

Congrès Mondiale pour la pensée complexe, Paris, 8 et 9 décembre, 2017

Sean Kelly, Ph.D., California Institute of Integral Studies

The Complexity of Climate Change: The Way of Re-liance

To begin with, I want to express my gratitude to Edgar Morin for the profound and consequential influence he has had on my personal and professional life these past three decades. This year marks the 30th anniversary of my first meeting with Edgar during my year in Paris as a graduate student. Since that time, along with my ever-deepening regard and affection, I am struck by how increasingly relevant Edgar's life-work is to our troubled world. The troubles are many, critical, and complexly interrelated. Without a sufficient grasp of the complexity involved, it is doubtful that we will be able to respond adequately or in a good enough time. Until recently, talk of complexity, or of key principles with which it is associated, has been largely confined to groups of academics and other specialists. That has recently changed to a considerable degree with the rise in the collective consciousness of the problem of climate change. The general public is becoming more familiar with such terms as tipping points and feedback loops.

The single most telling illustration of some of these principles is the so-called albedo effect, where global warming reduces Arctic ice, and with it the ice's ability to reflect sunlight back into space, which increases global warming, which hastens the melting of the ice... The albedo effect is a clear example of circular causality or *recursivity*, a key ingredient of complex thought. One is also finally starting to see reports in the mainstream media about the danger of massive releases of arctic methane, which to date have not been factored into the consistently over-conservative IPCC assessments.

These releases threaten to amplify the feedback beyond the point of no-return, and this possibly within the lifetimes of some of us gathered here.

While climate sciences in general, and the new field of Earth system science, in particular, make good use of the principle of recursivity in their scientific modeling, the models and the mindsets that inform them are still significantly embedded within the old paradigm. Though there are exceptions, this paradigm still suffers from disciplinary fragmentation and hyper-specialization, the persistence of a detached, objectivist ideal (the opposite of what was called for decades ago now in the title of Edgar's book, *Science avec conscience*), and an insufficient understanding of the complex coupling of the physical and human dimensions of the Earth system. The anthroposphere not only affects the geosphere upon which it depends—for example, through the modification of the atmosphere (hence the idea of anthropogenic climate change) or through ocean acidification or habitat loss or species extinctions. The recursive relation between anthroposphere and geosphere has reached a point of mutual, though antagonistic, *holographic* inclusion. That the biosphere includes humans is obvious, but it has become apparent, at least to those with an eye for complexity, that the anthroposphere now also includes the biosphere, in the sense that no part of the thin and fragile planetary layer of life is immune to human influence. And in fact the very fate of complex life now lies in human hands. This kind of two-way holographic inclusion is implied by the recent recognition on the part of geologists to name the dawning planetary age the *Anthropocene*.

As for the relation between the ecological and the social, the two terms are not only recursively and holographically coupled, but *dialogically* as well. The processes

associated with both terms, along with the values we attribute to them, are not only complementary and concurrent, but increasingly *antagonistic*. The antagonism is being played out in the competing interests both between and within the so-called developed and developing nations. And of course, it is especially within the latter that the contradictions are most acute, since, as they strive to match the standard of living of the developed world, they have the most to lose if they are successful.

In general, the more complex understandings of the climate crisis are coming from outside the scientific community. Two particularly powerful recent examples of the latter are Pope Francis's inspiring encyclical, *Laudato Si: On Care for our Common Home*, and the recent book by Naomi Klein, *This Changes Everything*. A main lesson in both of these books, if I can put it this way, is that no response to anthropogenic climate change will be effective without a fundamental *climatogenic anthropological change*. As Klein puts it, to change the climate, everything must change. As much as we should applaud the not insignificant achievement of the Paris accord, the goal of a maximum warming of 2°C will not be met without a deep transformation of the global political economy, hence the subtitle of Klein's book: *Capitalism versus the Climate*. Whether one speaks of capitalism *tout court* or of so-called predatory capitalism is perhaps not so important. One thing is clear: the fossil fuel industry, and all of the other industries dependent upon fossil fuels, will not easily forgo their prospective profits. Along with the profit motive, which is the central organizing principle of the economy or of industrial growth society, the other obstacle, which in the case of climate change and environmental problems generally, gives profit free reign, is the private ownership of the planetary Commons. By the planetary Commons I mean all elements of the total Earth system

which know no real boundaries (only illusory or arbitrarily enforced ones) and which depend upon free circulation for their sustainability and flourishing. This includes of course the air and water, the soil and forests, and even life or the biosphere itself, but also elements of the noosphere (ideas, information) and the sociosphere (money, services).

Although in real terms, it may very well come down to capitalism versus the climate, there is a more fundamental choice at play. It is a choice between two worldviews or paradigms, two root dispositions of the heart-mind, which, though they must find a common space in which to confront one another, can never be reconciled. For truly, one is on the side of love and life while the other, for the most part unconsciously, is on the side of conditioned ignorance, hatred, and a deeper fear. Should the latter prevail, the path ahead leads inexorably towards planetary catastrophe. If the first disposition prevails, or at least proves itself to be the stronger, there is the possibility at least of a viable, if not flourishing *Homeland Earth (Terre-Patrie)*.

As I write these lines, an iconic enactment of this confrontation is being played out at Standing Rock, North Dakota. For the first time in living memory, representatives of Native American tribes from across the country and beyond have gathered to protest the completion of the Dakota Access Pipeline which threatens to desecrate their sacred land. They have been joined by many individuals and groups, not only environmental, but social justice groups such as Black Lives Matter, Code Pink, and now also around 2000 US veterans. They call themselves water protectors, but they are protecting more than water. Whatever their formal affiliation, they are at the vanguard of what Joanna Macy calls the Great Turning of our time towards a life-sustaining society. By peacefully

linking arms in the face of attack dogs, pepper spray, rubber bullets, and water cannon in freezing weather, they are leading the way on the path of *re-liance*.

This path is oriented by the principles of complex thought, which allow for the re-linking or weaving together (*com-plexere*) of those elements of our world that have been torn asunder under the force of industrial growth society and the paradigm of simplification that informs it. Presupposing, and actually grounding such key principles as recursivity, the dialogic, holonomy, and uncertainty, are the meta-values of the holy trinity so wonderfully embodied in Edgar's work and life: *Love, Poetry, Wisdom*. But the greatest of these, as St. Paul reminds us, is love. In a sense, wisdom is the easiest to achieve, since one can in principle attain to the highest and deepest of intellectual insights without significant risk to life and limb. To live poetically, however—as are the brave and inspired water protectors of Standing Rock—is to resist the barbarism of hyper-prose in the service of Empire. It is to throw oneself in wholeness of body and heart-mind into the stream of love and life. By all means, cultivate wisdom and strive to live poetically, but above all else, in the words of Edgar that serve me as a guiding mantra in these final days of the Planetary Iron Age, *amour de vivre, vivre d'amour!* (*love to live, live to love!*)