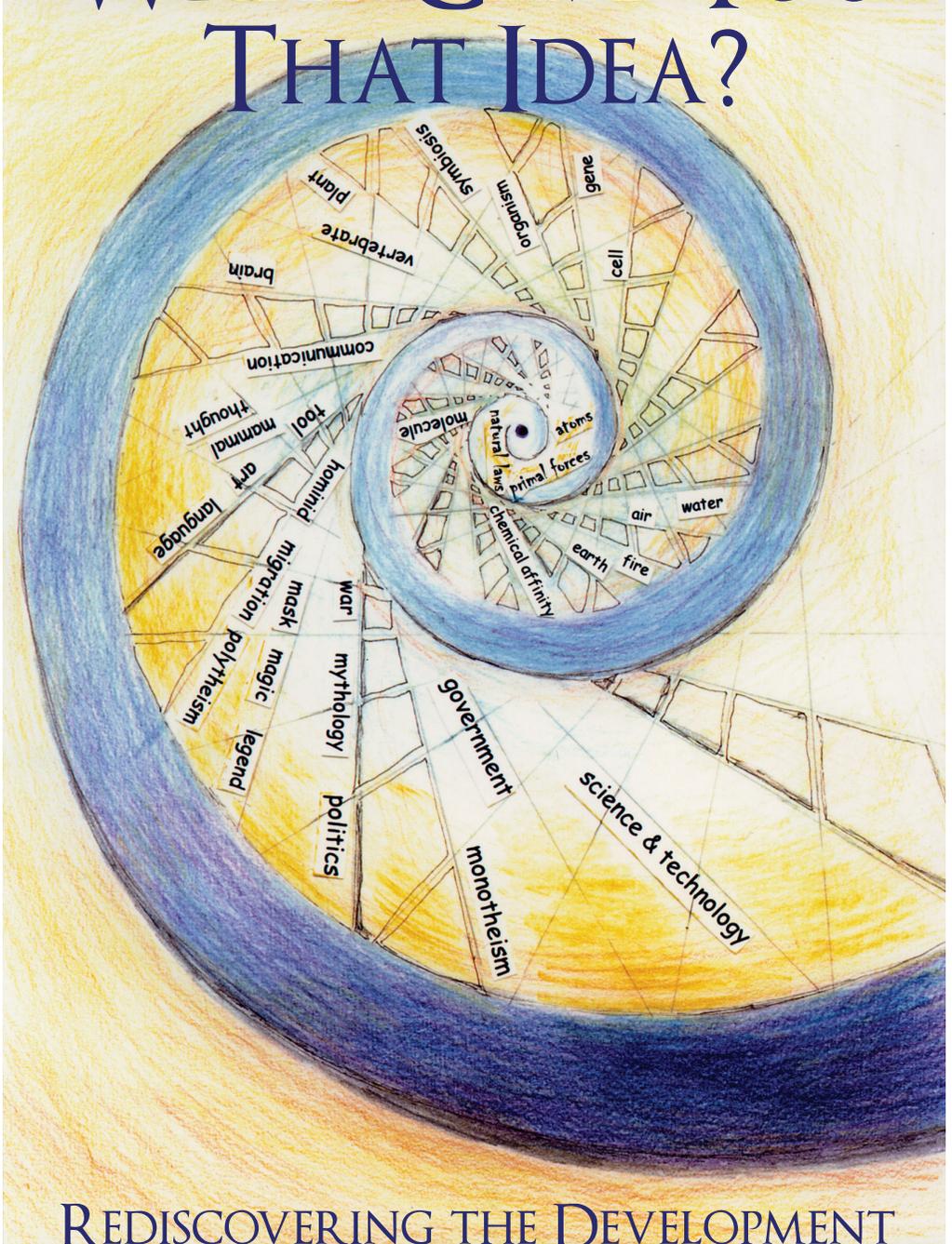


WHAT GAVE YOU THAT IDEA?



REDISCOVERING THE DEVELOPMENT
OF OUR WORLDVIEWS

GEORGES KASSABGI

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I

The Divide

We know a great deal about how the world around us has developed. But we differ widely on where and how it began, and speculate about its future. We thus maintain many worldviews: ways of interpreting our perceptions as well as identifying how best to interact with our environment in its diverse manifestations. Each worldview is right...up to a point.

Having adopted or inherited a worldview, we learn, discover, and improve with hope or capricious aims, but we also tend to reject different positions, even if they could prevent disruption or conflict among us. Is this aversion to change an inherent feature beyond our reach? Is it linked to our brain and mental capabilities? Is it the result of one or more chance events in our evolution by natural selection? Or does it arise from some distant ancestors' guidance, which ended up becoming a hindrance to later generations?

Diversity is part of the natural environment. But why do we use different timelines from one worldview to another? One person's history starts earlier than another's, or later. In one philosopher's view, all begins with ancient China or Greece since, for him, this is the dawn of civilization. A wise, religious woman demands to know exactly what the philosopher means

by “civilization,” and for her, Point Zero on the timeline is Adam and Eve, though she can’t say nowadays if their coming to life was thousands of years ago or millions. On the other hand, she agrees with many others that life has gained in form and significance thanks to the sacred texts of each religion. The two scientists, who live in the house next to hers, are confident that it all started with the gene. They also talk about the big-bang theory, despite disagreement with colleagues on exactly what it means, let alone whether or not it has actually occurred. Their twin daughters’ view is that there’s no point in even speculating, because—they say—our way of outlining time is a human construct, something artificial and arbitrary, dreamed up in the early days of our era or a little bit earlier. Their history professor adds that our progress is not a linear succession of achievements, and that mentioning a point in time as *the* reference for a current event may be misleading. And these two university students have learned, from the numerous books on the most recent findings in neuroscience, free will, and brain functions, that we may have the wrong idea about the thought process itself, and when and in what form it began.

To sum it up, we seem to agree that the universe consists of both the material and the nonmaterial while we deal with a variety of starting points, each of which may be dictated by practical necessity: it may happen to be the most accessible source of what we want to investigate/resolve, or *Homo sapiens*, or the human genome, or a sacred text, or an individual/universal soul, or some other corporeal/transcendent source that our ancestors chose for their stories. But why do we neglect the events preceding these arbitrary starting points? More to the point, what if we have not yet taken into account the key that

would allow us to imagine, study, and define our worldviews as having a less variable foundation than what philosophy, religious systems, and the scientific method have been able to provide so far?

I posit that we should adopt a single, non-variable foundation based on the earliest conceivable starting point, which, when adopted, will provide a common thread to all worldviews. This starting point corresponds to a time when elementary particles or energies existed in configurations and densities beyond our current grasp.

I moreover posit that such a common foundation encompasses nonmaterial-bound primal interactions: the bearers of what we refer to as spirituality, consciousness, and, more generally, non-materiality. These primal interactions exist in a yet-to-be-studied association, or rather integration, with the material basis scientists (and most thinkers) currently agree on when they talk about atoms and their components, universal constants, and related laws.

We assume this or that when tackling a difficult problem for the first time, whenever confronted with mysteries or unknowns. But there are assumptions that get embedded in a cultural legacy, and end up being seen as *facts*, when what they really represent is a particular response to a particular circumstance—the result of past human endeavor under what were then local, favorable conditions. Moreover, the acceptance

of each worldview beyond the pioneering group that developed it was often gained by the agency of generations; in some cases, it required tough decisions by successive leaders.

In contrast, consider the initial explorers who had to fight against some of their political or religious leaders' firm beliefs. These adventurers relied on their imagination. Their trust in an unusual view, supported by thorough preparation and bold acts, ought to inspire us.

My intent in this essay is to suggest new ideas as "inputs" to current work dedicated to our individual and societal well-being, or, more generally, aimed at a better coping with the universal unknowns. At the very least, some readers may eventually derive from this text a clearer sense of the obstacles toward the wonderful, ultimate goals inherent in their worldview. These idea-inputs have arisen out of my pondering about our collective, inherited beliefs—how they were initially proposed but then successively improved upon by numerous thinkers of the past and present, and what their long-term implications might be.

In the following pages, I imagine several conversations (Parts II and III) centered on old and new assumptions, starting points, and non-materiality, thus examining anew the basis of our many worldviews (Part IV). The preliminary facets of a new approach—not a new theory, let alone one against what we are familiar with, and not another standardization attempt—are introduced, throughout the text, to possibly enlighten, or bring some harmony to, our disparate ways of discussing origins of life on Earth or handling of critical questions. The long-term objective—not within the scope of this essay—is enormously challenging. More precisely, it is achievable only

with the help of front-end multidisciplinary research projects: it could increase, in certain cases, the effectiveness of our efforts in improving health, education, justice, politics, and more. And maybe help us come closer to identifying what it means to be human while securing a stable resolution to most conflicts.

The two most popular worldviews are: (a) the abstract-fascinated, with roots in ancient philosophy and religions, for which life on planet Earth has a purpose; and (b) the concrete-focused, with its reliance on the scientific empiricism, for which the universe's foundation is matter with its physical laws, evolution by natural selection, and chance. A long-standing divide, indeed. Most people like to think that their worldview is unique in at least one respect, but on balance it belongs to one or other of these two camps.

A first idea-input: The earliest conceivable starting point has the potential of becoming a common thread through all our many worldviews. The mystery of our absolute origin—the end of universal nothingness—remains *to all* an elusive fact despite claims by a few in both camps that they “know” something about it. This is what we may call the Level 0 of complexity. The Level 1, we can rationally imagine, corresponds to the time when the universe consisted of all the foundational elementary particles or energies. According to accepted mathematical extrapolations, such an era ought to have existed between thirteen and fourteen billion years ago. Many in the concrete-focused camp consider it as the period with the birth date of the physical processes leading to our galaxies.

From that earliest conceivable starting point, the cloud of foundational elements or energies went through increasingly complex combinations of particles, atoms, molecules, cells,

organs, etc., as well as of their nonmaterial foundational interactions. An atom is an ensemble of (or structure composed of) elementary particles. A molecule or a group of molecules is an ensemble of atoms and elementary particles (or structure of structures). A cell is an ensemble of molecules and atoms (or similar to a superstructure). And so on. How the relative importance of each part, material and nonmaterial, plays out is partly unknown. Chance and luck are inevitable as the structural complexity increases in a dynamic environment, and at times their influence on the course of events may be quite significant. Properties emerge, with quite a few accessible to our senses (or measuring apparatus)—such as mass, light, and thermodynamics—while others are largely imperceptible, though some may consider them part of the material context, within which we obtain, *inter alia*, the proto-versions of coordination, communication, tolerance, information, and memory. These functions or properties lead to stable or unstable functional combinations which grow, eventually, into what we see, touch, hear, taste, measure, accept, and reject, and, under favorable circumstances, into the proto-processes for life. The main point here is that the forms and behaviors—the underlying movements, the transformative processes, and the emerging properties—are at each juncture a result of material specificity, as well as *all* the primal interactions—within and outside the ensemble under consideration.

As already noted, we have a plethora of convenient starting points. And there is a good reason for that. So, while we introduce the earliest conceivable starting point as the guiding reference common to all worldviews, we also ought to recognize that *earlier practical* starting points will be required as well.

What about these associated/integrated nonmaterial-bound primal interactions? The move from the original chaos of elementary particles into the (at least) partly nonaccidental orderliness and patterns we experience every day must have required some form of intrinsic organizational capability. In other words, what underlies basic processes might be more complex than what philosophers, theologians, and scientists have hypothesized so far. If your worldview is the abstract-fascinated, built on the belief in a creation with purpose and destiny, the orderliness is a given and does not need explanation. If instead you are in the other camp, you'll be in favor of emerging physical or psychological properties thanks to an inherent material self-organizing capability—without the intervention of any outside agent. These emergent phenomena, however, show aggregate properties that cannot be predicted entirely from the features of their components. Each combination (or junction) leads to the emergence of a “new” property. And predicting the result gets more challenging as we move to higher levels of complexity. For instance, consider the significant case of neurons in extralarge numbers leading to minds and multiple thought processes in turn leading to political or economic systems.

A second idea-input: The non-materiality, as an integral part of the earliest conceivable starting point, has elemental origins, though this is not, strictly speaking, a reductionist view which states that macroscopic features depend only on their microscopic components. Non-materiality goes through stages of composition as if in cooperative interaction with the development of the material world in its successive combinations. This is in contrast with the established view that our innermost self or spirit or soul or intellect or consciousness

exists only at the higher levels of material complexity. The door may thus open for a fresh debate about the human adventure.

A third idea-input: We have four integrated nonmaterial-bound primal interactions. I suggest we should identify them with *-fer*: *Ensemblifer*, *Expandifer*, *Prudentifer*, and *Acceptifer*. These are arbitrary names for the most ancient precursors—the *bearers*—of the non-materiality-to-be. The follow-on infinite combinations helped cotransform and coproduce what we refer to as emotions, feelings, knowing that we know what's happening to us, intellect, thought process, psychology, spirit, consciousness, and cultural phenomena along with—actually, supported by—the physiological assemblies and their related processes.

Imagine any organism. We can observe, *inter alia*, genetic replication, growth, metabolism, neuronal activity, and death. The integrated nonmaterial-bound primal interactions are a part of the physical ensemble, though we have not yet learned about their transformation from original stages to the nonmaterial manifestations we perceive. More precisely, despite the progress achieved in microbiology and neuroscience, we do not know much about how the nonmaterial evolution interacts with other processes, why its manifestation seems to be carried by nerve cells, how it interacts with genes, and where the passage from physical to phenomenal life occurs. But we do know that a physical impairment can inhibit an emotion or a feeling: consider the case of a partly damaged brain, which causes consciousness to be suppressed; and think again about certain experiences throughout development and adulthood becoming able to modify the activity of our genes but without any impact on the genetic code.

We could nevertheless venture with the following: A strong, physically supported current of one type of nonmaterial-bound interaction might overpower the others at some stage and lead to the formation of a particular stable component. For instance, a negative or positive behavior might be the result. More often than not, we will have an interwoven, changing mix of underlying movements and, therefore, a more difficult sorting out of details, let alone comprehending the best course of supportive or corrective actions.

As a theoretical example, an Ensemblifer-led movement will likely result in a working ensemble; if indeed it remains the prevailing movement, it may help achieve the capability of internal equilibrium and, eventually, an extraordinary harmony among the parts in that ensemble—the building block upon which health, stability, and strength are dependent. An Expandifer-led movement will likely result in an enlarged ensemble; it may in some extreme cases become the relevant factor behind a determination to win or to possess at any cost. A Prudentifer-led movement is at the heart of a negative reaction to an external condition; it may provide a resistance to an impending change to the structure's current status; or, in extreme cases, it may result in a pathological fear of loss. An Acceptifer-led movement is at the heart of a positive reaction to an external structural condition; it may participate in the building of the structure's status-to-come; or it may, in extreme cases, lead to giving in to the new development regardless of the negative consequences.

We have often remarked that the wholeness of any natural ensemble is greater than the sum of its parts. But what if studying anew all the interactions at the lowest levels of complexity, as

well as the composition patterns of the nonmaterial-bound primal interactions, leads us to a better understanding of the relation between parts and sum?

Take good and evil, for example: they are perceived as parts of human nature. But is that the whole story? Does evil inevitably mean war? Take our eternal search for the *whole* truth: do we not venture into it with an arbitrary starting point and almost neglecting the assumptions embedded in our thought processes?

The idea-inputs in this essay will likely need adjustments and improvements. We'll need to probe them time and time again. An open-minded collaboration, coupled with independent analysis and tests, cannot but help us become more effective in the crossing of our divide.

Did I hear you say, "Why would anyone believe a new approach will give us a better world?" or, more bluntly, "So what?"

* * *

Consider the physicists who in the past century studied the details in the atomic structure and thus expanded our understanding of matter beyond what chemists had done earlier on with their focus on chemical reactions among substances (structures of atomic structures). Why, therefore, should we accept that our non-materiality as expressed in behavior, consciousness, and thought process, as well as what underlies shape development, is merely about emerging properties thanks to an auto-organization that arises out of the increased complexity, or as the outcome of random mutations along evolution?

Think about the law of evolution by natural selection. We have empirical data to confirm its validity to an impressive extent from unicellular organisms up to humans. Outside that range, though, doubts persist. Could it help to go deeper and clarify how this law came to be? Modern genetics, with DNA as the starting point instead of the cell, is about genetic drift, and gene flow, but still falls short. Researchers are now focused on the interactions among genes and might further expand our knowledge of the processes that control organic developments—what we cannot perceive. In other words, we learn more about matter and non-materiality if we study—with an open mind—their composition and underlying movements at the deepest layers, and, if applicable, revise the assumptions without forgetting the starting point.

Erwin Schrödinger (1887–1961), recipient of the 1933 Nobel Prize in physics, in his book *What is Life?* (1944), discussed the changing human body, with the constant renewal of its cells as distinct from the spirituality—the non-materiality—which is a continuum. This is one aspect of the so-called mind-body problem. Depending on your worldview, that material/nonmaterial discrepancy may be of no concern to you. But the mystery remains. In an interview published in *The Wall Street Journal–Millennium Edition: Futurology* (January 2000), Edward O. Wilson (b. 1929), research professor in entomology at Harvard University (“Dr. Ant”), and the founder of sociobiology (which argues that animal, and human, social behavior is genetically based), says that “the search for spirituality is going to be one of the major historical episodes of the twenty-first century,” and adds that “we are going to have to be proactive in seeking it and defining instead of reactive in the

traditional manner of taking the sacred texts and beliefs handed down to us and trying to adapt them to an evolving culture. That's just not working anymore.... There is a wonderful range of opportunities for major thinkers of the future in re-examining the human condition in the real world.”

One of these major thinkers is David Chalmers (b. 1966), professor of philosophy and Director of the Centre for Consciousness at the Australian National University. In a paper published in 2004, “Consciousness and its Place in Nature,” Chalmers suggests that the laws of physics are not enough to explain the organic world. His claim goes against what many biologists and geneticists are convinced of, that is, understanding cells and creatures composed of cells has no room for new laws outside chemistry and biology. Chalmers’s recommendation is that we need to take into account the possibility of “psychophysical principles.”

By the same token, it is interesting to note that Alfred Russel Wallace (1823–1913), who identified the law of evolution by natural selection independently of Charles Darwin (1809–1882), thought that some of the brain’s capabilities might have been due to a divine intervention. Darwin disagreed: His own view was that organic structures might develop functions in addition to those for which they had originally evolved, thanks to natural selection. The adaptability of the human brain is indeed a testament to Darwin’s insight (his starting point was a unicellular organism). More recently, scientists have determined that nerve cells from two species (to be precise, an insect’s nervous system and the human brain) are made up of look-alike building blocks. It follows, according to their report, that the higher quantity of nerve cells in the human brain makes the

difference that distinguishes us from the insects. But how did the researchers determine that the manifestations of our non-materiality might not be influenced by more factors than the number of neurons? Do they have some evidence for that? A debate with these researchers, as well as Edward O. Wilson and David Chalmers, about the Darwin-versus-Wallace approaches would likely be filled with arguments either pro or con the “new opportunities in spirituality,” “psychoanalytic principles,” and the proposition that “quantity takes care of quality.”

With my idea-inputs, we might start the discussion with a question such as: What if we first establish the same earliest conceivable starting point in all worldviews? We could then study and test and improve the hypothesis of additional/integrated nonmaterial-bound interactions, and thus have a common guiding light for all cultures and societies with their distinctive qualities. What may ensue is a more effective effort toward a better understanding of the mind-body problem. That’s my first answer to the “So what?” question. The research work can bring together experts with diverse opinions and be more successful in dealing with many more cases than with current approaches.

* * *

Here is a second way of handling the “So what?” question. Let us consider the story of a woman with a great soprano voice. Experts will in time probably attribute her fame as a singer to her training, her agent, a supreme guidance, and/or the genes in her family. Past events are quickly forgotten; in particular, that one of her faraway ancestors encouraged all the children of the tribe to sing with him each morning. We can imagine

it became a tradition in subsequent generations, and that a significant number of descendants turned out to be talented musicians, singers, or composers. As it happens, the discipline's results encouraged the development of the top capability in each individual, and it was so well assimilated into the fabric of the community that it opened the way to excellence in teaching and, later on, science. With the introduction of new assumptions and the adoption of the earliest conceivable starting point, we should be able to say that the ancestor, given particular circumstances in his day, left a stable benefit to a large number of the descendants instead of merely claiming that the extended family is *gifted* with exceptional qualities. We'll gain a better understanding of the advanced, or progressive, versus the anemic, or truncated, developments in different parts of the world. We may also prevent conflicts that might arise out of the perception by those who feel marginalized because of others. With an adjusted worldview, they will eventually be encouraged to improve upon the lesson, which is what a new approach should support.

* * *

A third and last example in response to the "So what?" question is about the distinction between natural and artificial. This is not always easy. So let's go to central Siberia some 50,000 years ago. A group of *Homo sapiens* has set up camp. Generations come and go. At one point, the young guide of the group takes steps to reinforce his hierarchical position, as recommended by his father, who has become paralyzed. The relatively unprepared leader learns fast about the effectiveness of daily rituals as a way of furthering his objective. He then

encourages faster growth of the population so as to compensate for the loss of lives during the harsh winters. Several generations later, a new chief seeks additional powers; an encounter with a passing tribe shows him how to affirm his ascendancy with gifts and to increase the frequency of ceremonies even if that causes him to somewhat neglect his responsibilities in the day-to-day activities. Many generations later, the now enlarged family finds it perfectly “natural” to be devoted and obedient to, and have faith in, messages coming from the top.

But are these behavioral traits not the result of artificial selection in the broadest sense of the term? On one hand, order and peace have been achieved in the particular community. On the other hand, such an ideal situation only lasts until a new settlement appears not far from theirs. The newcomers have different rules; for example, whoever does what is most needed for the tribe (fishing, repairing, wood splitting, etc.) becomes the commander for the time assigned to complete the task. Contacts between the two groups are initially cordial, but the relationship eventually deteriorates and a conflict arises. History books can tell us a lot about what actually happened. *We do not* know what kind of an outcome we would have—we have never dared try—if the negotiation got going on the basis of more realistic assumptions, including the earliest conceivable starting point (that is to say, one that can be adopted as common to both groups’ views).

The well-established schools of thought and worldviews represent an intellectual treasure but may gain a lot with a minor face-lift. In addition to my questioning anew some of their assumptions when we think about *natural* versus *artificial*, or *nature* versus *nurture*, we ought to highlight the earliest

conceivable starting point; select the effective earlier practical starting point(s) for the project at hand; include in the discussion all that contributes to our behavior; and keep in mind that we behave in certain ways also *because* of the way unknowns have been dealt with by our ancestors. In other words, with a revised approach along the suggested idea-inputs in this essay, we might have more successful negotiations in order to prevent a conflict from arising.

* * *

Michel de Montaigne (1533–1592) saw the human psyche as a dark, unfathomable maze. And he chose as his personal motto *Que sais-je?*—What do I know? His humility in dealing with what may be behind our reality is commendable and worthy of emulation, though we should not be discouraged from entering the labyrinth by a sense of futility. His question inspires ours; we carry on his legacy of opening our minds to challenges, and looking for a new approach.

We will never know, of course, how any of the great minds would have reacted to the tentative ideas I am proposing. At best, some of these thinkers would have considered it a rather odd personal initiative. On the other hand, many expressed doubts about conclusions reached by other thinkers on some of the fundamental questions; they came up with their own assumptions or introduced their own guidelines, though maintaining the advent of humanity as the (practical) starting point. In other words, they observed and studied the human condition at its highest level of complexity—the human body and spirit. Their insights and contributions are influential works, despite the riddles of human existence left unexplained. But we

have accumulated more knowledge since their days. Above all, we ought to acknowledge that self-organization perceived in an organism depends to a great extent on the intrinsic properties of its components. These, in turn, ought to be looked at as the bearers of what gets transformed into underlying movements and self-organizing features.

As a follow-up to a series of broadened discussions and research projects, with special attention to the additional/integrated nonmaterial-bound primal interactions, we should apply these new ideas in light of one or more difficult societal challenges in health, politics, long-standing conflicts, education, justice, and more. One example of interesting study with new inputs: if medicine's goal is to make people feel better, why do we mostly talk about genetics, microbiology, pharmaceuticals, and surgery? Isn't it true that illness can be affected by the relationship between patient and practitioner—or a dear friend? In fact, the placebo effect and various relaxation/meditation methods are under renewed study; I dare say, researchers might improve their reach with the proposed idea-inputs, and further promote an integrated, cost-effective healthcare system. Another case is about the numerous declarations that all wars can be ended, though we also know that the road to such an ideal is endless—that is, under current assumptions. Opportunities abound.

Future work from diverse experts might recommend a reinvigorated set of assumptions, maybe, accompanied by more helpful guidelines, with different additional/integrated primal interactions, and actually revise their number...from the suggested four to a bigger or smaller number. An effective diagnosis is critical to getting the right treatment. It may be

better at inspiring the holders of our many worldviews to accept the idea of a common thread through all worldviews, and thus embark on a road along which we learn to accept the unknown with equanimity; we open-mindedly discuss what is said to be fundamental or axiomatic; we focus on better understanding rather than increasing our possessions; we have disagreements without final judgments; we see evil not as a fundamental part of being human but as a consequence of artificial selections made around our nature; we know when/how to stop; and we acknowledge that we are not supreme beings, but are dependent on the life process on Earth—as is all organic life.

* * *

Yes, it is a tall order. Each worldview has embedded in its origins, and as part of its unique development, a different version of our common story—starting points and other assumptions along the same timeline. I suggest this is at the heart of why proponents and opponents talk about the need to narrow the divide so as to prevent the clash of worldviews. Again, each is right...up to a point. More precisely, to talk about narrowing the divide without at least rediscovering—and consequently readjusting—the timeline and assumptions does not go far enough. A common thread to all worldviews could, I think, open the way to a better outcome.

Let us roll up our sleeves and proceed slowly, with humility. In advance, I offer thanks for all readers' contributions—whether in resonance with or in resistance to mine.



A SIMPLIFIED TIMELINE

LEVELS OF COMPLEXITY

0 Unknown

- The precursors of elementary particles and all related primal interactions

1 Ensemble of elementary particles (or energies) and all primal interactions

- ▶ *the herein postulated earliest conceivable starting point*
- Quantum of matter/energy; universal constants; laws of physics
- First structures of structures and earliest emergent properties: coordination, memorized patterns, proto-feedback loops, rules, prevalent interactions, the precursors of life's prerequisites...

2 First gene, proto-cell, proto-RNA/DNA

- ▶ *the starting point for modern biologists*
- Intra- and interorganism coordination and communication...measurable chance events, size, volume, pressure, and heat; symbiosis; homeostasis; precursor of neurotransmitters, more emergent phenomena of ensembles... proto-emotions, -feeling, -knowing...

3 First unicellular organism

- ▶ *the starting point for Darwin*
- Higher complexity, diversity, proto-organic order... law of evolution by natural selection

4 Precursors of the vegetal kingdoms: eukaryotic, prokaryotic, fungi...

5 Precursors of fish, bird, and reptile kingdoms

6 Precursors of mammals

7 *Homo sapiens*

▶ *the practical starting point used by philosophers, religious scholars, and others, though rather sparingly*

- Biological functions, bipedal movements, tools, language
- Art forms, feelings, emotions, consciousness, culture
- Songs and dance, myths, magic, legends
- Migration, agriculture
- Polytheism, monotheism, wars

(Note: many of these emerging phenomena have their actual origins between Level 3 and Level 5; they continue to evolve through current times, though under modified appearance)

The dawn of civilization

▶ *the “practical starting point” most often used by philosophers, religious leaders, and others*

- Monotheism
- Leadership, possessiveness, government
- Explorations, politics, overpopulation
- Science and technology...

II

A Critical Question

You are at the right place to discover the outcome of a discussion among three main groups of participants—the first representing those who are confident in their pursuit of *classical philosophy* (PHI); the second, a group of believers in a *religious system* (REL); and the third, adherents of the *scientific method* (SCI). A smaller group has joined in on behalf of the skeptics, atheists, and agnostics (SAA). All participants have been told that a session of the highest interest to their group is included in the program. Professor Epsilon from the University of Patagonia is behind the lecture stand.

A message is projected on the wall:

*either abstract-fascinated or concrete-focused
you are here to get a conversation started
to come up with a critical question*

*ethics being among your considerations
as a group you will dedicate one hour or less
for ideas to exchange and conclusions to express*

A thin pamphlet is handed out to all.

Pages are shuffled. Most participants are mesmerized by the odd situation. After many long minutes, the writing on the wall disappears. And most feel the pressure to be the first to come up with some introductory notion on what might be *the* critical question.

Professor Epsilon moves around. He asks the mistress of ceremonies, who has distributed the document, to close the door. Pages continue to be turned. Everyone takes a seat. The round-table discussion is started. All the exchanges are recorded, and what follows is the transcript of the digitized memory. The speakers are as heard, in their original order, with Epsilon (E) who begins the discussion.

E: What should be our most critical question...considering how much we don't know?

There is silence. He continues.

E: I appreciate your hesitation. I myself was uncertain as I finished reading the words on the wall. We know of great thinkers who raised and examined questions of profound interest to humanity. They had in mind and heart the betterment of human life on Earth. But something may be amiss. For instance, wars continue to occur. Some scholars have recently suggested that deaths caused by armed conflicts have definitely decreased over the past four centuries. They claim that such good news is reason to be optimistic. Yes, war is hell, and to deal with fewer of them is better. But it seems to me, individuals who are prone to violent behavior are only changing the *appearance* of their negative reaction toward

others as opposed to becoming less violent. Instead of killing or maiming, they use other, more subtle means to undermine and weaken whoever is an impediment to their goals—the outgrowth of a built-up resentment. This is evil with another face: it will not stop as long as we do not apprehend the process by which our innate capability for negative reaction can be transformed into evil acts.

In sync with that, I have had for a long time the thought that there could be a link between violent behavior and some of the decisions made by leaders of the distant past. As stones thrown on a quiet lake, their doctrines moved through generations like waves or underlying currents. At the beginning, the new thoughts had a strong appeal to lots of people. However, they also had persistent side effects: a negative impact that, in some cases, trampled many of the benefits our great thinkers aimed at achieving. The suggested earliest conceivable starting point, common to both material elements and nonmaterial-bound primal interactions, coupled with a set of renewed guidelines—if we are interested in achieving some harmony in our many worldviews—might be a valid alternative support to our endless quest for betterment of our human adventure.

Scientific Method (SCI): Aha! Utopia is back. But even if we adopt this new hypothesis and related guidelines or new approach so as to allow us corrective measures, are you saying that social, political, and moral reforms will follow, and our human condition will be perfect?

E: Of course not. We all agree that our human condition has seeds for *potential* good and bad. I happen to think we are

oftentimes at a disadvantage when dealing with a psychological or thought-related trait that has been described as *natural* but is actually the result of what some of our ancestors did so as to serve their own interests of the moment. And that's what the critical question could be about. It's not to catch the culprit so much as to identify the parameters and direction of this artificially-influenced process. We need to better understand it—and the implied ethics.

Consider, for instance, that two nations are at war and each declares it has evidence that the other started the hostilities. To some observers, what matters are the facts gathered on the ground. To others, God will punish the guilty. The political leaders organize emergency reunions, propose a series of steps, assign mediators, call other nations for their support, and race to declare that all their efforts will aim not only at stopping the war, but also at preventing such a conflict from ever happening again.

Who worries about understanding the basics? So, why not go back in time and identify all that, on both sides, contributed to the conflict and thus calm down the inflammatory declarations of the opposing leaders? The suggestion here is *not* that a concern with elementary particles will help. With that earliest conceivable starting point in all our worldviews, however, we should become open-minded enough to consider a common effort toward peace and thus increase our willingness to deal in unselfish terms with the deadly development. A review of history shows that many wars are directly linked to misgivings left behind in earlier conflicts. Well, if the people come closer to realizing that what triggered the first blow is partly of their own ancestors' making—laws and constraints which act as an

artificial selection method—then there is a good chance for the subsequent phase of the negotiations, with leaders listening to their people, to be concluded with a stable settlement of the differences. A good omen for future generations, maybe?

Classical Philosophy (PHI): Your concern about natural versus artificial is overblown. Progress has been achieved in the cultural, technological, and physiological domains. We went from polytheism to monotheism, and from Aristotle to Galileo to Newton to Darwin to Einstein. Strong expressions of this improvement are countless. And, I dare say, we should expect more of it in the future. That is, as long as we continue building on what our ancestors have done and working together on what is in front of us.

Skeptics and Atheists and Agnostics (SAA): We do not learn well enough. Take polytheism. I don't think we have abandoned it. No one ever implores anymore the gods and goddesses of ancient times, but have you not realized how much our lives are cluttered with "gods" such as money, sports champions, and entertainment stars? Gods, wars, and almost everything are evolving. And so, I think the suggestion that the face of violence is changing is worthy of an analysis.

E: Yes. Let me add that each of us may be more concerned, at any point in time, with questions of illness or other personal distress. I don't mean to discount these here-and-now questions. But my suggestion is to consider both what we perceive and what is *behind* human nature and behavior; what may have pushed faraway fathers and mothers on a certain road, despite

other roads that were wide open but not taken. Not unlike what we are faced with on a daily basis: both short- and long-term requirements and objectives have their importance. Neglecting one may simplify life at the moment, but we then need to take responsibility for what follows.

PHI: Not sure where these remarks lead us in regard to the most critical question. Why can't we choose one question out of the known works? Is there something new we need to discover? We have inherited a complete catalog of questions from philosophers, religious leaders, and scientists. And it could be helpful to compare notes with the great thinkers of the past. Putting aside all questions arising from personal priorities, we have: What is life? How did life spring from inert material? Who are we? What happens after death? Why is there something instead of nothing? What is in store for me tomorrow, next month, and next year? How will we reconcile quantum mechanics' perplexing view of reality with ours? When did our consciousness come about and what made it happen? Is free will an illusion? When will the universe end? The choice is ours.

E: These are valid questions, no doubt. But they are mostly about expanding our knowledge. Our task is about our many worldviews. We seek not more information but better understanding. And that's a critical element for each worldview.

SAA: I bet we'll argue for more than one hour just trying to define what is meant by a critical question. It is, above all, an unusual one.

Religious Systems (REL): Why don't we open the debate around a more clearly presented topic? How can we reconcile views based on scientific empiricism and evolution by natural selection with those on religious faith and belief in creationism? As we sort out the differences between these two opposing worldviews, we will identify the most critical question, and that might open the door for a continued discussion on the wider topic of the reality behind human nature and behavior.

SAA: There is nevertheless a persistent disconnect between these two worldviews, also mentioned in the pamphlet in more general terms. I mean, there is a new twist. As suggested earlier, consideration ought to be given to events that took place when no one was yet talking about classical philosophy, religious systems, and the scientific method.

PHI: I don't see how discussing past events in our cultural development can shed light on current disagreements. But never mind, our exchange of views may clear up things as we move on. Let me emphasize, however, that not all scientists are atheists, and not all religious people are fundamentalists. I know physicists and microbiologists who believe in creationism, even though they work in full adherence to the scientific method. In other words, I consider the extremists in each camp as the subgroup to watch.

E: Both camps claim reason and love of truth as part of their heritage. Even the extremists do. These two worldviews have an intertwined history. The modern scientific method owes

a lot to analysis developed in monotheist religious reasoning and theology, in particular. On the other hand, monotheism came about, at least in part, thanks to the push for factual demonstration in polytheistic times, and ancient religions arose in each tribe thanks to a chief professing love of truth and showing special knowledge. That's why I think the reconciliation is attainable. Do we really need all the details to find an overriding critical question?

REL: Max Planck warned us that science cannot solve the ultimate mystery of nature because, in the last analysis, we ourselves are part of the mystery. We cannot see the whole of nature. We ought to be aware of the limit of our abilities.

PHI: Thanks for that. Could the critical question be about our limited abilities? That is, how could we be aware of them?

E: All believers in God or science or some other set of rules are of the same mold; they think they see something the others can't or won't see, and that makes the difference with those who admit their lack of knowledge. Whether we like it or not, there are those among the philosophers, theologians, spiritualists, and scientists who devote themselves entirely to their theories and allow a limited space for other opinions. And it is rare to hear them discuss the role of the assumptions underlying their theories or credos.

SAA: A scientist like Richard Dawkins does not claim that science allows him to understand everything. Compare this with politicians who claim they have a fail-safe solution to a

crisis, and to religious leaders for whom faith in the Creator is all. Let's keep that in mind.

E: I agree that humility is part of our heritage, and science in particular. But are philosophers, religious leaders, and scientists humble at *all* times? Can we for a moment expand on the subject of the nonextremists? Let's consider a scientist who is also a believer in creationism. He would say that God created the gene with its DNA and the internal workings of the cell, and established the natural selection law along with all fundamental laws of the universe. People like this scientist are believers in both a religious system and the scientific method. How is this possible? My hunch is that the scientist is honestly aware that many unknowns will remain, despite all the research in the world. But his trained mind, not unlike most human minds, needs to rely on something, as opposed to living with unknowns—an artificiality of ancient eras. That's how his faith comes in and succeeds. In fact, we have never attempted to pursue progress while accepting that no one knows it all. All religions have been made to appear as offering a more hopeful, comfortable position for the follower. Indeed, all worldviews either eliminate or push aside the unknown.

PHI: You make me think of Pierre Teilhard de Chardin. He was a Jesuit, as well as a philosopher and paleontologist, and a published author. He came up with the idea that, through divine intervention, the universe and humankind are evolving toward a perfect state. It is an elegant approach for a life with the unknown. It was presented as a wonderful, desirable objective.

E: I'd like to read a couple of pertinent notes that I jotted down recently.

Professor Paul Bloom of Yale University's psychology department wrote an essay titled "Is God an Accident?" in the *Atlantic Monthly* (December 2005) that digs deeper into the tenets of the religious camp: "The idea [that the soul enters the body at the moment of conception] is learned. But the universal themes of religion are not learned. They emerge as accidental by-products of our mental systems. They are part of human nature." This is another instance, like Teilhard de Chardin's, of a commentary made without clarifying, discussing the key assumptions first.

What does human nature include besides our mental systems and the capability to learn? Some will simply find Bloom's assertion as another cop-out. Others will applaud. And the chasm will get wider and more treacherous. With the adoption of one earliest conceivable starting point—always recalling it as an assumption—there is a better chance that both camps will eventually walk together; of course, they will continue to argue, but the chasm will have a bridge built across it for all concerned. Yes, I am well aware that so much hinges as well on the other assumptions concerned with our non-materiality. So let's evaluate, with an open mind, the merits of the earliest conceivable starting point and, step by step, the new approach may show its inherent validity.

REL: And yet it is still my firm conviction that we would have no problems if humans learned to think, speak, write, and act with the teachings of the sacred scriptures in mind: clarity, modesty, fairness, tolerance, honesty, morality, generosity—

these *are* the pillars of order and peace. In any group, we have learned that there are some humans who are motivated by ambition, selfishness, greed, hatred, and lust for power. If these “sinners” are allowed to think, speak, write, and act, there is an increased risk for the entire group; chaos and war will soon follow. I believe in a God whose existence is beyond our ability to investigate, let alone reduce to mathematical equations. God created man for a purpose; there is no evolutionary path from animal to man. I don’t have questions why, because their answers are in the spiritual domain. Rather, my central questions are: What must I do and not do throughout life? And what happens to me after I die? I hope these questions are not ruled out of this conversation.

SAA: This is a—

E: Sorry to interrupt. Until now, the exchange has been on the right path. It might be helpful, going forward, if we pay attention to the following intermediate question: On what historical basis did the two referenced worldviews start? Oh, allow me another one: What are the assumptions on which theories have been developed in classical philosophy, religious systems, and the scientific method? In fact, repeating myself, these questions are not often enough taken into account when opponents are in the heat of a debate. There is no point in discussing a merger when the parties are actually using different languages. I hope we’ll do better than just agree to disagree.

Let’s move on. There are also cases of faith coupled with dedication to classical philosophy. Erasmus is a good example. A Roman Catholic theologian, he revived classical texts from

antiquity, challenged Luther's views, and took part in the opposition to repressive church decisions in his time. Reading his works led me to the observation that our training in the West has put too much emphasis on hope and desire. It is my opinion, counterintuitive today as it may sound, that our ancestors got carried away with the idea of growth and expansion. They should have also worried about and taught their followers what makes a working ensemble. When have we been told that we ought to learn how to stop and not only how to run? So you see why I often find myself wondering about the reality underlying our human nature and behavior.

PHI: Most worldviews have a focus on humanity and what we can see, hear, and touch. I agree that we need to be more wary of assumptions. For instance, monotheism defines the birth of the human being as an ontological discontinuity; does it follow that man is the starting point, or is that one of the assumptions? I know of many religious leaders and followers who maintain that God is their starting point. So, I recommend clarity when using certain words; otherwise, we'll get entangled and drift again.

E: Thanks for your remark. As a result of my reading scholarly works, in the monotheistic religions, God is a fundamental assumption while humanity, as a divine creation, is their starting point.

SCI: The scientific method is the only valid framework of thought for understanding what can be observed. What man can imagine beyond that is speculation. What does it matter if

I call this or that my opening salvo or assumption? As we heard, for many religious leaders and followers, there is God, and faith in Him is all that is needed.

E: It matters because where your analysis or empirical work starts is a particular moment in the history of what you happen to be interested in. The earliest conceivable starting point implies that we know nothing of what precedes it. The earliest practical starting point will be determined as acceptable on a case-by-case basis. An assumption is an attribute, an aspect of a given phenomenon of which you have not yet established a reliable understanding.

PHI: Could you summarize and comment on where the two referenced worldviews stand in regard to their starting points and related assumptions?

E: For the concrete-focused, with few exceptions, the earliest starting point nowadays is the gene or DNA, which is part of every cell. And progress in microbiology and genetics will enable us to keep improving on the identification of the most practical starting points. The scientist's main assumptions are: (a) all organisms evolve by natural selection and chance while obeying the universal laws of physics; and (b) we need to translate each new finding as progress in the subsequent imagination-observation-experimentation-theory (renewed, as the case may be) endeavor. Assumptions should not be made into dogmas just because it's convenient for a given theory, method, or system. For instance, consider the idea—we are at the imagination step—briefly outlined in the pamphlet, that

there could be nonmaterial-bound laws somehow integrated with the primal interactions underlying the laws of physics. The distinguished physicist Freeman Dyson, in his *Origins of Life* (1999), thinks that the inanimate universe may not be as detached from the potentialities of life and intelligence as modern scientists maintain. I would like to think that Dyson—and not only Dyson—could be receptive to this idea of bearers of the non-materiality-to-be.

PHI: The suggestion of primal interactions somehow associated or integrated to those claimed by physicists made me think of David Chalmers's work on consciousness. His research is aimed at identifying laws or principles proper to consciousness as add-ons to the laws of physics. Chalmers is quite adamant that consciousness cannot be reduced to the laws of physics.

E: Yes, thank you. We might come back to it. At any rate, to continue where we left off: Those dedicated to a religion have man's body and/or soul as the practical starting point. For them, man is a distinct living creature who happens to be on Earth with a rich variety of organic life all around. Specific purposes for life vary from one religion to another. Their main assumption is that there is one God. That is valid for Jews, Christians, and Muslims, though not for Hindus and Buddhists.

SAA: Darwin's theories paved the way toward adopting a starting point that antedates *Homo sapiens*; first with mono-cellular organisms and now with the gene, or its DNA. Following your line of reasoning, we could say that assumptions were made, or adjusted, in line with developments in modern

physics, biology, and physiology.

E: Yes. But many philosophers, psychologists, and sociologists, as well as leaders in both the political and academic worlds, though well aware of and embracing the scientific method, continue to place primary emphasis on theories in which the human being is the starting point. I think it is worth keeping in mind, and repeating, that in some cases assumptions are unfortunately taken for established truths.

REL: In the religions of the world, the main assumption is admittedly quite a complex topic. So much depends on it. The one and only God is everywhere in spirit—an expansive Being who knows about the workings of the universe without involving Himself in the details. The Creator is, to human senses, an invisible force. It is a remarkable fact—an empirical outcome—that various forms of religious fundamentalism seem to continue gaining vigor more than two millennia after the initial stages of monotheism. Something is there, embedded in the religious systems and their development, that draws people's attention and affection.

PHI: For some adherents of the scientific method, selecting the earliest practical starting point and related assumptions may signify progress. However, chance remains the crucial companion to the laws of physics and natural selection. Interestingly, when some physicists focus on elementary particles and single atoms, they only talk about the fundamental laws of physics. But in the last two decades, with the advancements that have occurred in quantum mechanics, they refer to the entanglement of

particles and then feel ready to talk about consciousness and free will, as well as events that seem to have a purpose, or some predetermined organizational schema in store.

SAA: In this context, you will probably recall Einstein admitting there were some spooky interactions in the microscopic world, though he remained adamantly of the opinion that there is a real world all around us, and science will eventually enable us to understand the whole reality.

SCI: Dawkins wrote about Darwin's theory as a schema with an incremental improvement from very simple beginnings. You get these monsters of improbability, like the human brain, as the result of adding zillions of increments over billions of years. DNA survival is an empirical result. How we went from genes to brain, mind, and consciousness is all about natural selection, survival of DNA, and chance, but there is nothing wrong with chance playing a role in these processes. Dawkins also said that the idea of evolution by natural selection plus chance shows how improbable the formation of our brain is. He then considers the opposing view and concludes that a particular God who designed the human brain is, to say the least, something even more unlikely.

PHI: At this point in our exchanges, I realize that many gray areas persist, despite affirmations to the contrary from both sides. And as long as these clouds surround our thought process, the two have no chance at talking about a happy union.

E: We are not talking about a unified worldview. And in that

same vein, we are not suggesting a new approach is necessary in all instances of daily life. The objective is to minimize, and possibly eliminate, the *potential* for conflict that our many worldviews have. Yes, we have to deal with the gray areas. As it happens, neglecting assumptions and the starting point is the main producer of gray areas.

PHI: All right then. With our two worldviews in mind, if you could, help us with the gray areas and expand a little bit on the new ideas. The distinction between natural and artificial is fuzzy. The laws of physics do explain attraction and rejection. But the idea of nonmaterial-bound integrated primal interactions sounds crazy to me.

E: Yes, of course. I'll be happy to clarify those points, as long as we have time. But your mention of power is quite helpful on one count.

Primatologist Frans de Waal, of the Yerkes National Primate Research Center in Atlanta, claims, "Power is all around us, continuously confirmed and contested and perceived with great accuracy." This, I gathered, is one of the results of his research on chimpanzees. By the way, you might think his was also inspired by Machiavelli, who saw, in his days, the importance of power as a primary interaction between mortals. However, I have recently found that de Waal's studies on bonobos have led him to say, "Bonobos help us to see ourselves more in the round... we can learn as much about human evolution and behavior by studying the sensitive, peace-loving bonobos as by studying the more violent chimpanzee—both of which share more than 98 percent of our DNA." In other words, we're not only made of

stuff that's related to power seeking, but there also is something else, a basically peace-loving ingredient in either our body or mind or both. From these two perspectives, several questions come to the surface: Will we ever be able to understand the attitudes of power seeking and peace loving if our worldview is only in favor of the laws of physics and chance? And who's to say these things are part of the human soul just because we observe them only in mammals?

SAA: Thanks for that. It's fascinating—a case of out-of-the-box thinking despite its wild conjecture. Let's hope scholars and researchers have the time to participate. The conjecture of these integrated primal interactions along with the earliest conceivable starting point, I think, can be introduced as a complement to existing theories.

PHI: It doesn't make sense. No classical philosopher has ever considered such an approach. Plus, I can't imagine Dawkins or any other scientist expressing anything positive about it, either. And no religious leader would even think of discussing it.

E: That's to be expected. The approach introduced with the pamphlet has never been examined before. We have barely seven minutes left. I have two comments on the gray things, and for each I will rely on other great modern authors.

First, with regard to going beyond our habitual horizon in language: Primo Levi (1919–1987) in *A Tranquil Star* (1959) wrote that “our language is inadequate.” He was referring to when people are discussing new stars. “Our language was born with our ancestors; it is suitable for describing objects more or

less as large and as long-lasting as we are. It has our dimensions, it's human. It doesn't go beyond what our senses tell us." Not that he means our language will forever remain inadequate for describing a new star. I suggest Primo Levi wanted us to remain alert—assumptions require maintenance and updates. Language started with a sound, in conjunction with bipedal motion, and became what it is through the millennia of man's usage, misuse, corrections, and so on.

I appreciate what the previous speaker said. I shouldn't use words like "power" and "peace loving" or "harmony" and "fear" when I am in the microscopic world. It would be wrong because it's like saying that elementary particles have consciousness, free will, and purpose, and that's not my view. But they might have what constitutes the foundation for the non-materiality. The point is that our language is inadequate for the naming of nonmaterial-bound primal interactions in our current context. Will it help if I happily admit that *I do not know* better words to use? I think it should. But my opinion is meaningless unless others can realize that my starting point is earlier than what they have been accustomed to thinking it is. Take language again: Most people never worry about when language started and what actually occurred for language to become what it is today. Their starting point is the dictionary!

The other comment in the gray department has to do with the reporting of an event, the differing criteria each of our camps would use to interpret facts. I have written a page that I'd like to read, if you'll continue to bear with me for this, too. The ravages of World War II and its consequent series of forced migrations profoundly affected Stefan Zweig (1881–1942), an established Austrian writer in the first half of the twentieth

century. He and his second wife, Lotte, were found dead from poison, in Petrópolis, Brazil. No sign of the end of World War II was then in sight. Their deaths were ruled suicides.

Zweig's works demonstrate a strong passion to know, to discover. He explored the depths of human passion. His biographies of Montaigne, Erasmus, Spinoza, Calvin, and Freud leave no doubt as to the extent of his research work and resolve on better understanding. But the war overwhelmed his personal priorities and eventually broke his spirit. It's quite possible that he was so horrified by the atrocities enacted during that time that the consequent pain he experienced caused him to commit suicide.

The technical view, based on the evidence gathered at the scene, is that he was depressed and killed himself. Furthermore, his wife couldn't accept his death and decided the same fate for herself shortly after he did.

From the religious point of view, Zweig committed suicide because he had no firm faith and refused to identify with his ancestors' religion. Zweig embraced the secular view. He saw creativity as a reflection of man's glory rather than God's. Having taken the path of ascribing the ultimate reward to reason alone, Zweig lost his ability to survive. That's why he left home. He also understood that all those with one single credo were pushing him to be someone else, to act on their behalf, and be their champion. With faith, these religious observers continued, Zweig might have hung on to his life rather than tossing it away as a casualty of displaced ideals.

But what is really behind a suicide? If we look at Zweig's final act with his life, his friends, and his works in mind, his suicide can only be seen as victory over intolerable pain, not

a sign of depression or a cowardly act. Better said, was he not killed by his opponents?

SAA: My turn to play the umpire! I am not sure where we go with the remarks on suicide, but I am sure we only have two minutes before the conference organizers throw us out of this nice place.

PHI: The subject of suicide may be somewhat off the point. At any rate, I gather from what has been said that talking about something we don't really know much about is a feature of the two worldviews. Could that bring up a critical question?

SAA: One point, if I may. Let's not forget the other features of the well-established worldviews. And what has happened along other roads with signs such as: We know the unknown...Have faith...Remember the masters...Man is at the center of life on Earth... Man is made in the image of God....

E: Unfortunately, we don't have time to further expand on all features. But perhaps we can do that in subsequent conversations. Oh, your use of the road metaphor makes me think of Robert Frost, of course, who said, "It's the road we did *not* take that made all the difference." Who knows? If we'd taken a different road, maybe we would have learned to accept to live with the unknown and acknowledge that we are not superior beings, but are instead dependent on the life process on Earth, as is all organic life, and more.

PHI: Accepting the unknown also means that we don't know

whether unforeseeable problems—a sure bet—will be smaller or bigger than the ones we have today.

E: I think we have come to the conclusion—for now. What happened did happen because it *could* happen. But it's not necessarily determinism. Something else could have happened, but it didn't because of one or more factors.

Our time is up. We have brought to the table our many different, though sometimes overlapping, views. It seems to me that a critical question should be acceptable as valid to all those interested in classical philosophy, religious systems, and the scientific method; that is...

we have no choice but to often deal with mysteries

when faced with unknowns

we need to imagine, conjecture

we thus enjoy short-term benefits

but tend to neglect long-term consequences

when will we worry about ethics of assumptions?



If it's a touch of a solution,
then it's not a solution.

III

Conversation Continued

When a neighbor in Wolfeboro, New Hampshire, where I live, asked about my writing project, I explained that, among other considerations, I was recalling events that had made a lasting impact on my life; in particular, my involvement with people who are no longer living, as well as things that are no longer accessible. Having assembled these memories and what followed each event, I intended to think about classical philosophy, religious systems, and the scientific method, reflect and frame our thought processes, and then expand the investigation with anyone who might be interested.

He responded, “Reminiscing about past events may be worthwhile, but what is the point of trying to philosophize in the light of your personal experiences and that of a few others? Above all, is there anything to debate beyond eating and sleeping and finding pleasure wherever and however you can, despite the many vagaries of life? Don’t you think we have more than enough books commenting on philosophy, religions, science, and their history? To take action is far more interesting—not to mention fun—than to talk about love, ethics, war, or survival with limited knowledge, in all cases. I am always at peace when I am working with a student toward

his improvement, repairing something in or around the house, or...sailing out across the lake.”

Sailing beats thinking. There is no doubt about that. But sailing without thinking will take you where you don't want to be. And what kind of boats would we have without the thinking by all those involved in sailing? Through past centuries, seamen and shipbuilders thought and tried, and then re-tried and re-thought many times over, to ensure that a variety of vessels stayed afloat, as well as under control, despite wind, currents, and waves as they knew them.

I agree with him that too much reflection can hardly be an attractive proposition. So, we may take his words to mean that *further* thinking—that is, given what has already been achieved by so many great minds—cannot change the past that shaped us. But my neighbor is an effective high-school teacher and cannot possibly mean our human condition cannot be improved. Indeed, he suggested we meet again after his reading of my manuscript.

I returned on time, but he was sailing. A couple of days later, we met on the dock, and he said, “You should stick to the stories of your life. The book would be a success. Most people I know who are near or just beyond retirement age talk about writing and traveling alone in search of new excitement, but end up achieving none of it. You have done it all and will have plenty of curious readers for that kind of text. Forget our many worldviews!”

I asked, “What if someone gets hurt during your docking maneuvers or if you witness a serious injustice at school? Would you not reread about the great life questions and, maybe, exchange views with me about them? And, by the way, when

will we have a conversation about my essay?”

He simply remarked, “Yes, of course. But what do you mean by *all* primal interactions? Why bother with these abstractions and uncertainties?”

“It looks like I am trying to fit a square peg in an almost eternal round hole,” I said. “Expert hands have worked at finding a match for a long time. And I am aware that the peg I have in mind could break apart, if I ever succeed in fitting the quadrangular piece in. And yet—”

“Spare me the metaphors,” my neighbor interrupted me, walking to his boat. “My first issue is that I would love to be able to understand any particular situation at a starting point of my own choosing, given that the final outcome will be there regardless. I know many friends who will resist the suggestion of adopting what you call the earliest conceivable starting point, because it is so invisible and abstract.” He stopped, reversed direction, and sat down again.

I was emboldened. “That’s constructive. Any choice of a starting point is part of a set of assumptions, since we do not know it all. You think you will judge the outcome of a situation, such as an injustice at school, on the basis of available facts, and you will actually forget that the unavoidable assumptions—that is, including the starting point of your choice—may undermine your objectivity.” He was not impressed. I added, “My essay is not like a user manual for your outboard motor: in that case, the facts—the boat, the tools, and the lake—are in front of you. The only assumption you make when you work on the dock is, say, that a disaster will not strike. So, let’s proceed step by step. I hope you’ll raise the two or three questions that might define your itch to know more. Our conversations help me. They

might even trigger interest on your part.”

“I am not sure about an itch to know more,” he retorted. “Right now, it’s rather like being in a traffic jam miles away from where I want to be, ha-ha! OK, yes, why don’t *you* shed some light on what might be missing in current worldviews. I’ll admit it’s intriguing. To begin with, do you happen to have any evidence supporting the additional or integrated this or that? Moreover, and quite honestly, your conjectures must have been touched upon and even seriously examined in the past by the Chinese or Greeks or Romans or Persians or whomever else, so I would like to hear you compare notes with these earlier thinkers. And, finally, you introduce new assumptions and guidelines and I have to ask, “Now what?” He walked onto the dock.

His priority is to sail, here and now. My answers will take time and that’s fine with him. I started writing. My neighbor would catch up later on.

* * *

What is amiss in our current worldviews?

Once upon a time—to appropriate the familiar fairy tale opening—the universe was made up of thousands of different types of elementary particles and a mysterious vacuum. Indeed, we know little about most of that beginning. All matter we are familiar with is composed of atoms made of some of these particles. Modern physicists who study the foundation of matter and/or energy also talk about dark matter and dark energy as together representing the largest portion of the universe in volume and density. So the mystery is alive and well. The subsequent transformations and compositions were thereafter

composed of basic elements and atoms; each kind with its particular structure and/or evolved arrangement of elementary particles/energies. The movement of these basic elements of matter brings about the pressure, energy, wind, water, heat, fire, currents, fields, and light. Atoms, as well as their components, have been studied, especially during the last one hundred and fifty years. But most physicists would agree that they really do not know how achievable a total understanding is. Historical notes are in order.

T. H. Huxley (1825–1895), in his book *On the Physical Basis of Life* (1869), wrote, “We live in the hope and faith that, by the advance of molecular physics, we shall by-and-by be able to see our way as clearly from the constituents of water to the properties of water, as we are now able to deduce the operations of a watch from the form of its parts and the manner in which they are put together.”

Moreover, as D. H. Lawrence (1885–1930) is quoted as saying in Anthony Burgess’s biography *Flame into Being—The Life and Work of D. H. Lawrence* (1985), “Water is hydrogen two parts, oxygen one, but there is also a ‘third thing’ that makes it water, and nobody knows what it is.”

In essence, we have had to tackle (and continue to tackle) the perplexing problem of the third thing. The additional, integrated primal interactions for the non-materiality around us may help us come up with a solution. This idea, again, is that from the very start there existed, along with the most basic elementary particles, whatever it was that enabled the material as well as nonmaterial complexity we perceive—instead of assuming, as we have been led to believe, that the former gets somehow along and the latter eventually shows

up. That implies that both aspects stay together along with the increasing complexity: whether we can see it or not, non-materiality needs matter for its manifestation, and matter becomes what we perceive because it includes the essence of all primitive phenomena in addition to and/or in synergy with the fundamental material-bound primal interactions.

Richard Feynman (1918–1988), who won the Nobel Prize in physics for his research in quantum electrodynamics, stated in one of his lectures (*Six Easy Pieces: Essentials of Physics Explained by Its Most Brilliant Teacher*, 1963), “The ‘atomic hypothesis’... [is that] all things are made of atoms—little particles that move around in perpetual motion, attracting each other when they are a little distance apart, but repelling upon being squeezed into one another. In that sentence, you will see, there is an enormous amount of information about the world, if just a little imagination and thinking are applied. Everything that animals do, atoms do.” Feynman’s opinion may have been that the laws of physics are all it takes to complete our understanding. On the other hand, his final explicit parallel between animals and atoms, through the vehicle of “just a little imagination and thinking,” is but another reference to a “third thing.”

All recent developments in physics and quantum mechanics, experimental and theoretical, are great advances in our knowledge, but they did not dispel the doubt that all the facts are not available to us. Some have therefore conjectured that atoms may have some sort of consciousness. Other attempts postulate a “special force” (if not actually consciousness) as existing in matter. From the standpoint of a physicist, the implication of such assumptions is unacceptable. At any rate, what we usually call consciousness—awareness of what is happening to *me*—

applies *only* in the presence of my brain, which is interacting with my senses.

Jacques Monod (1910–1976), a Nobel Prize winner in physiology, was of the opinion that everything in nature is the product of chance and necessity. In other words, the world as we know it is due to some self-sustaining process with lots of surprises. In *Chance and Necessity* (1970), he wrote that “the universe was not pregnant with life nor the biosphere with man.” In *Vital Dust: Life as a Cosmic Imperative* (1995), Christian de Duve (b. 1917), another Nobel Laureate in physiology, wrote in response, “You [Jacques Monod] are wrong. They were [pregnant with life].” Monod and de Duve disagree with regard to how many emerging rules or properties are to be found in organic life (if any). Their debate is an old one and will certainly continue. However, to say that there is “a self-sustaining process” or that “the biosphere was pregnant with man” may be provocative, but I am left wondering what “sustains” the process or has “impregnated” the biosphere with man—yet another kind of “third thing” that is missing.

In his book *The Ancestor's Tale: A Pilgrimage to the Dawn of Evolution* (2004), the biologist Richard Dawkins (b. 1941) describes a hypothetical reverse journey to the origins of life and then writes: “Our backwards pilgrimage has been a series of swelling mergers, as we were swallowed up in ever more inclusive groupings: the apes, the primates, the mammals...and so on back to the arch ancestor of all life. If we turn around and move forward now, we cannot retrace our steps. That would imply that evolution, were it to rerun, would follow the same course, putting those same mergers into reverse gear in the form of splits...the backbone would [need to] be rediscovered,

and so would eyes...eventually a swollen-brained biped would emerge.... So although my return as host will not be a retracing of steps, I shall be publicly wondering whether something a little bit like a retracing might not be appropriate.” Dawkins seems to acknowledge that a looking forward from where it all began might be valuable. But his “pilgrimage” has DNA as the starting point. Why? There is no doubt that DNA is like a decision-making center. Is the gene the basis of our reality? Do we have to have faith that it is, because we do not understand how we went from an ensemble of elementary particles/energies to the precursor(s) of the first gene? At any rate, why should we pay no attention to what led to the genetic code? Each event, or level of increasing atomic complexity, with its prevalent features, has embedded in it what its constituents must have had to make it happen, and that history ought to be examined and understood—not only remembered. So yes, something is amiss.

Francis Crick (1916–2004), who shared the Nobel Prize in 1962 with James D. Watson and Maurice Wilkins for the discovery of the molecular structure of DNA, wrote in his book *The Astonishing Hypothesis: The Scientific Search for the Soul* (1994), “It is important to emphasize that the Astonishing Hypothesis [the idea that ‘You,’ your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules] is a hypothesis. What we already know is certainly enough to make it plausible, but it is not enough to make it certain as science has done for many new ideas about the nature of the world, and about physics and chemistry in particular. Other hypotheses

about man's nature, especially those based on religious beliefs, are based on evidence that is even more flimsy, but this is not in itself a decisive argument against them. Only scientific certainty (with all its limitations) can in the long run rid us of the superstitions of our ancestors."

Can an assembly of nerve cells in our body be a dependable representation of the reality behind our nature, cultural environment, and behavior? A more critical question ought to probe whether or not we will ever be able to describe how the brain has become the organ surrounded by a web of interdependencies that we know it to be today. As Crick wrote, "There is so far no evidence that advances in microbiology and increased insight into the workings of ions, synapses, and molecules will be sufficient for our scientists to provide the long history of experiences that makes the brain behave the way it does—with mental activities as intuition, creativity, [and] aesthetic pleasure." Importantly, he added, "The scientific meaning of *emergent* [property or phenomena] assumes that, while the whole may not be the simple sum of the separate parts, its behavior can, at least in principle, be *understood* from the nature and behavior of its parts *plus* the knowledge of how all these parts interact."

A few years later, Crick concluded, "The Astonishing Hypothesis may be proved correct. Alternatively, some view closer to the religious one [and to those of great philosophers] may become more plausible. There is always a third possibility: that the facts support a new alternative way of looking at the mind-brain problem that is significantly different from the rather crude, materialistic view many neuroscientists hold today, and also from the religious point of view. Only time, and

much further scientific work, will enable us to decide.”

Yes, indeed, time and work will enable us to complement the formulation of our many worldviews provided we open-mindedly examine what is conceivable, possible. Here’s hoping my suggested assumptions and guidelines offer such a possibility. In *What Is Life?* Schrödinger, already quoted in Part I, concludes that “the task is, not so much to see what no one has yet seen; but to think what nobody has yet thought about that which everybody sees.”

Is the “missing part in our many worldviews” now a clearer notion?

* * *

You, my dear neighbor, asked, “Is my approach an original?” and “Where is the evidence for the additional/integrated primal interactions?”

I appreciate your position that there is nothing new to discover, and that I ought to rely on the ancients and modern thinkers. Our knowledge is indeed vast, thanks to their works. Actually, they had to deal with the mysteries of the universe more so than what we have to nowadays. They came up with interesting ideas, but many of us here and there live with different, dissonant convictions. As you wished, let me thus review the work of eminent modern scientists.

Rupert Sheldrake (b. 1942) found the laws of physics insufficient, and introduced the idea of “morphic resonance” in *A New Science of Life: The Hypothesis of Formative Causation* (1981). Morphogenesis is about how things take their shape. Sheldrake, a biologist, suggests that “nature is not a machine,” but that each kind of system—from crystals to birds to

societies—is “shaped, not by universal laws that embrace and direct all systems, but by a unique morphic field with a collective or pooled memory.” So, organisms share genetic material with others of their species and are shaped by a “field” peculiar to that species. For instance, cells have essential roles like producing proteins, but their tasks do not include the determination of forms. For Sheldrake, there is a need to simplify principles, and to determine “some way of understanding how all the molecular detail is organized and integrated.” The introduction of morphic fields, he says, shows how “the past forms and behaviors of organisms influence organisms in the present through direct connections across time and space.” Many other facets of our non-materiality, however, do not appear to be within the scope of Sheldrake’s “additional” thing.

Stephen Wolfram (b. 1959) takes a different approach in *A New Kind of Science* (2002), which deals with “how structures emerge in our universe—from galaxies on down.” His basic idea is that “nature is using programs,” since “it’s never been clear why natural selection should actually lead to much complexity at all.” In other words, having established that “even extremely simple rules can produce incredibly complicated behavior,” he has concluded that—in addition to the laws of physics—there must also be a law that forms and patterns in biology are “actually governed by rather small programs.” Wolfram proposes a model that is useful as a way of representing the steps in the formation of crystals or flowers. He may eventually have models for everything that takes shape, grows, and exists on Earth. With such development, we’ll be able to predict all forms using the theoretical models. It does not necessarily follow, however, that the study of feelings and consciousness will be smooth sailing

thereafter. In particular, important processes, such as thinking and death, will have to be dealt with by adding assumptions to Wolfram's mathematical models.

Douglas Hofstadter (b. 1945), professor of computer science at Indiana University and author of the Pulitzer Prize-winning book *Gödel, Escher, Bach* (1979), believes that the laws of physics are the only foundation we need. The thesis of his *I am a Strange Loop* (2007) is twofold: There is "a special type of abstract structure or pattern that...gives rise to what 'feels' like a self." And "we ourselves—not our bodies, but our selves—are strange loops." His definition: "A strange loop is an interaction between levels in which the top level reaches back towards the bottom level and influences it while at the same time being itself determined by the bottom level." (The sentence "I am lying" is a strange loop.) Furthermore, "feedback loops" are one of the results of growing physical complexity, and the elements in the "abstract pattern" are "neurological entities" or "symbols" that correspond to "concepts, just as genes are the chemical entities that correspond to hereditary traits." He further explains, "Each living being, no matter how simple, has a set of innate goals embedded in it, thanks to the feedback loops that evolved over time and characterize its species."

Hofstadter's book provides examples of servomechanisms in systems of mini- or maxi-complexity. He presents and deciphers an appealing array of analogies that leads to an interesting, much richer, and more down-to-earth approach than Wolfram's models. Hofstadter is not in favor of reductionism and emphasizes that "an emergent phenomenon somehow emerges quite naturally and automatically from rigid rules operating at a lower, more basic level, but exactly how that emergence

happens is not at all clear to the observer.”

The key point in Hofstadter’s book is, I suggest, in the following excerpt: “Consciousness is not an add-on option... it is an inevitable emergent consequence of the fact that the system has a sufficiently sophisticated repertoire of categories [and symbols, according to Hofstadter’s use of this word]. Like Gödel’s strange loop, which arises *automatically* in any sufficiently powerful formal system of number theory, the strange loop of selfhood will automatically arise in any sufficiently sophisticated repertoire of categories, and once you’ve got self, you’ve got consciousness.” Should we not dig further so as to decipher the concepts of self, self-organization, and sophisticated repertoire of categories?

I now need to complement the discussion with various scientists’ views on emerging features and the related self-organization property. First, I would like to mention *The Web of Life* (1996) by Fritjof Capra (b. 1939). In it, the author, a physicist, offers a useful review of the progress in the thinking about parts and wholes, sustainable development, and systems theories. Capra’s work represents a conceptual framework in order to link ecosystems and human communities. He champions deep ecology and thus recommends life sciences to be the fundamental model (his practical earlier starting point), with its basic principles of ecology and self-organization.

In *The Fifth Miracle: The Search for the Origin and Meaning of Life* (1998), physicist Paul Davies (b. 1946) reviews the available theories of how life started and introduces the concepts of “autocatalysis” along with ingenious “laws that encourage matter to evolve towards life and consciousness.” These additional laws give us an elegant approach to a better understanding of life

but, it seems to me, we will need to introduce more “laws” so as to take into account the dynamics of individual behavior, let alone other realities of our human adventure.

In *Le vivant post-génomique: ou Qu'est-ce que l'auto-organisation?* (2011), Henri Atlan (b. 1931), a physician and biologist, gives us a must-read about his research showing that self-organization is part of nature. Atlan presents his recent findings and deals with questions about the processes underlying the formation of self-organizing entities, as well as the models that further research might benefit from. His main thrust concerns complexity from the cell onward and attempts to identify common threads in the form of underlying laws related to configurations, memory, satisfactions, attractions, noise, or chance events, and more. He concludes that causal relationships between mind and body do not exist because mind and body are one entity: “emerging properties are at a higher level [of complexity] as opposed to saying they have a new nature.” What is of particular interest is Atlan’s findings on molecular interactions and the fact that they might require a different methodology to supplement the available genetics-based one.

David Chalmers (we met him in Part I), a doctoral student of Douglas Hofstadter, does not believe that consciousness can be reduced to laws of physics. Furthermore, he speculates about “psychophysical principles” that may also be required to understand consciousness, and has developed a theory of nonphysical *qualia* (a term used by philosophers to refer to phenomenal aspects of our mental lives) that somehow relate to fundamental physical entities. Hofstadter dubbed this add-on *élan mental*, his coinage adapted from French philosopher

Henri-Louis Bergson's (1859–1941) *élan vital*.

The bottom line here is that eminent scientists have acknowledged the limitations to the laws of physics and thus suggested new properties or phenomena. Self-organization is not an idea anymore; it is an empirical fact. What we need, however, is a better understanding of how to go from independent elements to self-organized parts. Using the prefix “self” does not make it dependent only on laws of physics and natural selection and chance. Since you asked, the only evidence I can show is the lack of common ground among the many worldviews, while everything points to our universe as being one, if I am not mistaken. In addition, the doubts expressed by a large number of thinkers in philosophy, religion, and science attest to the need for something else in the approach.

So, yes, if you prefer, my proposal is not an original discovery of additional this or that, but does ask anew some basic questions. It also points to realistic assumptions, as well as guidelines and an approach to get started with multidisciplinary research. Note that each current worldview came to pass as an eye-opener, but the goal of its originator was, at least in part, to compete and eventually erase the others. With this proposal, the diversity that we are so fondly accustomed to is preserved, albeit with some behind-the-scenes adjustments.

Alan Lightman (b. 1948), a physicist, internationally acclaimed writer, and professor at MIT, in “The Power of Mysteries,” a paper published in *This I Believe* (2006), reminds us that “scientists are also happy when they become stuck, when they discover interesting questions that they can’t answer.” In other words, when they are faced with mysteries and experience a “sense of awe.” And “that is when their

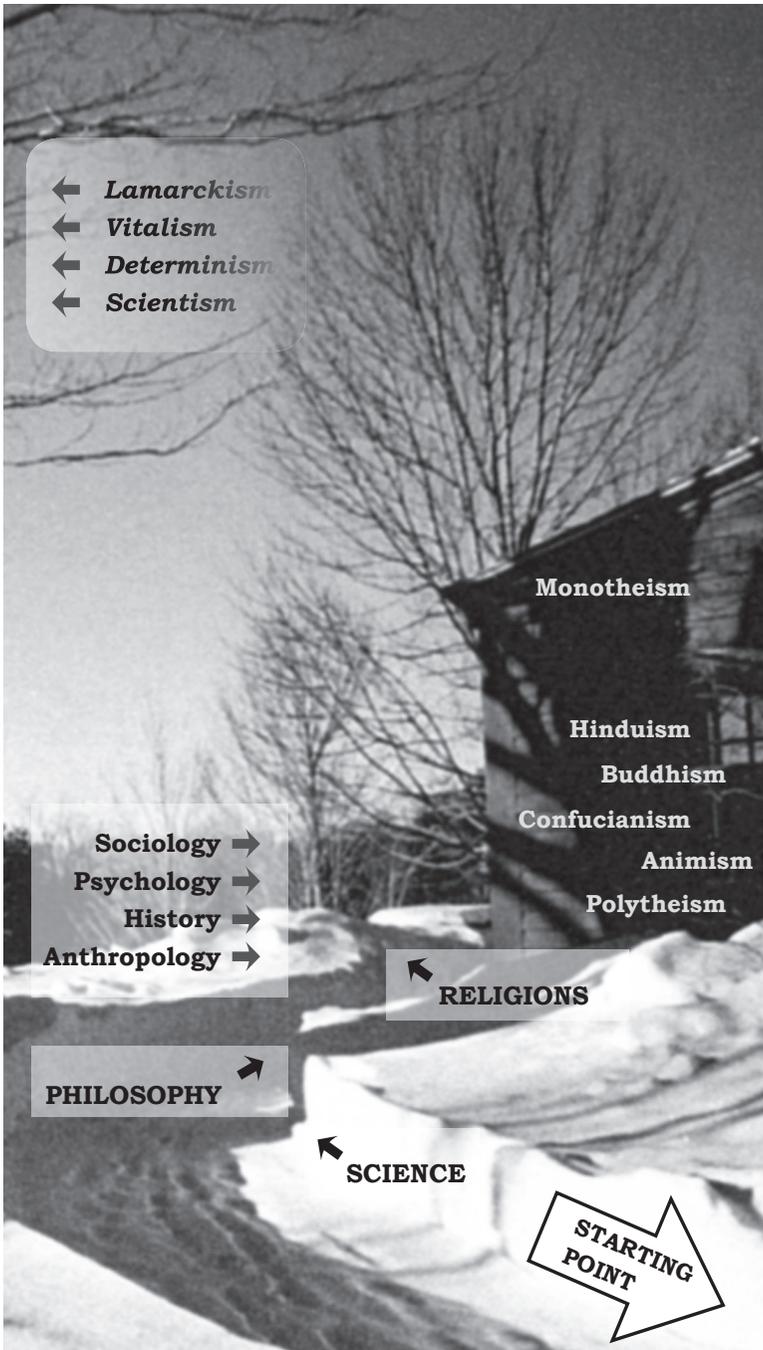
imaginations and creativity are set on fire.” But should it not be the same for philosophers and religious leaders? And, would you guess, dear neighbor, what would happen to the thought process of philosophers, religious people, scientists, and all the other contributors to the well-being of our societies, such as economists, politicians, and government officials, to name a few, if we all would adopt the earliest conceivable starting point and discuss in earnest the possibility of it being common to both material and nonmaterial contexts?

*here's hoping we'll meet again
continue our conversation to further lift the fog
the many roads taken so far are good...up to a point
let's expand the debate, adopting
our common cradle, with matter and underlying movements,
with no intent or purpose, doing what we can do
keeping in mind that
time does not run away, we pass by*

α

“In a gentle way, you can shake the world.”

—Mahatma Gandhi



IV

Frameworks of Thought. A Closing

Philosophers, religious people, and scientists have been busy talking about the reality of human nature and behavior in terms of body and soul, myths and culture, war and survival since the beginning of time. They did not concern themselves with the internal interactions or phenomena at the lowest levels of our cellular structures. Nor did they ever worry about the how or the why or the when a turn of events actually began. And we thus have inherited our ancestors' assertion that our non-materiality somehow happened—with no further questions asked, except those raised by a few thinkers. In turn, such an indetermination, added to the whole lot we know little about, has probably contributed to the diversity we cherish but in which we find some adverse features across our many worldviews, as well as to several behavioral traits, including those we sometimes refer to as unconscious.

An illustration of such a development is the widespread tendency to reject a worldview in which human beings are not the superior star or do not have a central role in the universe. We are mostly preoccupied with ourselves, here and now—we need to feel good around every bend. I can also hear loud

and clear, “We don’t have the time, or the interest to challenge the grounds of our beliefs...and you can call them prejudices or stereotypes, it does not matter to me...I do not see why I should bother with an earliest conceivable starting point.” Or, “the real solution to current societal problems is to have everyone be humane...let’s get together, have compassion, and we’ll establish peace for sure.” Of course, the optimism-driven agenda is not new; it has been tried before. Who out there is asking why similar approaches come up, get hyped up for a while then “naturally” pushed aside? What is behind the what-goes-up-must-come-down phenomenon? Is it because we have day following night and so on and so forth? Or is there something else we have not yet grasped?

In this essay, I invite readers to ask such unusual questions. This is not to say that we need to go counter to what we have been accustomed to do in *all* situations—of course not. But maybe the three Parts so far will at least reawaken an interest in some introspection. To that end, I would like now to expand a little bit on the view that we are a superstructure of structures; that our worldviews are related to frameworks of thought; and, with the help of some great thinkers of the past, offer a closing.

I have already mentioned that we are composed of elements carrying not only the primal interactions allowing the laws of physics to emerge in matter, time, and space, but also the nonmaterial-bound primal interactions leading to spiritual/intellectual/emotional phenomena we perceive as closely integrated to material structures. Along the ever increasing organic complexity, self-organized entities have been scientifically observed and tested; in particular, at the cell level—again, as the outcome of *all* the primal interactions

given a specific material context. I may also add that self- or auto-organization is one of the many achievements concurrent with the formation of a relatively stable superstructure, with the genetic code representing a prime example.

Let's outline some additional details about this structural view and related emerging properties.

Properties out of Structures—with or without the Potential to Change

I have already mentioned that we are composed of elements carrying out not only the primal interactions allowing the laws of physics to emerge in matter, time, and space, but also the non-materiality-to-be as an integral component of the reality in and around us. Such early-on integration leads to the proto-processes toward what precedes all life forms, as well as the spiritual/intellectual/emotional phenomena we perceive. Along the ever increasing organic complexity.

I further suggest focusing on the number of seated versus dancing ensembles. Properties—dependent on ensembles in both material and nonmaterial contexts—are characterized by either a high or low ratio. The color of the skin seems like a constant; it actually has a high seated-to-dancing figure, which may vary with age in the pertinent group of cells. A low ratio means the dancing ensembles are prevailing. They will play a significant role in the emergence of properties such as learning, physical and mental growth or development, as well as resistance to illness and irreversible decline. Inert materials have the highest seated-to-dancing ratio. The human mind-brain complex has the lowest ratio—up to a point. Within each

species some members will display more dancing ensembles than others—on an organ-by-organ basis. The path of “our” evolution is thus related to the many ratios.

Stuff-from-Within

We have ensembles that are physically contained, such as a cell, an organ, and a musical instrument. Other ensembles are only virtually so; for instance, an orchestra, concert hall, clan, family, political party, or society. The former displays a somewhat self-sustaining balance that is achieved thanks to a natural and/or artificial process; the latter kind of ensemble requires continued direction, or help.

For an atom, the stuff-from-within is what emerges from the ensemble of elementary particles and *all* primal interactions. For a cell that depends on billions of atoms, it therefore represents a highly complex sum of interactions at both the atom and molecule levels. To modern researchers, as briefly mentioned in Part III, the stuff-from-within often includes a self-organizing property.

Closer to our perceptions, a harp can deliver a variety of notes. The notes, in turn, depend on the length and diameter of each string, as well as the size and shape of the resonator. These physical measurements relate to the specific materials used, as well as the manufacturing process. But the harpist may enhance the overall achievement if the coordination and communication with the conductor or other musicians are well executed. At times, however, the outcome—the overall stuff-from-within—may be unexpectedly limited by what is inherent in the components of the instrument, as well as the acoustics of

the music hall, and the health of the musician.

Our stuff-from-within includes consciousness and will, which are higher and extremely more complex forms with some auto-organizing properties; it is also home to our highest possible performance in thought and action. We can train and expand our perseverance, endurance, and compassion, but we cannot all be like Mother Teresa. We can all learn to innovate, but we cannot all become Confucius, Leonardo, Shakespeare, or Einstein. Achievers of excellence must have inherited, as well as developed/trained features at the different levels of complexity—with, in addition, favorable initial movements leading to better combinations/transformations from the lowest level of complexity onward. Such state of affairs may translate early on into favorable features or properties, and with follow-on support it leads to exceptional internal coordination and communication capabilities—a rich stuff from within, indeed.

Information Flow and the Soul

Millions and billions of molecules constitute the different organs, which involve complex interactions inside and outside of them; these acts are in part the manifestation of memorized rules that depend on what has been assembled in earlier stages.

Let's consider one more time the ensemble of a musical instrument and a musical score. Each is capable of effecting next to nothing without the other. In truth, the musical score has been designed or composed to some extent for that instrument. Such relations are enhanced by both the instrumentalist and the composer. Other factors or contributors come into play, as we have seen in the earlier paragraph regarding the harp.

The end result for the audience could be identified as the *information flow* out of the instrument-plus-instrumentalist-plus-conductor ensemble.

The evolving organic world presents a parallel situation at the point at which the many stages of the proto-brain appeared and eventually became an active part of the body. Can the concept of a human soul be a shorthand for the ensembles having reached, or exceeded, a certain degree of complexity? It might. Also, other features, such as coordination, communication, memory, and information flow, are part of the same story. Yes, I think this is a possibility, so long as we can agree on the earliest conceivable starting point, and that the result of all primal interactions at work can be influenced by internal, as well as external, conditions. The soul is typically regarded as a nonmaterial entity that remains constant. Plato (c. 428 BCE–347 BCE), and various Christian teachers, furthermore believed in the immortality of the soul. Although for them it has no physical or material reality, they credited it with the functions of thinking and willing, hence determining or at least influencing all behavior. Unlike Plato, Aristotle did not separate the soul from matter, but saw it as form actualized in matter. And matter is subject to change. Other doctrines or philosophies reject any concept of permanent substance, either mental or physical, in favor of transient states and events; however, in all cases, the nonmaterial world comes into existence somewhat formed as such.

The earliest conceivable starting point coupled with the idea of an evolving ensemble open the way to an understanding of how our thought process—and our soul, why not?—has been shaped and why it will continue to evolve.

Tolerance

In 2002, the Nobel Prize in physiology or medicine went to three scientists, Sydney Brenner, H. Robert Horvitz, and John E. Sulston, for their studies on the worm *Caenorhabditis elegans*. Horvitz and Sulston worked in Brenner's laboratory before starting their own teams. Sulston painstakingly documented the fate of each and every worm cell as the animal matured from a single egg cell. In doing so, he discovered, among other things, that more than a hundred cells are destined to die during the tiny creature's development, a phenomenon known as programmed cell death, or apoptosis.

According to the authors, the code they discovered establishes the number of reproductive cycles that can occur before cumulative stress causes final breakdown. But saying that there is a "death plan" is equivalent to saying that the worm has a destiny. What if we were to say, instead, that the code they discovered is about the structural tolerance in its reproductive function? Tolerance, in this case, would define the number of times such reproductive action is possible and beyond which there might be a structural breakdown.

Theories have emerged to challenge the view that cell mutations are the decisive events in the transformation of healthy cells into malignant tumors. One such theory suggests that damage to even a few master genes corrupts the chromosomes, which then become dangerous. That makes sense: each gene is an ensemble. If we could measure how tolerant it is of stimuli and their frequency, it would be a helpful predictor, especially after a nearby mutation, accident, or infection. Then we should estimate how fast the tolerance threshold is likely to be reached

and whether anything can be done to slow the movement toward it, resulting from the influence of undesirable, inharmonious cells. All this while keeping in mind the movements which in turn depend on all primal interactions. This procedure would indicate to us when and where the deterioration (increasing pain, approaching death) would become irreversible.

Our Three Frameworks of Thought

In the next several pages, you will find an overview, a mere skeleton—in three double-spread tables—of what I would put forward so as to stimulate an initial discussion on the timeline, scope, and (key) assumptions underlying the main worldviews in order to achieve a better understanding of our life events. The left-hand side of each table includes a brief compilation of main topics for the particular framework of thought; the right-hand side presents the essence of my narrow-the-divide proposal as a result of rediscovering the origins and developments of each worldview. I have also included a sample of pertinent reminders from some great thinkers, which I hope will further the proposed enlightenment.

I thus wonder if I could join in that round-table discussion described in Part II. It might be an opportunity for the proposal to be moved forward since the critical question has been sorted out. The proposal is not about a conversion of our many worldviews, but is aimed at the identification of what might be a common thread—at the earliest conceivable starting point—that will enable us to re-describe the various timelines we use to frame our worldviews. Nothing is simple, though. I can already hear philosophers and scientists who will maintain that there

is no evidence for nonmaterial primal proto-phenomena; and the religious-minded people standing in vehement opposition since my intent can be misinterpreted as saying that there is no Supreme Being.

Shall we sit down for a conversation?

CLASSICAL PHILOSOPHY

TIMELINE

With the earliest practical starting point, on a case-by-case basis,

and, in particular:

HUMANITY,
CULTURAL ROOTS,

and

MYTHS

Stretching back over 4,000+ years

SCOPE

MIND- AND KNOWLEDGE-CENTRIC

DUALISM, MONISM

DETERMINISM, LIBERTARIANISM, COMPATIBILISM

...

REASON, LOGIC, HAPPINESS, ETHICS, MORALITY,

PROGRESS, JUSTICE, RATIONAL CRITIQUE,

RESPONSIBILITY—

—WITH A VIEW TO THE BETTERMENT OF

MAN'S LIFE AND BEHAVIOR

ASSUMPTIONS

included in

METAPHYSICS,

IDEALISM,

MATERIALISM

PRELIMINARY INPUTS

Toward a To-Be-Agreed-Upon Proposal

The earliest conceivable starting point: When the universe was only elementary particles/energies and *all* the primal interactions—material as well as nonmaterial.

Let's admit we do not know what gave birth to the earliest conceivable starting point. We may get to that knowledge one day in the future. And there is much more we do not yet understand.

Cells and tissues that are part of our bodies today are not the same as those we were made of years ago. But the assembly plan—the architecture—is the same.

Science does not explain the meaning of life—the Why? And spirituality does not deal with the workings in the material context—the What, How, and When? To build further understanding on this clear-cut separation, we have tended to introduce elegant cop-outs, but we ought to do better...especially in complex cases requiring a closer look at the lower levels of complexity.

Perspectives from the Past (and Present)

Plato maintained that we ought to refer to our human condition—his practical starting point. Conflicting worldviews followed. The earliest conceivable starting point, common to all worldviews, might give us...a less variable foundation while respecting diversity...as well as a path across the divide.

Aristotle, Saint Thomas Aquinas, and Einstein agreed: We need a “logical god” as the primary cause for what exists. Does it also have to be a “superior” being or spirit? No, if we have as the primary logical attribute a common thread that links the three frameworks.

Buddhism: We are the way we have made the world become.

Desiderius Erasmus (1466–1526): “Man’s mind is so formed that it is far more susceptible to falsehood than to truth.”

Giordano Bruno (1548–1600): “God is in each of us...science and religion can be compatible if we abandon the concepts of heaven and hell.”

Douglas Hofstadter (b. 1945): “When experiencing something painful or pleasant, is it possible that I feel this way because of atomic interactions?”

John Locke (1632–1704): “The Inquisition is not a closed chapter. It is an open book.”

RELIGIOUS SYSTEMS

TIMELINE

With the earliest practical starting point, on a case-by-case basis,
and, in particular:

HUMAN SOUL, CONSCIOUSNESS
SPIRITUAL WORLD(S)

Stretching back over 10,000+ years

SCOPE

POLYTHEISM, MONOTHEISM, SUPRATHEISM, PANTHEISM
CREATION- or INTELLIGENT DESIGN-CENTRIC

ORDER, STABILITY, HARMONY, CONTINUITY,
FAITH, GROWTH, VIRTUE, FORGIVENESS,
LIFE'S PURPOSE—

—WITH A VIEW TO THE BETTERMENT OF HUMAN LIFE
AND/OR
SALVATION OF THE SOUL

ASSUMPTIONS

GOD(S) AND DEVIL(S); HEAVEN AND HELL (in most religions)

with or without:

man's reincarnation, eternal truth, earthly evils,
final reward and punishment, miracles, myths, magic,
invisible order

PRELIMINARY INPUTS

Toward a To-Be-Agreed-Upon Proposal

The earliest conceivable starting point: When the universe was only elementary particles/energies and *all* the primal interactions—material as well as nonmaterial.

Let's admit we do not know what gave birth to the earliest conceivable starting point. We may get to that knowledge one day in the future. And there is much more we do not yet understand.

Cells and tissues that are part of our bodies today are not the same as those we were made of years ago. But the assembly plan—the architecture—is the same.

What binds people together? A history to which the group relates? So, why not a realistic set of practical starting points, and the symbolic link to their common past?

Perspectives from the Past (and Present)

Confucius (551 BCE–419 BCE): “What you know, you know; what you don't know, you don't know. This is knowledge.”

Saint Augustine (354–430): “The Biblical text should not be interpreted literally if it contradicts what we know from science and our God-given reason.”

Michel de Montaigne (1553–1592): “He who establishes his argument by noise and command shows that his reason is weak.”

Bertrand Russell (1872–1970): “What we need is not the will to believe, but the wish to find out.”

Pope John Paul XXIII (1881–1963): “Nevertheless, in order to imbue civilization with sound principles and enliven it with the spirit of the gospel, it is not enough to be illuminated with the gift of faith and enkindled with the desire of forwarding a good cause. For this end, it is necessary to take an active part in the various organizations and influence them from within. And since our present age is one of outstanding scientific and technical progress and excellence, one will not be able to enter these organizations and work effectively from within unless he is scientifically competent, technically capable, and skilled in the practice of his own profession.”

Alain (Émile-Auguste Chartier, 1868–1951): “It is the human condition to question one god after another, one appearance after another, or better, one apparition after another, always pursuing the truth of the imagination, which is not the same as the truth of appearance.”

THE SCIENTIFIC METHOD

TIMELINE

With the earliest practical starting point, as determined scientifically;

in particular:

DNA, GENE, CELL, ANTHROPOLOGICAL FINDINGS...

AND/OR

HUMAN NATURE

Stretching back over 2–3 billion years

SCOPE

EXPLAIN/PREDICT PROGRESS FOR ALL SPECIES

THE THEORY OF EVERYTHING

on the basis of tests and measurements in:

PHYSICS, CHEMISTRY,

COSMOLOGY, GEOLOGY, PALEONTOLOGY

BIOLOGY, PSYCHOLOGY,

PHARMACOLOGY,

ANTHROPOLOGY...

ASSUMPTIONS

REDUCTIONISM, DETERMINISM

SCIENTIFIC REALISM:

as in full compliance to

the laws of physics and natural selection, *and* chance

PRELIMINARY INPUTS

Toward a To-Be-Agreed-Upon Proposal

The earliest conceivable starting point: When the universe was only elementary particles/energies and *all* the primal interactions—material as well as nonmaterial.

Let's admit we do not know what gave birth to the earliest conceivable starting point. We may get to that knowledge one day in the future. And there is much more we do not yet understand.

Cells and tissues that are part of our bodies today are not the same as those we were made of years ago. But the assembly plan—the architecture—is the same.

In science, there are neither sacred texts nor agenda—scholars beware!

Four levels ought to be analyzed in each worldview: (1) the lowest level of complexity, or quantum level; (2) the first or advanced perception level, or physics level; (3) the human perception level, or biology-physiology level; (4) the highest level of complexity, or the psychology and sociology levels.

Perspectives from the Past (and Present)

Johann Wolfgang von Goethe (1749–1832): “Alas, I have studied philosophy, the law as well as medicine, and to my sorrow, theology; studied them well with ardent zeal, yet here I am, a wretched fool, no wiser than I was before.” (*Faust: The First Part of the Tragedy*, 1790)

Louis Pasteur (1822–1895): “In the field of observation, chance favors only the prepared mind.”

Albert Einstein (1879–1955): “The only source of knowledge is experience. And imagination is more important than knowledge for knowledge is limited to all we now know and understand...”

A physicist of my acquaintance asked: “What if the nonmaterial-bound primal interactions suggested in this essay are the result of the earliest self-organized ensemble? That would sound more credible to me as well as many colleagues. We would actually welcome the proposal as a useful addition to current thinking in both theoretical and experimental physics research.” But at these lowest levels of complexity we haven't clarified/demonstrated *how and when* the auto-organization property emerges; we have merely observed its becoming part of the picture. In other words, it might be worth looking closer...and, in particular, in areas such as: consciousness, placebo effect, homeostasis, epigenetics, and human genome.

A Closing

Both the abstract-fascinated and the concrete-focused worldviews have arisen from these three well-established frameworks of human thought, in some combination. We could add a fourth framework to deal with political and economic systems. At any rate, they all are interdependent. And the way we interpret and interact with our environment does not come from a secret place all to ourselves: We grow in different environments, have a life, and learn from others either directly or through their spoken or written works. We inherit our worldview, but in some cases it evolves with experience.

Many thinkers, especially in the last century, have argued that our worldviews are instead dependent on two cultures: art and science. Many of them called for an improved, “universal” culture, one in which artists and scientists collaborate instead of believing in the benefits of one culture only—theirs. In *Proust Was a Neuroscientist* (2007), Jonah Lehrer (b. 1981) concludes, “Art and science might be reintegrated into an expansive critical sphere. Both can be useful, both can be true. Art is a necessary counterbalance to the glories and excesses of scientific reductionism, especially as they are applied to human experience.” It is an appealing approach for harmonizing our diversity of worldviews *if* indeed our perceptions are the effective reference for our inquiry. I think, however, that art and science are but an integral part of all human activities. Artists become part scientists when dealing with matter; and all have to. Scientists become part artists when dealing with human perceptions; and all ought to. The earliest conceivable starting point coupled with the assumption of nonmaterial primal

interactions might lead to reinvigorated studies on how to plan for a harmonious set of distinct worldviews—of course, fully aware of the long road ahead.

There are also those who prefer an oversimplified expression for their worldview. “Carpe diem” or “Let’s not worry too much since we’ll all die” come to mind. Having one sentence to describe the framework of our thoughts, let alone to guide all decisions, may be a valid approach if you live alone and in self-sufficient mode, but it can hardly be a solid reference point through which to view the whole range of life experiences and interactions with the people around you.

* * *

And so, “Now what?” you may ask again.

If you want me to present a detailed description of how the world would work with the new assumptions and guidelines fully accepted...well, we are not ready for that. There is no going forward without serious preparation, which will require the involvement of representatives of the many worldviews. For now, let me bring in two authors who have encouraged me in this.

Goethe embraced the view of nature as a whole; he looked for a relation among all the perceptible elements at play in any given situation. That led to his embracing the hypothesis of “wholeness” in each and every phenomenon, which he considered more realistic than dividing or analyzing phenomena according to predetermined categories. Along such lines of reasoning, he introduced the concept of a “pure” phenomenon, the *Urphänomen*. To be more precise, as Henri Bortoft writes in *The Wholeness of Nature: Goethe’s Way Toward*

a Science of Conscious Participation in Nature (1996), “He embraced the view of nature as a whole.... It grows through continual, external, and internal strife. He denied rationality’s superiority as the sole interpretation of reality and declared that knowledge presupposes the fundamental nature of the world as aesthetic.”

At the beginning of the twelfth century, the French Neoplatonist philosopher Bernard de Chartres wrote, “We are dwarfs perched on the shoulders of giants. We see more than they were able to see and farther away because of their gigantic stature; we are neither taller, nor is our vision better.” A few centuries later, Isaac Newton (1642–1727) wrote in a letter to a colleague at Cambridge University, “If you have seen further than [...] it is by standing upon the shoulders of Giants.” Alain (Émile-Auguste Chartier, 1868–1951), a French philosopher and teacher, wrote in his *Propos* (a collection of essays published in 1906–1936), “I was busy enough attempting to rediscover what the best minds wanted to say. Every successful attempt at this is a discovery in the deepest sense, since it is the continuation of mankind.” These quotes point to the knowledge we inherit from our predecessors. The subject for Bernard de Chartres and Newton, however, is the recognition of higher authority in the transfer of knowledge, with its implication of hierarchy and respect. Alain has at heart our *human values*, as well as the roots and development of man’s intellect.

Furthermore, Alain, who climbed on the shoulders of many giants—notably, Plato, Aristotle, Goethe, and Comte—told his students that we need to go from the simple to the complex, as this will prove to be a more effective path toward learning accompanied by understanding (compared to learning

at an increasing pace and intensity). He also recommended that they look at the human intellect and soul as parts of one interdependent world: “The lower levels are the support for the higher ones. But we need the higher levels to understand the lower ones.” And, he added, “The error of errors is to want to be free of, far away from, the obstacle. To complain about the difficulties and to forget that difficulties give strength. If I have a new idea, I must first contradict that idea; it is my way to test my idea. If we shake the tree of knowledge, the good fruits will be saved and the bad ones will be thrown into the bin of useless items.”

Of course, in Alain’s time, this reference to lower levels could not be but limited to our internal organs and fluids. His basic insight, coupled with Goethe’s wide-ranging view, got my attention. And that led me to the farthest reaches of our roots, seeds, down to ensembles of subatomic structures and *all* primal interactions—some of which have been the forgotten components in our accepted theories and worldviews (as shown schematically in the spiral on the cover of this book).

Indeed, I have been looking, and continue to look, to giants of the past and present, as we all do, or ought to. The legacies of Confucius and the Buddha, the dialogues of Plato, and all the subsequent teachings of thinkers; the contributions of physicists, physiologists, and molecular biologists; the discourses of theologians and metaphysicians from paganism to monotheism; great novelists, poets, and dramatists: each has an undeniable interest and validity. I obviously take great advantage of what has been studied and examined, but I am also tampering with conventions, tradition—playing with fire, as Alain said—while I climb on both giant *and* small shoulders.

Again, how and when my attempt will bear fruit is a story that will begin sometime in the future.

* * *

René Descartes (1596–1650), in his *Discourse on the Method* (1637), wrote about the diversity of our opinions not as the result of intellectual abilities, but “...only because we drive our thoughts along different roads and often do not consider the same things.” Thus, our many worldviews should not be a surprise to Descartes. The herein included presentation of the frameworks of thought touches upon the many building blocks—the often interconnected things—for the roads taken. At any rate, the diversity is in our reality and here to stay.

Alain, in my opinion, belongs in the company of the greatest thinkers of the past two centuries. But I think his pacifism played a certain role in making him go relatively ignored after World War II. At the start of World War I, he did in fact voluntarily enlist. He has been quoted expressing his quandary: “I cannot bring myself to hate an entire nation.” He was wounded at the front. Notably, he refused military promotion. His pacifism, thereafter, increased sharply, and in the late 1930s he took a position akin to saying that there was no point in opposing the better-armed and fanatically motivated enemy. Alain knew firsthand how hellish war is and viewed his pacifism as a preferable path—less tragic for all concerned. He is among those who live with humanity as the reference as opposed to nation, community, or family. In my terminology, this could have been his valid earlier practical starting point; the absence of the earliest conceivable starting point, in the preparation of political or philosophical propositions, encourages, however,

the interference by other propositions and, as Descartes said, Alain's opponents talked about other things and ended with the upper hand.

* * *

I am also reminded of my first history teacher in high school. He emphasized that what matters is not to memorize rules, dates, maps, and names. He presented in simple, inspiring terms his idea that each student needed instead to go more deeply into the historical event of interest; remain open-minded; and agree with other parties to the study team that any of their pre-established assumptions ought to be emphasized when presenting conclusions. In his view, the two main reasons for the misguided focus on what he considered the less effective approach are that, on the one hand, it is easier to deal with one cause and effect instead of the more realistic infinite series of causes and effects; and, on the other hand, the prospect of readjusting old notions is hardly appealing to most of us.

I remember how good I felt at the end of this first session, with no words to describe why. Our teacher died shortly after the end of that school year. Most of my companions and their parents went through the rituals organized by the school and expressed their sorrow. Would they still have any appreciation for his wisdom and guidance? I don't know. But I know I do.

What Gave You That Idea?

*we were told to rely on facts or perceptions
and accept to live with others' visions
how then could we better understand
life mysteries with fewer stones left unturned?*

*we can have faith in this or that,
or rely on matter, natural laws, and chance
we live in diversity, complexity
as ensembles of parts, shapes, phenomena*

*neither atoms can think nor genes
nor organs on their own but what if
underlying nonmaterial-bound movements
are part of the common foundation?*

*earliest conceivable starting point
matter, energy, and all the primal interactions
from there to self-organization models
each with non-materiality shaping up at various turns*

*thus we have emerging properties
apparent new laws of systems and societies
but, lest we forget, such a transformation
refers to the original material/nonmaterial integration*

*when we assume and admit limits to our knowledge
we have in many cases a helping hand
when our worldviews will also have a common thread
our conflicts will be contained as well*

*such movements, developments
on the basis of ever richer combinations,
should now be understood
as a long spiral of causes and effects*

*with structures, super and not,
many unstable, many standing firm
weak or strong with tolerance levels
as well as with stuff from within and without*

*to further understand, I went on travels
finding, for my thoughts, here high resistance,
and there rare instances of lasting resonance
along the road with giants and smalls*

*but all of them were helpful in the task
a new approach toward more questions to ask
so as to better understand what is going on
to get each worldview right...up to a higher point*

*for our ancestors, my parents
and their extended families,
for teachers and authors
and dearest friends
who, complementing or challenging my ideas,
encouraged me to search deeper, wiser*

*this book is for them, they led me to see
what might become a safe walkway across the divide*

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