Beyond the Mechanistic Worldview

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Since the beginning of the scientific revolution, in the 17th century, Western science and culture have been dominated by a materialistic, mechanical view of the world and our ability to know it. In effect, all non-material, or spiritual aspects have been purged from this worldview, as well as from the modes of thinking about and understanding the world.

The Mechanistic Worldview

A quantitative, mechanistic way of knowing can handle quantities and the machine aspects of the world with great efficacy. But the *qualities* of nature in and around us are disappearing—these are the qualities of life, meaning, beauty, and wholeness, the very qualities that have no place in the modern dominant conception of how and what we can know. What cannot be known was first thought to be secondary, then unimportant, and finally non-existent.

Three main assumptions about *what* we can know and *how* we know have dominated modern thinking and consciousness. These assumptions have had momentous consequences for all of modern life. The first assumption made a distinction between what can be known objectively and what is perceived subjectively; it ultimately views reality as a mechanism whose elements are observable and quantifiable. It received its modern stamp very early in the scientific revolution in the distinction that was made at that time between what were designated as "primary qualities" and "secondary qualities." The primary qualities included such phenomena as extension in space, mass, weight, motion, number, and so forth. In other words, the realm of the primary qualities was essentially that of the quantitative. The primary qualities, it was thought, could be known with clarity and certainty through empirical description and mathematics. The secondary qualities at first included such phenomena as color, taste, and sound, but eventually were extended to also include other such qualitative domains as value, meaning, and purpose. In this view, knowledge as such was thought to apply only to the primary qualities, the quantitative. While the secondary qualities might well be realities of experience, they could not, strictly speaking, be *known* because they depended on the observer. In short, the perception of secondary qualities was considered to be tainted by subjective feelings, habits, predispositions, and so forth. Consequently, it could provide no proper material for precise, objective knowledge as such.

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Accompanying this quantitative, mechanistic assumption were two further assumptions about what and how we can know. The first of these has been described as the "objectivistic assumption," which posits a fundamental separation between the knower and the object to be known. This assumption holds that if we want to know something properly, we must detach ourselves from it as completely as possible and describe it from the perspective of a mere, uninvolved onlooker. Appropriately, this assumption is also

sometimes referred to as the assumption of the "onlooker consciousness." It was thought important not to introduce personal qualities involving feelings and values into the knowing relationship; to do so would distort and skew the pure knowledge of reality as objective and independent of the knower.

The other assumption that accompanied this one has been called the "sensationist" or "sense-bound" assumption about knowable reality. This assumption, forcefully expressed, for example, by the 17th-century philosopher John Locke, holds that we can only know that which is given through our ordinary physical sense experience and through abstractions from sense experience. This assumption about knowing further ensured the limitation of knowledge to the purely quantitative and mechanical.

At first the assumptions of this mechanistic view were applied mainly to nature. Nature, according to Descartes and Newton, was regarded as ultimately quantitative—without qualities and without consciousness. It was to be understood entirely in terms of physical cause and effect, that is, mechanistically. Nature was regarded as essentially "a law-bound system of matter in motion, governed by the laws of the machine." Gradually, during the 19th and 20th centuries, this view was extended by many to the human realm and to the whole of society and culture. From this point of view, human beings themselves came also to be understood as essentially matter in motion. In this light, all human culture having to do with qualities and the non-material, such as meaning, values, purposes, ideals, and selves, came increasingly to be regarded as merely the surface manifestations—or epiphenomena—of matter in motion.

The assumptions of the mechanical worldview have proven dramatically effective in dealing with the quantitative and mechanistic dimensions of the world. The power and achievements of modern technology in every area—in communication, travel, medicine, construction, computation, and so on—would have been impossible without the development over the past four centuries of ever-enhanced ways of knowing and dealing with the quantitative and mechanical dimensions of the world. Mechanistic assumptions are useful abstractions from the whole that are extremely effective precisely for understanding and working with the quantitative and the mechanical. When, however, these assumptions are extended to explain everything beyond the purely quantitative and mechanical, they become exceedingly destructive. Our experience of the life, the beauty, and the meaning in nature comes to be regarded as merely the complicated combinations of dead, passive, and valueless matter in motion. By definition—or really by fiat—the whole realm of the spirit is eliminated.

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A fundamental transformation of our theory of knowledge would mean recognizing and developing capacities for knowledge of the spirit, as well as of the material. In the most general sense, *spirit* refers to everything that is not matter, to all that is immaterial, to all that is non-sensory. What are these non-sensory realities, these realities of spirit? We have already mentioned them. They include meaning of every kind, including our ordinary ideas; values and ideals—the guiding ideas for achieving meaning; ultimate purposes and goals—formal and final ends; and qualities. Qualities include color, sound, and scent that are entwined with sense experience but whose full reality transcends the sensibly given—ask any artist if this isn't true. But qualities also include all that we experience as meaning, value, purpose, truth, beauty, goodness, freedom, love, and selves. Knowledge of the non-sensory spirit can, therefore, also

be described as knowledge of qualities in their fullest.

To recognize and practice capacities for non-sensory, qualitative knowledge—knowledge of spirit—would have far-reaching consequences for the whole of life, both individually and socially. A fundamental transformation of our knowing capacities must *per force* involve a fundamental transformation of ourselves: our feelings, our conceptual abilities, our powers of attention and concentration, our attitudes and values. A transforming of our dominant modern ways of knowing, by putting into conscious practice the capacities that include knowledge of both the material and the spiritual, and their intimate interconnection, would also be a transformation of ourselves and of our world.

It is important to bear in mind that the assumptions of the mechanistic worldview have become deeply ingrained in modern consciousness. To the extent that we embody modern consciousness, we all share in these assumptions to a greater or lesser degree. It is important to be aware that they often reassert themselves in our thinking even when we are engaged in trying to overcome them.

In what follows, we will ask, first, what have been the main criticisms, historically, of these assumptions of modern consciousness? Second, in light of these criticisms, do these assumptions still hold? to what effect? And, third, what have been the main consequences of these assumptions for the human being and for the world?

Criticisms of the Mechanistic Assumptions

Before looking at the criticisms as such, it may be worthwhile, first, to consider briefly the main attempt to accept and come to terms with the mechanical worldview, an attempt that has sought, at the same time, to maintain a firm place for human values. This response can be described as the "two-realm theory of truth." It is most clearly represented in the long-familiar distinction made between the truths of natural science and the truths of the humanities—roughly speaking, truth regarding matter, on the one hand, and truth regarding meanings, on the other. This two-fold approach to truth has a long history in western civilization. It was given its peculiarly modern cast very early in the scientific revolution by the distinction that was made, as we have seen, between the primary and the secondary qualities. During the 18th and 19th centuries, this two-realm theory of truth was further refined. It became institutionalized in the modern university, where it exerts, still to this day, its influence throughout the whole of modern education and culture. Science deals with nature, which, of course, is taken to include the human body. The humanities, as the name suggests, have as their purview the strictly human realm of meaning, values, purpose, and qualities. In this division, only the "truths of science," dealing, through empirical observation and mathematics, with nature conceived as matter in motion, are viewed as objective knowledge. The "truths of the humanities," dealing as they do with the realm of secondary qualities, are limited to the subjective realms of faith, tradition, feeling (aesthetic, religious, and cultural), social custom, social action, and so forth.

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This division between science and the humanities (in the German university: *Naturwissenschaften*—the natural sciences, and *Geisteswissenschaften*—literally the spiritual sciences) has had a tremendous influence in shaping the society and culture of the West. In the face of a thoroughgoing mechanistic science, this double affirmation has helped keep alive essential human qualities and concerns. Though merely subjective and in that respect generally regarded by the dominant paradigm as inferior to scientific knowledge, the humanities have been a major source for the creative pursuit of human meaning and values. At their best, the humanities have helped cultivate a humanely critical spirit that has often stood as a bulwark against doctrinaire, and even political, infringements upon human freedom and human rights. The affirmation of the two-realm theory of truth has been the main response of modern religious thinkers who have been eager to reconcile their faith commitments with the materialism of modern science. It seems also to have been the main response of those scientists who are serious about both their scientific profession and their personal faith and ethical concerns. It would be difficult to overestimate the positive influence this two-realm theory of truth has had for modern, western society and culture. Nevertheless, the theory has some extremely serious problems, including several that have become increasingly acute.

A major problem is that, from the start, the science/humanities division expresses and institutionalizes a deep alienation of the human being from nature. Nature, handed over to science, is seen as dead matter in motion. Completely separated from this nature, and standing over against it, are the humanities—the strictly human concerns of meaning, purpose, and value. This division at the heart of our education system has helped produce a profoundly split consciousness in western civilization.

A second problem is that, while in theory the relationship between the two sides is supposed to be symmetrical and balanced, in practice it turns out to be quite unequal. In this division, as in racial segregation, separate has not been equal. The quantitative side is nearly always regarded as the more important. This becomes especially clear in education, for instance, when in times of financial exigency, the first subjects to be eliminated in budget cutting are the arts, not chemistry, physics, or computer science. In the university, the subjects dealing with the qualitative—literature, philosophy, education, religion, the arts—are constantly on the defensive, often tempted to show themselves more quantifiable and empiricist to prove that they stand on an equal footing in the curriculum with the natural sciences.

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Finally, the most serious problem is the tendency for the mechanistic side to constantly encroach upon the humanities, such that all semblance of a symmetrical, equal relationship disappears. The claim is increasingly made that human beings and all that makes them uniquely human—meaning, values, ideals, love, their selfhood—can be understood like everything else in terms of matter in motion. *The mechanistic view not only attempts to explain nature, but also to explain away the human*. This tendency has become especially strong in contemporary western culture, with profoundly negative consequences, as explored below.

A growing recognition that the science/humanities two-truths dichotomy has serious problems, at least the three just mentioned, has led to challenges to the mechanistic worldview. Each of the three central assumptions of modern consciousness that we have looked at has been

subjected, especially during the past century, to a number of penetrating critiques. We must ask to what extent, if any, these criticisms have dislodged the dominance of the mechanistic view and its claim to be the only source of genuine knowledge.

The assumption of the objectivistic, onlooker view of knowing has been, perhaps, the most thoroughly criticized of the three. One of the most important criticisms has come from quantum physics, which recognizes that in the process of observing, the observer actively participates in and in effect alters the state of what is being observed. This fundamental undermining of the old, detached onlooker stance in observing and knowing by modern physics is especially telling, since it was within physics that the ideal of the detached onlooker was originally, and quite dogmatically, advanced. The assumption of the detached onlooker has also been challenged by participatory conceptions of knowing coming from several other directions. Ecological studies and feminist philosophy, for example, both stress that the deepest knowledge, whether of nature or of human beings, requires an interactive, participatory relationship between the knower and the known.

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The renowned theoretical physicist, David Bohm, is often quoted as having said, "It is clear that no mechanical explanation [of the physical universe] is now available." Process philosophers have also challenged the mechanistic view by arguing that the most adequate metaphor for understanding nature is not the machine, but the living organism.

Finally, the assumption that all genuine knowledge is sense-bound has been called into question from several sides. Perhaps the most important challenge to the sense-bound (or sensationist) assumption has come from philosophers who point out that we must presuppose a certain intuitive apprehension of non-sensory realities even for the possibility of ordinary sense-bound knowing. The Whiteheadean philosopher and theologian, David Ray Griffin, has argued, for example, that the assumption that we can have no intuition and perception of non-sensory entities (such as ideas, moral norms, meaning, cognitive rules of logic) "makes impossible any empirical grounding for many ideas that are inevitably presupposed in all our practice, including our practice of science."[1] Rudolf Steiner made a similar point in showing that all of our thinking presupposes an element of clairvoyance, that is, non-sensory perception. From this perspective, moving now from a theory of knowledge to its practice, a major task confronting us today is to strengthen and further develop these rudimentary, non-sensory capacities such that we can come to know the realm of qualities with the rigor, constancy, and insight necessary to the full transformation of knowing that our times require.

Persistence of the Mechanistic Assumptions

These challenges to the assumptions of the modern mindset are important. They point to new possibilities. Anthroposophists need to be aware of such new directions and be willing to cooperate with those, mostly non-anthroposophists, who are in the forefront of developing them. At the same time, however, we must ask, How effective have the criticisms been up to this point? What is needed to bring the positive potential for knowledge of the spiritual, the qualitative, to full fruition? In spite of the criticisms leveled at the mechanical philosophy from a number of quarters, it remains the dominant view not only of modern science but also of practitioners of other disciplines who have not established an

objective, or spiritual-empirical, epistemology for their disciplines. In spite of the fact, for example, that modern physics, as we have seen, contains certain fundamental challenges to non-participatory ways of knowing and to an exclusively mechanistic interpretation of reality, modern physics still remains purely quantitative. The quantities involved are essentially number, force, and motion, which are often dealt with in highly rarified formal ways. The physicists themselves are under no illusions that theirs is other than a quantitative enterprise, and as a matter of course, they still often describe their field not as quantum physics, but as quantum mechanics. Moreover, most physicists have limited themselves to a purely instrumentalist approach that does not even ask about the larger implications of their subject. Instead, they still see it as their task to develop mathematical formulae that enable them to predict the outcome of further experiments and observations. These aspects of modern physics have yet to be taken into account by those who are quick to draw conclusions about a presumptive new spirituality contained in quantum physics.

Another major field of scientific research today, that of cognitive science (brain research), is exceedingly mechanistic and reductionist. Mind is identified entirely with brain, and the whole of the human being is reduced to the functioning of the neurons in the brain and nervous system. All of this is interpreted strictly mechanistically. The late Francis Crick, the biologist who turned to cognitive science after his work on DNA, has described the fundamental view of modern cognitive science this way:

> You, your joys and sorrows, your memories and your ambitions, your sense of personal identity, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules—you're nothing but a pack of neurons.[2]

Lest one suppose that this is the view of only one individual, consider this statement in which Crick was joined by the biologists Richard Dawkins and E.O. Wilson, the philosophers Isaiah Berlin, W.V.O. Quine, and the novelist Kurt Vonnegut. In this statement, which they issued as a justification of scientific research into the possibilities of cloning of higher mammals and human beings, they say:

> Humanity's rich repertoire of thoughts, feelings, aspirations, and hopes seems to arise from electrochemical brain processes, not from an immaterial soul that operates in ways no instrument can discover.
>
> – "Declaration in Defense of Cloning and the Integrity of Scientific Research," 1997

The mechanistic reduction of the human being here is complete (and, of course, it goes completely unchallenged by the simplistic conception of soul that is proposed as an alternative). The paradox in such writing lies in the fact that the ideas, values, and positions advanced by these scientists and thinkers must also be regarded as "electrochemical brain processes," thereby losing any qualitative advantage over other ideas, values, and positions, all reduced to the same level of electrochemical mechanism. Either these thinkers are making exceptions for their own ideas or they are unaware of the implications of the mechanistic view so deeply ingrained in the modern scientific mind.

Finally, in Neo-Darwinism, the dominant contemporary theory of evolution, the mechanistic assumptions reign supreme. In fact, Neo-Darwinism, as the sole and exclusive explanation of all evolution, means the extension of the materialistic, mechanistic assumptions to the whole of life. The fundamental principle of Neo-Darwinian theory holds that all of life must be regarded as a law-bound system of matter in motion, in which accidental events in the distant past have led to the current state of

biological and botanical life. In effect, biological and botanical life is what it is by chance; it could just as easily have been something else. One of the tragedies of the current battle between Neo-Darwinists and biblical creationists (both fundamentalist in their own ways) is that the reputable biologists who accept evolution, but not an exclusively Darwinian interpretation of it, are attacked by both sides and eliminated from the discussion.

Despite cogent criticisms brought against it, the mechanistic worldview remains strong and well entrenched. When it has been applied to the undeniable mechanical aspects of the world, the results have been impressive and often very important. Nothing in what is written here should be taken to suggest that the quantitative and mechanical approaches are unimportant or, in themselves, harmful, or that they should be rejected. They are abstractions useful for specific purposes. For their full and beneficent effect, the mechanical and quantitative approaches require a purposive and qualitative context that they cannot provide for themselves. In other words, it is in the context of a wider worldview, the one defined in terms of value, meaning, and purpose, that mechanical descriptions of the world are most useful. Without such a context for guidance, the mechanistic view tends to provide its own limited frame of reference as the dominant explanatory principle for all existence, with disastrous consequences.

Consequences of the Mechanistic Assumptions

The harmful consequences of mechanistic assumptions have been building in scope and intensity for the past three centuries. Now they threaten the future not only of human society and culture, but also of life on earth itself. It is crucial that human beings become aware of these consequences and of what is at stake. It is easy to look away; it is tempting, and almost irresistible, to fall into a kind of unconscious (albeit uneasy and niggling) complacency, as though the "okay world" will continue.

It is a temptation, however, which anthroposophists, of all people, are called to resist. Rudolf Steiner said: "We need to be awake and alive for the sake of humanity. If anthroposophy is to fulfill its purpose, its prime task must be to rouse people and make them really wake up."[3] He said this at the height of World War I, warning at the time that unless people did wake up and strive to understand the nature of what was happening, further catastrophes could only follow. In light of the disasters that have befallen humanity since, his warning remains as significant as when he issued it. It would be a daunting task to have to demonstrate that our situation today is any less perilous than in Rudolf Steiner's time.

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To be asked to look unblinkingly at the full dimensions of our situation today might appear at first to be a counsel of despair born of a dead-end pessimism. Nevertheless, Rudolf Steiner himself spoke of the necessity at times, on one level, of a "justifiable pessimism." At the deepest level of our lives, he said, we should be neither optimists nor pessimists but do our work. But on the level of becoming aware, he said a certain pessimism is justifiable: "justifiable" if it "becomes a challenge to be awake and to try, whatever your place in life may be, to awaken souls so that the science of the spirit can send out its impulses."[4]

Risking this justifiable pessimism, let us look at the situation the dominant assumptions of the modern mindset have helped create, assumptions that have worked to block the development of the science of the spirit.

Fundamentalist Science

As I've demonstrated previously, modern ways of knowing, limited as they are to the mechanistic and sense world, cannot deal with the non-sensory dimensions of human experience—meaning, values, and qualities—except to explain them away as surface epiphenomena of an underlying quantitative substratum. These non-sensory-spiritual realities, however, are the essence of human life, and they do not go away. They keep coming back, reasserting themselves. In the dominant modern view of knowledge, however, they cannot be known in any proper sense of the word; they can only be asserted arbitrarily and dogmatically, that is, fundamentalistically. The dominant modern, mechanistic assumptions make impossible a knowing of non-sensory realities that transcends social and cultural boundaries. Such a knowing could, in principle, be shared by all persons, and so serve as a common foundation for cooperation and resolution of conflict. Without such a knowledge basis, however, religious, ethical, and aesthetic judgments are all rendered dogmatic. This holds equally for political, economic, and scientific, as well as for religious, assertions of ultimate ends and values. In short, I would like to suggest that the dogmatism of modern science demonstrates a fundamentalist tendency akin to the one of religious fundamentalism, which refuses to reexamine its core beliefs even as they lead to clashes and conflicts with contemporary reality.

From this point of view, we can better understand one of the glaring ironies of religious fundamentalism, namely that it is largely a reaction against the corrosive acids of modernity and at the same time a prime expression of modernity. On the one hand, some fundamentalists have seen clearly that a mechanistic worldview is destructive of crucial human values and experience and have felt keenly the loss entailed: the dissolution and scattering of community, the undermining of identity, the loss of meaning. All this, religious fundamentalism strives to combat. On the other hand, fundamentalism can only wage this battle of resistance dogmatically and negatively because it has accepted the modern view that ultimate aims and values cannot be known. They can only be accepted and asserted dogmatically as given variously by religious scripture, tradition, cultural custom, group feeling, and so forth. The implementation of ultimate values, once given, can then be pursued by means of modern technology and technical reason.

Non-religious fundamentalisms—political, scientific, economic—are, of course, not combating the modern, mechanistic mindset, for they have embraced and are frequently major promoters of it. In their own way, however, they are as fundamentalist as the religious fundamentalists whom they see as their archenemies. Unwittingly, their value assertions are just as dogmatic as those of the religious fundamentalists. All in the modern world who would affirm and advance value commitments that have no grounding in qualitative, imaginative, spiritual knowing have to do so dogmatically, drawing upon the givens of tradition, ideological commitments, emotions, convention, or power interests. In this light, modern liberals and conservatives, each advancing against the other their contrasting value claims, often have more in common with one another than either would like to admit.

Because of its dominant sense-bound and mechanistic assumptions regarding the acceptable method and content of knowledge, the modern world in general has a quintessentially fundamentalist character. The tragedy is that when values clash, as they inevitably do, the arbitrary assertion of ultimate values can only end in conflict. There is no higher ground or a shared-value base in which a deeper unity can be sought.

The Degradation of the Human Being and the Destruction of Nature

The great 20th-century mathematician and philosopher, Alfred North Whitehead, once gave a description of the picture of nature presented by the mechanistic view of the universe: "Nature is a dull affair, soundless, scentless, colourless; merely the hurrying of material, endlessly, meaninglessly."[5] Subscribing to this view of the universe, many prominent scientists today affirm that their own scientific research reveals to us an ultimately meaningless, pointless world. The Harvard physicist, Steven Weinberg, has famously stated: "The more the universe seems comprehensible, the more it also seems pointless."[6] The biologist William Provine wrote: "Our modern understanding of evolution implies that ultimate meaning in life is nonexistent."[7] The astronomer Sandra Faber said, "The universe is completely pointless from a human perspective." And echoing the same thought, the Harvard astronomer Margaret Geller asked, "Why should the universe have a point? What point? It's just a physical system, what point is there?"[8] Many more similar statements from the highest ranks of the scientific community could be added. As one encounters these commanding nihilistic declarations, it is worth recalling Whitehead's wry comment: "Scientists animated by the purpose of proving that they are purposeless constitute an interesting subject for study."[9] But the irony here does not seem to shake the view of many leaders of the scientific community that ours is a meaningless world. Perhaps it is to their credit that at least they do not shrink from drawing the nihilistic consequences of their materialistic, mechanistic view.

These scientists are among the most influential of public figures. Science is the dominant modern faith and these scientists are its high priests, cultural icons for the whole of modern society. When science is taken as the highest and sole source of explanation and guidance in human affairs, its view of a pointless, mechanistic world seeps into all aspects of modern society with profoundly negative effects. This nihilism offers no support for affirming the realities of beauty, ethical ideals, and the responsible self. Nor does it offer any resources for recognizing and struggling with the depths of human existence—the human potential for good and evil, the mysteries of biography, the creativity of human imagination, the value of shared community and sacrifice for the other. Perhaps the only values—ideals, if they may be called that—supported by this nihilism are survival and self-aggrandizement in the struggle for survival.

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In this view, the machine is regarded as clearly superior to the fallible, slow and limited, mortal human being. Increasingly we are inundated by proposals to "improve" the human being through genetic engineering, nanotechnology, and the creation of human-cybernetic machine hybrids. "Improve" in this context means to radically modify human nature. The hope is that the human being will no longer be subject to disease, death, and stupidity. There has even been the founding of a "World Transhumanist Association" aiming to promote the enhancement of human capacities. While it remains doubtful whether this technological transcendence of the human being as envisaged can be achieved, this kind of thinking undercuts and trivializes all recognition of the depths of human life in all its misery, grandeur, and potential. And it offers no resistance at all to what Owen Barfield has called the possible creation of a "fantastically hideous world."[10]

Probably the most pressing consequence today of the mechanistic philosophy and its

accompanying rejection of non-materialistic values is that, by removing the holistic view of an intrinsically meaningful and valuable nature, it has led to the relentless dismantling of nature. Erwin Chargaff, a noted biochemist and one of the few leading scientific critics of the modern scientistic faith, has written:

> The over-fragmentation of the vision of nature … has created a Humpty-Dumpty world that must become increasingly unmanageable as more and more pieces are broken off. The wonderful, inconceivably intricate tapestry is being pulled out, torn up, and analyzed; and at the end even the memory of the design is lost and can no longer be recalled.[11]

As several observers of the earth situation have commented, "Nature doesn't exist anymore"—only bits and pieces, fragments, remain.

In addition to having direct, disastrous consequences, the view of nature as nothing but matter in motion also supports the exploitation and misuse of the earth through an unrestrained economism—the constant drive for unlimited economic growth which is dependent on consumerism. The costs to the earth are now painfully apparent. The destruction of forests; the degrading of arable land; the pollution of lakes, rivers, and oceans; the depletion of fresh water sources; the mass extinction of living species; the worldwide collapse of fishing stocks—the list of destruction goes on alarmingly. The "Living Planet Report" by the World Wildlife Fund has recently concluded: "People are plundering the world's resources at a pace that outstrips the planet's capacity to sustain life."[12]

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A special responsibility for this state of affairs rests with the people of the United States, which contains only six percent of the world's population and consumes 30-40 percent of the world's resources. It is little comfort that India and China will soon share with America more and more of the responsibility for the pollution and destruction of the earth as the rate of their industrialization accelerates. The situation promises to worsen, and to do so very quickly. "Resource wars" over diminishing agricultural land, energy resources, and especially over fresh water are already being fought (as witnessed in the Middle East and Africa), and planning for more such wars worldwide has long been in process.

To add to all of this, if global warming and climate change come to pass as predicted by most of the world's experts, then all bets on the future are off.

We might think that this plundering of the earth is mainly due to thoughtlessness, greed, and general human cupidity. Certainly, greed and thoughtlessness have always been with us, and in all ages have played major roles in the depredation of the earth. But the problem in our time goes much deeper than that, so long as nature is regarded as basically a dead, meaningless machine, as only matter in motion. Greed and thoughtlessness—and comfortable indifference—are all given a free hand as never before, within the doubly disastrous context of overpopulation and destructive technology. As long as nature is regarded as having no qualities—no inner life, no meaning, no living wholeness—taking it apart for our own immediate pleasure and economic advantage is obviously that much easier to justify.

A vivid example, much overlooked, of how a mechanistic view of life, social and cultural attitudes, greed, habit and complacency, powerful technology, and hardness of heart all come together and intertwine is the treatment of animals by modern, industrial agriculture. Apart from the well-documented environmental degradation, communal decline, and spread of disease associated with the factory farming of

animals—particularly pigs, cows, and poultry—the suffering of the animals themselves is almost never faced. Yet, daily our culture inflicts cruelty and suffering on millions of animals of an intensity hitherto unknown. The animals are defined as "units of production" and are treated accordingly as useful pieces of machinery without feelings. Their entire lives are unrelieved wretchedness. A pall of suffering of living, feeling creatures hangs over our modern culture, and most of us are complicit in it, if only through willful ignorance of what is taking place. The suffering of these animals is one of the moral disasters of our time—obviously a startling claim amid all the many other horrendous, daily cruelties, but a true one nonetheless. The withholding of mercy to these fellow creatures bespeaks an appalling failure of imagination in thinking, a lack of empathy in feeling, and a weakness in moral willing. If it be said that the suffering of animals pales in importance in comparison to the horrid suffering of millions of human beings today, then it may be well to remember the words of Mahatma Gandhi: "The greatness of a nation and its moral progress can be judged by the way its animals are treated." This same lack of imagination, empathy, and moral determination stands as a barrier to the development of any powers of qualitative knowing.

Justifiable Pessimism

In 1971, John Cobb, a leading American philosopher and theologian, wrote a book, acknowledged by many today as a small classic on the state of the environment. It was entitled *Is It Too Late?* Almost 20 years later, Cobb and a former World Bank economist collaborated on a book on global economics. By that time, near the conclusion of their book they had to write:

> Each passing year we see foreclosed happier possibilities for the future. The recognition of possibilities gone forever inspires us with a sense of urgency. Delay is costly to us and ever more to our descendants and to the other species with which we share the planet. It is already very late. It is hard to avoid bitterness about what might have been done and about the additional missed opportunities each day. It is hard to avoid resentment toward those who continue so successfully to block the needed changes.
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> Yet there is hope. On a hotter planet, with lost deltas and shrunken coastlines, under a more dangerous sun, with less arable land, fewer species of living things, a legacy of poisonous wastes, and much beauty irrevocably lost, there will still be the possibility that our children's children will learn at last to live as a community among communities. Perhaps they will learn also to forgive this generation its blind commitment to ever greater consumption. Perhaps they will even appreciate its belated efforts to leave them a planet still capable of supporting life in community.[13]

But now, again nearly another 20 years later, Cobb has recently written:

> Viewing nature as a machine has led human beings to treat it that way. We are moving toward a crisis of global proportions, and our mechanistic vision deters us from taking the drastic steps needed to change direction.[14]

We don't know if there will be a global catastrophe; predicting the future is risky. Most of the experts failed to foresee the sudden collapse of the Soviet Union or of Apartheid in South Africa. As one wag has commented, however: "Miracles are possible, but that's not where you put your money." It would be blind and irresponsible to ignore the many warnings of impending global disaster. If we do avoid the catastrophe (or, more likely, *catastrophes*), it will only be because human beings learned in time to know and attend to the qualities of the world. If the catastrophes do come, and it

may be sooner than later, it will be all the more important to have individuals and communities working together to develop and sustain through it all a living, knowledge-grasp of the qualities of life, meaning, beauty, and spirit—in ourselves and in the world. The whole of Rudolf Steiner's spiritual science is devoted to that end, and in a way that aims to have fundamental and specific implications for science, society, and culture. As far as the future of the earth is concerned, any meditative practice or path of spiritual development that does not have as a main goal the transformation of knowledge in science, society, and culture can only be irrelevant.

Steiner spoke of a "justifiable pessimism" at one level if it helps us to wake up and be alert. At a deeper level, however, as I noted earlier, he said we should be neither optimists nor pessimists, but do our work. In a lecture at the end of World War I, he said:

> You will preeminently keep the following before your souls: "I am, in any case, called to look at everything without illusion; I must be neither pessimistic nor optimistic, so that forces may awaken in my soul which give me the power to aid the free development of the human being, to contribute to human progress in the place and situation where I am." Even if the faults and tragedies of the age are very visible to spiritual science, this should not be an incitement to pessimism or optimism, but rather as a call to an inner awakening so that independent work and the cultivation of right thinking will result. For above all things, adequate understanding is necessary. If only a sufficient number of people today were motivated to say, "We absolutely must have a better understanding of things," then everything else would follow.[15]

This is the beginning foundation for a healthy society and culture—and for the healing of an ailing earth.

ENDNOTES

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3 Rudolf Steiner, *The Fall of the Spirits of Darkness* (London: The Rudolf Steiner Press, 1993), p. 16.
4 Steiner, p. 21.
5 Alfred North Whitehead, *Science and the Modern World* (New York: The Macmillan Company, 1950), p. 80.
6 Steven Weinberg, *The First Three Minutes* (New York: Basic Books, 1977), p. 144.
7 Quoted in Huston Smith, *Why Religion Matters* (San Francisco: Harpers, 2001), p. 37.
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10 Owen Barfield, *Saving the Appearances: A Study in Idolatry* (New York: Harcourt, Brace & World, 1965), p. 146.
11 Erwin Chargaff, *Heraclitean Fire: Sketches from a Life before Nature* (New York: Rockefeller University Press, 1978), pp. 55–56.
12 http://wwf.panda.org/news_facts.cfm/publications/key_publications/living_planet_report/index.cfm.
13 John B. Cobb, Jr., and Herman E. Daly, *For the Common Good* (Boston: Beacon Press, 1989), pp. 399–400.
14 John B. Cobb, "Buddhism and the Natural Sciences," http://www.religion-online.org/article/buddhism-and-the-natural-sciences/.
15 Rudolf Steiner, *Social and Antisocial Forces* (Spring Valley, NY: Mercury Press, 1982), p. 28.

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