius within psychology for chaos and complexity theories and the range of implications for the needed wedding of evolutionary systems science with psychology that confronts us today (Lewin, 1951; Marrow, 1969 ; Loye, 1971).

And so via hop, skip, and jump we come to Abraham Maslow, Roberto Assagioli, and Kazimierz Dabrowski. Historically, Maslow most effectively stated both the initial and long range vision for humanistic, transpersonal, and most recently the challenge of positive psychology. In the end what do we seek? It is to develop the Good Person and the Good Society, Maslow said (1971). In other words, our evolutionary goal is not to bypass or transcend ourselves, but to *fulfill* ourselves. Assagioli and Dabrowski intensified this emphasis. Both survivors of the Nazi devastation of Europe and the global threat of fascism, to them this key 20th century event and World War II underscored the need for a new understanding and advancement of both moral evolution and spiritual evolution (Assagioli, 1965, 1973; Dabrowski, 1964).[8]

"Superficiality, vulgarity, absence of inner conflict, quick forgetting of grave experiences, became something repugnant to me," Dabrowski wrote in proclaiming a heroic stance both for humanistic psychology and for the wedding of psychology with evolution theory. "I searched for people and attitudes of a different kind, those that were authentically ideal, saturated with immutable values, those who represented 'what ought to be' against 'what is.'" (Piechowski, 1975, p.234).

"Before the threatening attitude of an unfair superior or when facing an excited mob, when personal reasons would induce us to yield," Assagioli proclaimed in reinforcing these goals, "the will gives us the power to say resolutely: 'No! At all costs I stand by my convictions; I will perform what I take to be right.'" (Assagioli, 1973, p.8).

Thereafter, as the recent *Handbook of Humanistic Psychology*, *Handbook of*

Positive Psychology, and sources for transpersonal psychology such as *Paths Beyond Ego* make apparent, on the surface there were advances.[9] But talk to humanistic, transpersonal, and positive psychologists today and many will express a feeling of an earlier high point and since then an underlying decline that has brought psychology to a new make or break decision point. Since the Maslow days important contributions have been made to the fields of humanistic, transpersonal, and positive psychology, and the human potentials movement generally. James Bugental, Stan Krippner, Mihaly Csikszentmihalyi, Ken Wilber, Frans de Waal, Jean Houston, Joanna Macy, Jean Baker Miller, Ravenna Helson, and Jeanne Acterberg are among many mentioned in this regard. There is also wistful talk of a renaissance. But again, as with systems science, it seems to be the tale for science across the board of a sense of failure to live up to the visions of the founders. For what has happened to the vision of the Good Person and the Good Society?

That somehow the steam has gone from the dream came across with the fairly recent emergence of the new field of positive psychology apparently in answer to the feeling of its founders that humanistic and transpersonal psychology weren't living up to earlier hopes. But much earlier— in response to the sense of a quasi-vacuum once filled with high aspiration that one can find in talking to old hands across the board for all fields of social science— something else profoundly bearing on this situation happened that has been generally overlooked in this regard. For out of the reductionist box of neoDarwinism and sociobiology there moved to close out the century with a bang the most effective of psychology's suitors for the hand of evolution theory. Driven by the dynamics of a radical rightward shift in national politics— which seized upon the books of this "new school" to legitimize what often seemed an attempt at an across-the-board roll back for human evolution— this was the shotgun wedding of the most adroit practitioner yet of biological determinism. Swiftly moving to take over both key posts in academia and the mass impact of trade publishing with its enormous advantage of bookstore distribution, the new field called itself evolutionary psychology.[10]

Not since the early days of American behaviorism has a new school of psychology trashed the views of all others with such arrogance and ignorance. But behind the offputting ballyhoo there happens to lie a critique of the status quo that offers humanistic psychology and transpersonal psychology—as well as positive psychology and both systems science and social science more generally—not just food for thought. More importantly, should all parties rise to the challenge, out of what is now often acrimonious dissension loom the prospects for a re-grounding for the hoped-for renaissance.

A critique one hears of humanistic psychology is that it became too much a matter of catering to the needs of the comparatively well-off upper middle and upper class for therapy and entertainment. By contrast, in keeping with the earlier emphasis for Kurt Lewin, the brash new field of evolutionary psychology focused anew on the problems of the lower class threatening to tear society apart.[11] A critique one hears of transpersonal psychology is that it became too much a matter of the self-righteous celebration of a spiritual evolution devoid of the ageold essential link for spirituality with *moral* evolution. By contrast, in keeping with the basic concern for Assagioli and Dabrowski as well as Darwin originally, the new suitor focused on what drives and shapes morality as a bedrock concern for a society going, one might with justice say, to hell in a handcart.[12]

Most importantly— *recognizing this as the central structural weakness for the social science of the 20th century*— the best of the evolutionary psychologists focused on trying to link and bind together the sprawl of social science to the evolution theory from which, ironically, biology had excluded psychology for more than a century.

And here is the still greater irony the chapters of this book underline. All this new work in the needed directions by this most successful of evolution theory's suitors rests on the quicksand of a scientific half-truth for which humanistic, transpersonal, and positive psychology hold the key to the other half. But in wandering from the Maslowian high point, they have lost sight of this pivotal fact.

In the last chapter I will return to this purposely provocative statement to describe what now looms not only as enticing territory for antagonists within science to drop dead-ended disputes and band together to explore. What lies ahead here, chapter by chapter,

begins to make the case, I think, for the development of a fully human theory *and* story of human evolution as the single greatest challenge facing the science of the 21th century.

A Call to Action and a Brief Summary of Papers

And so we come to the difference for this book and what its papers have to offer toward building a full spectrum, action-oriented—i.e., fully human— theory of evolution. In the midst of all the above currents running off in contradictory directions for thinking about evolution, in 1985, along with three of his students, psychologist Stanley Krippner published a paper of historic importance. Although Krippner was at the time a former president of the Association of Humanistic Psychology, and a founding member of the AHP-launched Saybrook Graduate School, as well as a noted investigator of the paranormal phenomenon that transpersonal psychology was beginning to make respectable, typically this paper escaped the notice of all but a discerning handful in the emergent field of evolutionary systems science and psychology who were ready for it.

"At present, HP lacks a commonly-understood scientific paradigm to provide a theoretical framework with which to develop and evaluate models, methods, research, theories and therapies," Krippner et al wrote in "Toward the application of general systems theory in humanistic psychology" in the journal *Systems Research*. "We believe that GST can perform just such a service to HP" (Krippner, Rutenber, Engelman, and Granger, 1985, p.113.).

A quote from von Bertalanffy made vivid the needed relationship. "Analysis has to proceed at two levels: that of *phenomenology,* that of direct experience, encompassing perception of outside things, feelings, thinking, willing, etc; and of *conceptual constructs*, the reconstruction of direct experience in systems of symbols, culminating in science" (Ibid).

It is from this point in our story—which I believe points to what all parties hoping for a renaissance are seeking— that this book takes the next logical step. This is to probe how in order to become fully effective and most deeply meaningful systems science and

humanistic, transpersonal, and positive psychology—as well as evolutionary psychology and psychology and all the other social sciences more generally— can join in a new and higher venturing for the *evolutionary perspective.* Working together rather than at war with one another, we can help expand the mind of our species to embrace movement through time, from past, to present, to the better future in terms of *action*. The trajectory of active agents interacting with the active natural and the active social environment can take us through and beyond the future we fear to the future that has been the dream for our species for at least 100,000 years.

In short, we'll explore what a fully human theory of evolution should look like and how to build it.

This book opens with two background statements originally written to set the stage for the discussions of the GERG members and other scientists in 2000 during the World Congress of the Systems Sciences. First is the Toronto Manifesto, which characterizes neoDarwinian biology as the first venture, then sociobiology and evolutionary psychology as the second venture in 20th century science's attempt to build a general theory of evolution that might adequately handle the prime matter to us of *human* evolution. Now the time has come for the *third venture,* of the range of evolutionary systems science beyond the inadequacies of its predecessors to provide humanity with much more of what is needed to update what in many respects still remains a "horse and buggy" level theory and story of evolution in an age of rocket speed social and environmental urgencies.

This is the first of two vital grounding perspectives for the reader to keep in mind in relation to what lies ahead. The other is the perspective of a first and a ***second*** Darwinian revolution.

Following the Toronto Manifesto, in "Darwin, Maslow, and the Fully Human Theory of Evolution," is an updated report on the experience out of my own years of research into the processes and theories of evolution that woke me up and shocked me into all the ups and downs that await those forced in any way to go "up against the paradigm." This was my discovery of what many bright and well-intentioned scientists, in all innocense aided and abetted by educators throughout the 20th century, had unwittingly

done to Charles Darwin. Misused for more than a century as an icon to legitimize an ultimately degrading vision of the nature and potential for our species, Darwin, I discovered, had actually gone on to write a lost completion for his theory that at the level of *human* evolution almost wholly contradicts the science that has claimed his name. Both the nature of the shock and the challenge is perhaps most quickly indicated by the fact that in *The Descent of Man*—and this nearly 100 years earlier, clearly anticipating the rise of humanistic psychology— Darwin actually wrote 95 times of "love," 92 times of "the moral sense," and 90 times of "mind," versus only twice about "survival of the fittest."

The purpose of this opening, prefatory chapter on Darwin and Maslow is to provide a sense of the lift of vision and the sketch for a fully human theory of human evolution that Darwin in actuality left us. In terms of the perspective of the first and second Darwinian revolutions, this can be immensely useful in the task that lies ahead.

Darwin's theory of evolution as it originally became known brought on a wide-ranging, nonviolent revolution affecting not only science but our society at all levels. Set in motion nearly one hundred fifty years ago now, how variation and natural selection interact became the revolutionary core to the theory that is standard knowledge for practically every textbook used at al levels throughout the West as well as an increasingly large part of the educational system in the East today. But what I came to see was that in the startling, long ignored humanistic completion for his theory, in anticipating what was to become the expansion of science through the twentieth century, Darwin was writing of what in our time has become in effect a second Darwinian revolution.

That is, what Darwin wrote of extensively only to be almost wholly ignored are what have often since then become modern discoveries in practically every field of science that vastly expand our understanding of evolution beyond what the first Darwinian revolution established. All too often similarly excluded for much of a century from what is today almost universally taught as mainstream evolution theory, it is the consolidation of these discoveries of the second Darwinian revolution into the full spectrum, action oriented, or fully human theory that is both the great task and the great adventure for the science of the twenty-first century that this book explores.

Part I: The Evolutionary Base in Physics and Biology, begins with what seems to me an ideal stage-setting paper by systems philosopher and pioneering general evolution theorist *Ervin Laszlo*. In "Matter and Mind: The New Holism and the Greater Humanity" Laszlo provides the grounding for a comprehensive theory of evolution in the natural sciences, moving from there into the realm and the challenges of human emergence, which is our concern here. Laszlo's picture of the "dynamics of society's periodic paradigm-shifts" is especially thought-provoking. In view of the scientific complexities and difficulties that inevitably lie ahead, I would also note—particularly for the student's benefit— the advantage of getting underway with a paper that, despite its profundities, is easy to read.

Biologist Stanley Salthe is next with "Biology and Beyond Biology: The Natural Path to the Future." As a fortuitous play both on Salthe's name and nature, I would say this is a "salty" mix of a critique of "hegemonic" neoDarwinism within an enormous range of knowledge of the classic theories of evolution theory, as well as the contemporary alternatives—all of which offer our species a much better platter to select from than was the prevailing fare for the 20th century.

Part II: The Cultural Base in the Brain and Systems of Love vs. Domination opens with a paper that demonstrates why cultural evolution theorist Riane Eisler was named in a book edited by the well-known Swedish humanist scholar Johan Galtung and futurist Sohail Inayatullah as one of the world's 20 most important macrohistorians, along with such luminaries as Adam Smith, Karl Marx, Arnold Toynbee, and Pitirim Sorokin (Galtung and Inayatullah, 1998). Chapter three, "A Multilinear Model of Cultural Evolution," shows how the broadening of systems science to encompass cutting edge research on the impact of the brain and culture of family and gender relations leads to a revolutionary new understanding of evolution. Drawing from biology, sociology, anthropology, archeology, and other disciplines, Eisler brings to life how, underlying the full range of human relationships from intimate to international are two basic social structures: the domination model and the partnership model. The chapter shows how the tension between these two models has shaped history, and how the outcome of this tension

is the key to fulfillment or extinction for our species.

Next comes a chapter that, because of its length and the difficulties of the fields it seeks to bridge and draw on, many readers may find to be the most challenging in this volume. This is chapter four, "Love, Power, Brain, Mind, and Agency" by *sociologist Raymond Bradley*. I mention the difficulty in order to encourage the reader to persist with this paper because of the rare importance of the work and the findings it reports. Working with one of the two greatest living brain scientists, Karl Pribram, their work a mix of physics and mathematics as well as sociology and psychology, Bradley has gone to the heart of what animates evolution in mother-child relations, in communes and other small groups, and thereby likely humanity as a whole.[13]

And so after a century of what has all too often been much talk with little or no action, we come to the question of what are we going to do about all this? How are we actually going to expand and update our theory of evolution to at last provide a really useful source of both scientific inspiration and scientific *guidance* for humanity?

Part III: The Higher Reaches of Creativity and Consciousness opens with chapter five "Creativity, Consciousness, and the Building of an Integral World" by *evolutionary systems scientist Sally Goerner*. Along with Eisler's, this paper is animated by the exciting prospects for movement out of what might be characterized as the smoke-filled room of science. It is the new chutzpah dispelling the symbolic cigar smoke as more and more women move into science. A cofounder and twice president of The Society for the Study of Chaos Theory in Psychology and the Life Sciences (which gives them the ultimate acronym SSCTPLS!), Goerner's paper is a tour de force applying a broad spectrum of the new sciences to no less than the problem of species survival.

The next paper addresses what may be the single most important technical problem facing the builders of the better theory. How out of the cacophony of countless symposia and the obscurity of countless journals do you find and forge agreements on how to move ahead? In other words, as science moves beyond the mechanistic simplicities and formulas of the old paradigm it has in effect become a Tower of Babel. Most urgent in trying to visualize and then build the greater theory is the question of how do we find a way to dig

down through the prolixity of concepts and languages to find consensus on the commonalities of perception across all fields? How do we reach any working agreement on the prime factors, the key variables and primary patterns and dynamics? In chapter six "Technology to Liberate Rather than Imprison Consciousness" *systems scientist Ken Bausch* and *Club of Rome co-founder and incoming president for ISSS Alexander Christakis* explain how this can be done using the power of a new computerized methodology.

Last among these papers is the joint effort of three thinkers well-known to most humanistic and transpersonal psychologists, "Creativity, Consciousness, and the Direction for Human Development" by *systems scientist Alfonso "Monty" Montuori* of the California Institute for Integral Studies, *psychologist Allan Combs* of the University of North Carolina and Saybrook Graduate School, and *psychologist Ruth Richards* of Saybrook and Harvard University. This paper is perhaps best described in terms of a word out of Montuori's early years as the saxophone-playing founder of a jazz band while he worked on the side as an Italian translator for Scotland Yard in London. Covering a rather amazing range of studies including the ins and outs and relevancies of chaos theory, it is a "riff" or free-associational play for this trio on the role of creativity and consciousness in evolution.

Part IV: The Darwinian End Game opens with chapter eight "What Should It Look Like? Seventeen Foundations and Ten Guidelines for the Fully Human Theory, A Summary of Chapters One through Seven." Here I summarize the foundations and guidelines that one may discern in this remarkable set of papers. For easy referencing these foundations and guidelines are shown close by here in Tables 1 and 2.

Table 1
Seventeen Foundations for Building a Fully Human Theory of Evolution

What should a full spectrum, action-oriented theory of evolution look like? Chapters 1-7 indicate the following considerations and foundations are required for expanding, updating, realigning, and constructing such a theory.

1. The initiating drive and unfolding and enfolding embrace of energy.

2. The living biological base.

3. Inadequacy of the neoDarwinian hegemony.

4. The basic requirement for a developmental perspective.

5. Learning from nature.

6. The revolutionary perspective of modern brain research.

7. The revolutionary perspective of a gender-sensitized realignment of our understanding of human cultural origins and dynamics.

8. Importance of incorporating economic and political evolution within the building of adequate theory.

9. Importance of technological evolution.

10. Importance of educational evolution.

11. The feeling for evolution as story as well as theory.

12. The centrality of moral evolution.

13. The evolution of love, consciousness, and the drive of creativity in "conscious evolution."

14. The basic requirement of a multi-level vision of the ideality of person and society.

(Table 1 continued)

15. The basic requirement of the perspective of the human agent, and all other levels for "self organizing processes," and the action orientation in co-evolution.

16. The considerably over-due revival of the dialectical perspective in the development of evolution theory.

17. Convergence out of independent minds and works on the development of a new 21st century perspective on core theory for evolution.

In particular, I call your attention to the sequence of foundations 14, 15, 16, and 17 in Table 1. Here, with referencing to the earlier chapters by Laszlo, Salthe, Bradley, Eisler, and Goerner for substance, is briefly developed what I believe may quite possibly be the first significant advance for 21st century evolution theory involving people all of whom, as of this writing, are still living and among us.

Table 2
Ten Guidelines for Building a Fully Human Theory of Evolution

How do we build the better theory? Chapters 1-7 indicate the following considerations and guidelines are required for expanding, updating, realigning, and constructing such a theory.

1. Break out of the prison of the "old" paradigm.

2. Break out of the dominator trance.

3. Use action research as well as basic research to shape theory.

4. Gain operational consensus on basic concepts.

(Table 2 continued)

5. Gain a new grip on the dynamics of evolution.

6. Redefine evolution in terms of all, rather than only one or two, developmental levels..

7. Explore points of evolutionary consensus as well as differences between science and spirituality.

8. Work toward consensus on unifying frameworks and imagery...

9. ...but explore the ignored, the repressed, and new visions before locking into new paradigms.

10. Replace the current scientific perspective of no meaningful direction or purpose to life or evolution with a search for the new personal and social rudder of moral direction.

Last, in chapter nine, out of my years as a psychologist, systems scientist, evolution theorist, and working research scientist— as well as out of my earlier years as a journalist plunged into the reality of all that fills the news today, that great world of human need out there that calls to us desperate for the kind of guidance that our species by now deserves from science and an adequate theory of human evolution— I venture my own conclusions. Picking up where I left off earlier in this introduction, we look at the social implications of the science of the half-truth versus the prospects for an alliance to build some reasonable approximation of the whole truth in "How Do We Build It? Of Systems Science, Psychology, Students, Teachers, and the Destruction or Liberation of Humanity."

This book has been written and put together not just for scientists but also for everyone in the humanities, in theology, and for the general reader interested in the great adventure that life can become with the new understanding of and involvement in evolution it reports. I am particularly hopeful, however, of something coming from my proposal in the last two chapters of a new way for a new generation of *students* in collaboration with *teachers* to actually kick start the building (i.e., updating and

completing) of the theory and story that is needed. To this end: Among end documents in this book are sample course outlines for a full academic year, for teachers of any field with an interest in evolution, using this book as a basic text. A web site, www.thedarwinproject.com, will encourage, report, and interlink global efforts in this direction. I should also add that this is the plot behind the *key words* for chapters, which otherwise might seem excessive. These extended key word listings make it possible for the busy student, busy teacher, and busy professional in any field to get a sense of the coverage for each chapter from an investment of only 20 or 30 seconds per quick scan.

All in all, this could truly become the Great Adventure for our time—a collaboration of bright students fresh to the experience, unweighted by outmoded scientific doctrine or dogma; with bright teachers liberated from the past, understanding the urgency of the mission; with more generally well-wishers globally following their advance like those of us who swarm to construction sites and like to watch; all linked via the internet in the building of the fully human theory and story of evolution.

By setting in motion this process that hypothetically could rapidly spread globally to colleges engaged in distance learning, my strategy, frankly, is both to try to inspire and to shame their elders to rise above their differences, and to join those who are to live beyond us within this century either of immense opportunity or of doom if we fail, in doing what needs to be done.