

The Ideological Character of the Sciences, The “New Paradigm” Championed in the 1980s and 1990s, And the Role of Science and Technology in the New Age

Scientific theories and paradigms are intellectual constructions that, to a great extent for emotional reasons, human beings feel compelled to force upon reality, and which no matter how scientifically plausible they may seem, or to what extent we may believe them to faithfully describe reality, necessarily distort to a greater or lesser degree what they are meant to interpret. Nonetheless, scientists present the “findings” of the sciences, and in particular those they themselves arrive at, as the objective, faithful, exact description of reality: this is why quite a few authors have concluded that the sciences are but ideologies. Though this is not the place to carry out a thorough, extensive demonstration of the fact that the sciences are but ideologies, I deemed it important to provide the following summary of some of the arguments that have been used to this aim, including some of the ones I myself used in 1994a (a revised and corrected version of the work in question will be prepared when conditions make it possible).

One insurmountable difficulty the sciences face in their attempts to establish definitive truths is that immutable, universal scientific laws cannot be derived from empiric observation, for, as David Hume showed long ago,¹ no matter how many observations a scientist carries out, he or she cannot carry out an infinite number of observations—and there is no way to make sure what repeats itself in a very high number of cases will repeat itself in *all* possible cases. Aware of this, and of the fact that we do not derive our theories directly from experience, but that we deduce them from our own principles or intellectual illuminations, and later on we try to validate them by testing them against experience, even an advocate of the supposed validity of knowledge and certainly no Luddite such as Karl Popper felt compelled to note that if no experience contradicts a theory, scientists are entitled to admit it *provisionally* as a *probable* truth: Popper rejected the essentialism of the rationalist philosophy of science, which supposes that the aim of inquiry is a complete and final knowledge of the essence of things, on the grounds that no scientific theory can be completely substantiated and that the acceptance of a new theory gives rise to as many problems as it solved.² A weighty piece of evidence supporting the view that no scientific theory could ever be absolutely substantiated was the theorem that Léon Brillouin conceived in 1932, purportedly proving that “information is not gratuitous:” any observation of a physical system increases the system’s entropy in the lab, and hence the “output” of a given experiment, which must be defined by the relation obtained and the concomitant increase of entropy, will always be lower than the unit (1), which would represent exactness of information, and only in rare cases will it approximate it—which means that the perfect experiment is impossible to achieve, for it would have to involve an infinite expenditure of human activity.³

In his turn, Gregory Bateson noted that divergent sequences, which are those involving individuals, and particularly individual molecules, cannot be predicted. He wrote:⁴

¹ Hume (1964). This principle was expressed most precisely by physicist Max Born.

² Popper (1961).

³ Brillouin (1959); De Sousa Santos (1988).

⁴ Bateson (1990), p. 37 (I retranslated the passage from the Spanish).

The curious thing is that the more precise my laboratory methods, the more unpredictable the occurrences will be. If [in predicting the effects of a stone hitting a glass] I employ the most homogeneous glass I may find, I polish its surface until obtaining the most exact optical uniformity, and I control as minutely as possible the movement of my stone, making sure that the impact be perfectly vertical, all that I will achieve with these efforts is that the occurrences be all the more unpredictable.

In contrast, convergent sequences could be universally predictable, but only if we had access to all the necessary information; since in general we do not have all the necessary information, it is not possible to *prove* a hypothesis, except in the abstract realm of pure tautology.⁵ However, tautologies do not offer new or useful knowledge, and hence the only hypotheses that may be proved are useless ones.

As the reader surely knows, Kurt Gödel's incompleteness theorem showed that any logical system must contain at least one premise that cannot be proven or verified without the system contradicting itself, and therefore that it is impossible to establish the logical consistency of any complex deductive system without supposing principles of reasoning the internal consistency of which is as open to questioning as the system itself.⁶ Therefore, it is clear that, in all scientific disciplines, formal or empirical, to take a scientific theory for a definitive universal law or truth would involve a bias and a misrepresentation of reality—and hence would constitute an ideological operation.

Another point is that the human psyche functions in such a way as to structure its perception in terms of ideologically conditioned expectations, and hence in their observations scientists tend to discover what their theories require them to find. Gaston Bachelard noted that prejudices, such as opinions and previous “knowledge,” condition the way researchers interpret their empirical observations, becoming epistemological obstacles that impair their capacity to admit that the results obtained may fail to correspond to the *a priori* theoretical construction that caused them to expect a specific outcome.⁷ⁱⁱ Edgar Morin, in order to demonstrate that observational judgments are conditioned by ideology, and that this does not happen solely in the field of scientific experimentation, but in all walks of life, offered his readers the story of how once he saw a car overlooking a red traffic light and frontally hitting a small bike. When he stopped to offer his testimony, the bike's driver acknowledged it was him who had overlooked the red light, and it was him who had hit the car with his bike (which was corroborated by the marks on the side of the car's body): Morin's socialist, righteous ideology had conditioned his perception and caused him to see something different from what actually occurred.⁸ In the case of scientific experiments planned beforehand, not only is the scientist's perception likely to be conditioned in a way similar to Morin's at the time of the accident, but the way the experiment is designed and the criteria for the evaluation of its results are determined by the researcher's interests and expectations, which in turn are determined by his or her ideology. This was acknowledged by Italian Marxist philosopher and activist Antonio Gramsci, who wrote “en realidad la ciencia es también una superestructura, una ideología” (*El materialismo histórico y la filosofía de Benedetto Croce*, 1998, Nueva Visión, p.63),

⁵ Bateson (1990), pp. 39-40.

⁶ Gödel (1962, 2001).

⁷ Bachelard (1957).

⁸ Morin (1981).

and it has been substantiated with many pages of examples and reasonings in the book *The Golem: What You Should Know about Science*, intended to show the circularity in the logic of science (in Sextus' sense of the term, corresponding to the fallacy of *petitio principii*), and that scientists often see what they want to see.⁹ (I am referring to observations conditioned by ideologically-determined self-deceit rather than resulting from the fully conscious attempt to deceive others, but often researchers have also done the latter; as way of example, in the book under consideration we are reminded that A. S. Eddington subjected his pictures of an eclipse to “cosmetic surgery” in order to demonstrate Einstein's predictions...¹⁰)

It is universally known that, as Thomas Kuhn showed, all scientific paradigms and theories so far, even while they were universally admitted, were contradicted in experimentation by a number of observations, which scientists consistently ignored until those observations became too abundant—at which point they were compelled to develop a new paradigm or theory in order to account for the hitherto ignored observations. However, then the new paradigm or theory was in its turn contradicted by a certain number of observations, which at some point became too abundant, and so yet another paradigm or theory had to be developed. Therefore, the process had to repeat itself again and again—which is the reason why, throughout the history of science, countless theories have been viewed for given periods as verified through experience, and yet at some point they have had to be rejected and replaced by new theories. This shows that, so far, taking a scientific interpretation of reality as perfectly corresponding to it, has involved an ideological operation—and thus that in this context elusion / bad faith and ideology have lied precisely in the belief that there are scientific theories that are verifiable through experience (and that, when verified, they are simply true).^{11 iii}

Paul K. Feyerabend has consistently argued that there is no scientific rationality, that the whole of the epistemological rules that sciences impose on themselves are violated every now and then—and not only are they violated, but they must be violated if the sciences are to continue progressing—and that (as already shown) the assumption that theories must adapt themselves to our observations implies overlooking the essentially ideological character of observational judgments. He concluded that science is but an ideology among many others, that Western reason and science are but belief systems having no greater validity than alternative systems including magic and witchcraft, and that “success in science depends not only on rational argument, but also on a mixture of subterfuge, rhetoric and propaganda.”^{12 iv} Not only do human intellectual productions in general have an ideological character, but for centuries the ideological productions in question have served for the justification, pseudo-legitimation and implementation of power; in particular, Michel Foucault and Gilles Deleuze^{13 v} have noted that philosophy and science are more than ideologies, since for many centuries philosophical systems, and for a shorter time scientific disciplines and theories (such as psychoanalysis), have had the role of an “abstract machine or generalized axiomatic” that functions as the matrix that makes possible the very existence of power—their function being to provide power with

⁹ Collins & Pinch (1998).

¹⁰ Collins & Pinch (1998).

¹¹ Kuhn (1970).

¹² Feyerabend (1984, 1982, 1987).

¹³ Deleuze (1980); Foucault (1976, 1978).

the forms of knowledge necessary to sustain the models on the basis of which it will have to structure itself in each different period.

So it seems that the only acceptable scientific criterion for determining the validity of science is the one established by Alfred Julius Ayer, which is that of practice.¹⁴ He tells us that we are authorized to have faith in our procedure insofar as it carries out the function it is destined to perform—that is, so long as it allows us to predict future experience and therefore to control our environment. However, this criterion suggests the very opposite of what Ayer intended to prove, for the sciences have failed in carrying out the function they were intended to perform: while the avowed aim of the technological applications of science was the improvement of human life and the welfare of humankind, they have produced the ecological crisis that has led humankind to the brink of self-destruction. Furthermore, scientific disciplines have not allowed us to predict future experience, for rather than predicting that the technological application of science would lead us to the brink of self-destruction, until very recently, scientists predicted it would greatly improve human life and give rise to all kinds of marvels. Thus it is clear that Desiderius Erasmus was quite right when he spoke of a Golden Age at the beginning of time, and of science as a demonic catalyst of human degeneration.^{vi} Keeping in mind the already quoted saying by Schumacher that goes, “the devil is not evil, he just follows the wrong star,” consider the following passage of *In Praise of Folly*:¹⁵

...God, great architect of the Universe, forbade tasting of the tree of Science, as though it were the poison of happiness, and also Saint Paul condemned it openly as a source of pride and evil, following the idea that, in my view, inspired Saint Bernard,^{vii} when he called that mountain where Lucifer took up residence, the “mountain of science.”

The sciences as we know them are a product of the gradual degeneration that took place throughout the cosmic cycle, and in particular of the development of the inseparable couple at the root of the law of the samsaric “law of inverted effect:” (a) the prevailing instrumental interest, and (b) the fragmentary perception that was illustrated by the Buddhist fable of the men with the elephant—which together cause us to perceive essents either as threats / obstacles to destroy or as tools to use / goodies to enjoy, and develop a powerful instrumental technology in order to destroy what we perceive as threats and obstacles, and appropriate what we perceive as goodies and tools. Thus there can be no doubt that Herbert Marcuse was right when he claimed that science is ideological insofar as it has built into its concepts and methods an interest in instrumental action—that is, in the technical manipulation and control of nature—and hence it is necessarily committed to an exploitative view of nature and human beings, rather than neutrally and accurately reflecting an objective reality.¹⁶ He wrote:¹⁷

The science of nature develops under the technological *a priori* which projects nature as potential instrumentality, stuff of control and organization. And the apprehension of

¹⁴ Ayer (1981).

¹⁵ Erasmus (1984). The excerpt was translated into English from the Spanish translation by the author of this book.

¹⁶ Marcuse (1964), ch. 6: “From Negative to Positive Thinking: Technological Rationality and the Logic of Domination.”

¹⁷ Marcuse (1964), ch. 6, p. 126.

nature as (hypothetical) instrumentality precedes the development of all particular organization.

And also:¹⁸

The point which I am trying to make is that science, by virtue of its own method and concepts, has projected and promoted a universe in which the domination of nature has remained linked to the domination of man—a link that tends to be fatal to this universe as a whole.

In terms of the worldview expressed in this book, the above is so because so long as we function in terms of communicative relations, we cannot perceive—and therefore we cannot examine—the essents we relate with, in the objectifying, dissecting manner characteristic of the instrumental science that steadily developed in the last five millennia, and in particular over the last five centuries,^{viii} which could only be conceived and implemented after human reason structured itself in terms of instrumental primary process relations, becoming “instrumental reason.” Since, as explained in a previous section of this chapter, once instrumental primary process relations and reason develop, it is impossible to limit their ambit to particular sets of relations, this type of science inevitably had to produce the instrumental technology that then was applied indistinctly to the non-human environment and to other human beings, destroying the former and dehumanizing the latter and the subject who applied it as well—a key result of which Henry David Thoreau observed as early as one and a half century ago, expressing it in *Walden* with the phrase, “Men have become the tools of their tools.”¹⁹ In fact, as Lewis Mumford more recently was right to note, the modern ethos released a Pandora’s box of mechanical marvels that has absorbed all human purposes into *The Myth of the Machine*.^{20ix} And yet this does not mean there is a culprit, to be identified as technology: despite the nihilistic and shallow character of most of his views, Cioran was right in noting that it is not the machines that are leading humankind to its ruin and damnation, for these were invented by us humans because we were already on the way to ruin and damnation: it was because of this that we devised means which would help us attain it more rapidly and effectively.²¹

The above does not mean that we should simply do away with science and technology: given the enormous population of the world, science and technology would inevitably continue to be part of the environment of our species, and thus survival and the transition to a New Age of plenitude and perfection would not imply our regression to a savage yet idyllic Garden of Eden. As Tibetan Lama Chögyam Trungpa Rinpoche noted in regard to what he christened “Shambhala vision:”²²

Shambhala vision does not reject technology or simplistically advocate that we go “back to nature.”

Since the vision of spiritual and social evolution as a degenerative process came to us through the awareness of Awake Ones—who are beyond judgment and, insofar as they

¹⁸ Marcuse (1964), ch. 6, p. 135.

¹⁹ Thoreau (1970), p. 175 (original Ed., p. 142).

²⁰ Mumford (1967/1970).

²¹ Cioran (1964). Cited in Calinescu (1987), p. 149.

²² Trungpa (1984).

do not feel separate from becoming, are aware that all that arises in the course of becoming may be turned into the Path—this vision does not dwell on judgment and rejection of the products of degenerative evolution.

As we have seen, the progressive exacerbation of perceptual fragmentation and the generalization of instrumental relations (which together gave rise to instrumental technology and which this technology in its turn has helped develop) have achieved the *reductio ad absurdum* of human delusion; if the immediately following stage of human evolution were catalyzed by the wisdom that results from generalized advancement on the Path of Awakening within genuine wisdom traditions, the outcome would be the widespread restoration of the nonrelational state of Communion. And since this state would alternate with a relational post-Communion state,^x into which the realization of the sacred character of the universe proper of the state of Communion would somehow filter down, imbuing our relational experience with a sense of sacredness, as heralded by Morris Berman a re-enchantment of the world would take place^{23xi}—which would go along with the restoration of communicative relations in all fields. (However, this re-enchantment of the world would not amount to a restoration of shamanic experience and spiritual practice, making our vicissitudes depend on the whims of elemental spirits and other powerful beings, for its nature would be metashamanic and as such it would have the diametrically opposite result of freeing us from the power of the beings ruling the lands of our psyches.)

As a result of the above, for the first time in recorded history our species would engage in wisdom-imbued, pancommunicative dealings with an environment involving science and technology—which would automatically result in a radical transformation of these two, in a manner not too different from the one foreseen by Marcuse, who asserted that the liberation of both human beings and the rest of nature (and, I find it necessary to add, the survival of both) would require a new science grounded in a non-instrumental interest (and therefore in a “non-instrumental rationality”) and involving a view of nature as “a totality of life to be protected and cultivated” rather than as a utility to use and manipulate.^{24xii} (Habermas admitted some and rejected other of Marcuse’s theses as to the ideological character of science; as observed in the preceding section of this chapter, he rejected the claim that relations with the nonhuman environment would also have to become communicative, and thus he could but reject Marcuse’s thesis that science and technology must cease responding to an instrumental interest [and to the corresponding rationality], and undergo the radical transformation being discussed.^{25xiii})

If, as warned above, the transformation necessary for survival could not consist in a regression to a savage yet idyllic Garden of Eden as yet unspoiled by degeneration, far less could it consist in a return to a stage in the process of evolution in which degeneration had developed to a considerable degree, but was slightly less advanced than in our time. In particular, it could not involve the reinstatement of a universal theocratic state, as explicitly proposed by Frithjof Schuon in a book in which he made an apology of imperialism,²⁶ and as implicit in works by other members of the Traditionalist movement. To begin with, I find it extremely difficult to understand that anyone may aspire at the restoration of a state of affairs involving extreme degeneration and oppression, featuring the most oppressive

²³ Berman (1984).

²⁴ Marcuse (1972), p. 61.

²⁵ Habermas (1984).

²⁶ Schuon (1984).

forms of the “right-wing institutions” that developed as delusion unfolded^{xiv} (and possibly even an Inquisition or its equivalents^{xv}), and being more distant than the present state of affairs from the end of the cosmic cycle and hence from the prophesized restoration of the ubiquity of the Communion of all human beings in the unconcealment of our common nature, and the perfect condition that would follow from this. Furthermore, were this regress possible, delusion would restart its development toward its *reductio ad absurdum*, again leading us to a condition roughly analogous to the one we face today. Fortunately, however, the dynamics of the relations between primary process and secondary process would not permit the reversion of evolution and history, and the reproduction of an already surpassed stage in the process of negative spiritual and social evolution.

The essence of the upcoming New Age will be the restoration of the ubiquity of Communion in the unconcealment of our common nature, characterized by total plenitude and perfection, and therefore of the virtues that spontaneously manifest out of this Communion, and the total surpassing of the right-wing institutions that arose in the course of the process of degeneration. In order to institute the Age in question, rather than returning to the past, we must go ahead without ever turning back—so long as we fulfill two requirements: (1) that on the individual plane we tread the Path of Awakening in the context of a genuine Wisdom-tradition, so as to surpass the basic human delusion that at this stage has developed into a condition of extreme perceptual fragmentation and instrumentality, and achieve the “transference of world” (Tib., *chi phowa*²⁷) of the evil, harmful and instrumental beings which are our own evil, harmful and instrumental thoughts;^{xvi} and (2) that we fully engage in achieving the necessary changes on the social, economic, political, cultural and religious planes. (These two planes are indivisible, for insofar as the psyche is structured in terms of the internalized relations of human beings with other human beings and the rest of the environment, for the psyche to change, these relations must change, and since the way human beings relate with other human beings and the rest of the environment reproduces the relations structuring the human psyche, an effective transformation of the “material” relations of human beings is only possible in the measure in which the psyche has undergone an equally real transformation.)

In the second half of the twentieth century, ecologists and holistic thinkers made the point that mechanist paradigms and theories elicit and justify the instrumental manipulation of the ecosphere and human beings, and at the same time cause this manipulation to ignore the structure and function of living systems, interfering with them and eventually destroying them. Thus in the 1980s and 1990s they enthusiastically proposed that such paradigms and theories be replaced by what they referred to as a nonmechanist, holistic, systemic “New Paradigm,” which they saw as the panacea for the evils produced by the current type of science and technology—but which has often incurred in the reductionism, denounced in the preceding chapter, of applying to all levels of reality the models of the New Physics and cybernetics (and in general of the sciences that according to Deleuze have become the official language and knowledge of contemporary apparatuses of power, which these apparatuses find appealing, to a great extent because they do not have to acknowledge human subjectivity). Furthermore, though the substitution of processes for entities typical of systemic theories of the kind developed by the school of Norbert Wiener^{xvii} may under some conditions be a step in surpassing the illusion of substantiality, the mandatory transformation of science and technology cannot be reduced to the replacement of the old

²⁷ *’chi ’pho ba*.

mechanist paradigm with the “New Paradigm” (provided it is permissible to speak of such a thing as a paradigm shift, which Walt Anderson thinks is not²⁸), for this would but place a more powerful tool in the hands of instrumental reason / fragmentary perception. And, in fact, as Don Michael noted in the New Paradigm Symposium organized by the Elmwood Institute toward the end of 1985 at Esalen Institute, systems thinking is at work in current US weapons programs and war strategies (including those designed for the protection of Middle East oil), as well as in lobbying for weapons producers and so on—all of which is contrary to the avowed aims of the advocates of New Paradigm thinking.²⁹ The transformation of science and technology that is mandatory cannot be implemented by the instrumental rationality / fragmentary perception at the root of the predicament we currently face, for these would use for their destructive aims whatever paradigm proves most effective. However, if this delusion, rationality and perception were surpassed, and the alternation of a state of Communion and one of post-Communion were restored, the necessary transformation of science and technology would occur automatically.^{xviii} And if this transformation could be said to entail a paradigm shift, this shift will not lie merely in the replacement of the old mechanistic theories by Wienerian system theories, but mainly in the replacement of the fragmentary approach for a holistic one, of the instrumental approach for a communicative one, of the quantitative approach for a qualitative one, and of the approach based on values such as competition, growth, consumption, level of life and so on, for one based on Communion, homeostasis, quality of life, wholesomeness of the ecosphere, equity, freedom, peace and so on—corresponding to some extent to the way the “New Paradigm” was defined by Klaus Offe and Elías Díaz.^{30xix}

Furthermore, we have seen that Kuhn showed that all past paradigms required scientists to ignore evidence in order to continue to believe in their validity, and yet at some point such evidence became so abundant that a new paradigm had to be devised. There seem to be no reason to assume the same could not happen with the so-called “New Paradigm”—and, in fact, authors including Walt Anderson³¹ have adduced the ideological character of science in order to warn that the systemic, so-called “New Paradigm” is not the suddenly discovered final truth regarding the structure and function of reality, but simply another interpretation of it, not necessarily less biased, flawed and ideological than its predecessors. (A wider discussion of works proposing a paradigm shift—such as Capra’s *The Turning Point* and subsequent works³²—in which we denounce, on the one hand, Niklas Luhmann’s instrumental, conservative, nearly fascist theory of society as an autopoietic system,^{xx} and, on the other, Jürgen Habermas’ rejection of all systemic theories of society on the grounds that they automatically lead to flaws like the ones inherent in Luhmann’s theory,³³ was carried out in three older works of mine.^{34)xxi}

To conclude the discussion of modern science, it seems important to consider what I see as Ken Wilber’s error in the Preface to *Quantum Questions*:³⁵ his rejection of the usage

²⁸ Anderson (1986).

²⁹ Michael (1986).

³⁰ Offe (1985); Díaz (1989).

³¹ Anderson (1986).

³² Capra (1982, 1986, 1988, 1996).

³³ Luhmann & Habermas (1971); Luhmann (1982, 1990a, 1990b); Maturana (1985); Rodriguez (1987); von Foerster (1985).

³⁴ Capriles & Hocevar (1991, 1992), and Capriles (1994a).

³⁵ Wilber (1984).

of findings of physics to demonstrate mysticism as an error detrimental to real mysticism, which he accompanied by the warning that it would be a grave mistake to believe that internalizing a worldview might suffice as a means to attain some form of mystic awareness. To begin with, this warning seems to be out of the point, for among those who have resorted to findings of physics to lend force to the views of mystical systems, to my knowledge no serious, thorough author has asserted that internalizing a worldview may suffice as a means to attain some form of mystic awareness.

Belief in the absolute veracity of syllogisms of the kind *samsara* generally holds as valid is a core fetter holding us in *samsara*, and thus in itself and by itself the use of words and syllogisms cannot lead beyond *samsara*. However, we have seen that the Mahayana sage Ashvagoshā asserted that we have to use words in order to go beyond words: in an initial stage of the Path the use of words and syllogisms may be extremely important for neutralizing the doubts and objections delusive human reason may raise in order to discourage potential practitioners from engaging in the main practices of the Path of Awakening and thus from having the possibility of breaking loose of the fetters this delusive reason imposes on us. In particular, words and syllogisms are essential means for developing the unshakeable conviction that we are possessed by delusion, that this delusion is the root not only of *duhkha* but also of the ecological crisis that threatens our survival, that there is a *nirvana* consisting in the dissolution of delusion, that there is a Path leading to this dissolution, and that this Path must have a given structure and function.

In *Ch'an* or *Zen* Buddhism, and in the original *Madhyamaka Prasāngika* school of “Thoroughly Nonabiding Madhyamikas” [Skt., *sarvadharmapratisthanavadin*; Tib., *rabtu minepar mawa*³⁶],^{xxii} paradox has been used regularly to lead the practitioner’s attempt to understand in terms of delusorily valued concepts to collapse, so that the mind may have the possibility of temporarily collapsing together with the *samsara* that springs from it. It is well known that in present-day physics seeming paradoxes have to be faced again and again, which physicists try hard to understand, and Fritjof Capra³⁷ has implied that while so doing extraordinary individuals might have an initial experience of voidness. Even if this were truly possible, it certainly would not make physics into a Path of Awakening; however, it could lead the physicist to look for an authentic teacher in a genuine tradition of Awakening and thus set on a Path—which would certainly be most valuable. And, at any rate, nothing forbids both physicists and laymen from using the findings of physics as words “in order to go beyond words.”

Does the above mean that physics can *prove* the worldview of systems such as Mahayana Buddhism and the like? The sciences cannot demonstrate a worldview, for as shown in this section, it is not correct to claim that the sciences discover the “truth:” as noted in the context of Kuhn’s findings, throughout the development of the sciences, new theories contradicting older ones have always replaced the latter. Even though some claim that at some point definitive theories that will not be replaced by new ones may be found, we have no indications that this has come to pass so far—and, at any rate, we have seen that no digital map can correspond exactly to the analog territory it describes. However, in our time we have been indoctrinated to believe that the findings of the hard sciences are truer than the assumptions of common sense, and hence, insofar as most physicists who have indirectly “observed” subatomic reality through the tools devised to that aim, and

³⁶ *rab tu mi gnas par smra ba*.

³⁷ Capra (1983).

who, employing mathematics, have conceived comprehensive theories of matter, have contradicted the view of common sense that takes as absolute truth our samsaric experience of the world as a plurality of substances, as a concrete reality, and so on, and have seemed to agree with the nonsubstantialist and holistic worldview of nondual wisdom traditions (such as the “higher” forms of Buddhism and the like), provided that we keep aware of the fact that the sciences cannot deliver the truth, that the truth is unthinkable, that no map can correspond exactly to the territory it interprets and so on, we may use the theories of these physicists as provisory antidotes to the assumptions of common sense and equally provisory supports for the theoretical views of the genuine nonsubstantialist, nondual wisdom traditions.^{xxiii} In “postmodern” terminology, we may be allowed to use metanarratives based on physics as antidotes to the metanarratives of common sense, so long as we do not lose sight of the fact that both are but metanarratives.

It is well known that Einstein concluded that all entities were manifestations of a single universal energy field, and implied that their limits were indeterminate and that they were not substantial in a most important Aristotelian sense of the term, for they did not continuously conserve the matter/energy constituting them.^{xxiv} He concluded as well that dimensionality was relative, but his theories still presupposed the existence of an objective space through which the particles passed, an objective time that enabled them to pass through space, and a maximum speed for this passing; furthermore, in the belief that, if this were not so, God would be “playing dice with the universe,” together with Podolski and Rosen he devised the EPR imaginary experiment in order to discard the existence of the subatomic nonlocal connections that seemingly could be inferred from the views of quantum physicists such as Heisenberg and Bohr. However, in 1964 John Bell discovered the theorem bearing his name,^{xxv} and in the following decades the development of a sufficiently precise measuring technology made it possible for French physicist Alain Aspect to carry out in 1982, at the University of Paris-Sud, a real experiment roughly equivalent to the EPR. The results of this experiment led quite a few physicists to agree that, on the dimensional level of Planck’s constant, reality seems to be holistic rather than consist of a plurality of discrete substances (physicist John Wheeler devised what he called Recognition Physics, which was intended to establish how dimensionality arose out of a nondimensional reality,³⁸ whereas physicist David Bohm developed his holonomic theory, which attempted to show that space and time arise out of a holistic reality in which they have no objective existence³⁹). So far as we do not take any of these theories to be proven facts, we should be allowed to use them all as counterweights to our usual, discrete experience of the realm of intermediate dimensions, so that *we take neither of them to be absolutely real and thus we become free from the nose pulling rope of blind belief.*

Ken Wilber objected to the above on the basis of Fritjof Capra’s usage of Geoffrey Chew’s *bootstrap hypothesis*, according to which there were no irreducible building blocks of matter but sets of relations, and which therefore seemed to be a paradigmatic example of the way systems theories and similar approaches may be used for undoing the illusion of substantiality and concreteness. Systems approaches deal with subsystems of relations between entities, which in their turn may be considered as subsystems of relations between smaller-scale entities, which in their turn may be seen as relations between entities of an even smaller scale... Since the “smallest” material entity posited by physics is the quark,

³⁸ Gliedman (1984).

³⁹ Cf. Bohm (1980); Weber (1982a, 1982b).

which does not occupy any space whatsoever, all reality should be made up of relations between quarks. Well, the *bootstrap hypothesis* claimed that the quark, rather than being a material entity, was but a postulate of fragmentary thinking, and that our perception of the universe as a sum of material parts arose due to the self-consistence of the whole. Since this view was such an excellent example of the systems thinking at the root of the so-called New Paradigm and seemed to be in agreement with various Eastern mystical philosophies, Fritjof Capra used it in order to substantiate these philosophies. However, it seems that recent findings do not support the bootstrap theory, but at any rate this theory is no longer *en vogue* among physicists; since a discarded hypothesis, rather than being seen as evidence of truth, may be seen as evidence of untruth, Wilber concluded Capra's use of Chew's theory was detrimental to the cause of mysticism.

Something similar could happen with other theories dealing with the seemingly holistic reality of the dimensional level of Planck's constant. As we have seen, one of these is Bohm's holonomic theory, which, besides running the risk of being refuted in the future, involves significant logical defects. In particular, in the writings in which he describes his theory, Bohm does not separate the phenomenal from the nonphenomenal, and thus incurs in inconsistencies similar to the one that Kant found in Leibniz's *Monadology*.⁴⁰ (Leibniz claimed that space is but relations between monads, and made it clear that the latter were *nonphenomenal*. Kant objected that if there were such a thing as nonphenomenal monads, positing phenomenal space as the result of the relations between monads would amount to mixing up two unmixable levels of reality: the phenomenal and one that would be absolutely other in regard to it. According to Russell and Whitehead's theory of logical types,⁴¹ contradictions between terms are "real" only when both terms belong to the same logical type; in terms of this theory, Leibniz incurred in a breach of logic, for he infringed the rule according to which what belongs to a logical type different from that of the class being considered may neither be included nor be excluded in the class—a breach that was neither nullified nor mitigated by Gödel's logical objections to the theory in question and similar systems,⁴² or by Gregory Bateson's objecting in simpler terms that, for the theory of logical types to be applied, its rules have to be violated^{43xxvi}—all of which implies that anyone who may have thought this theory did away with the contradictions that have been perceived in Aristotelian logic, would have been utterly wrong.) David Bohm posited what he called an "implicate order," which he defined as not involving space and time, but which he referred to by compounds such as "*holomovement*" and "*holoflux*," involving the terms "movement" and "flux," which in their turn imply space and time; in order to justify the use of these terms, he noted that in this realm there was a movement "from here to here"—which is absurd, for movement has to take place between a "here" and a "there," or else it not movement at all. Furthermore, in addition to the explicate order involving apparently separate space and time and apparently discrete essents, and the implicate order that in his view does not involve any of these, Bohm posited a third category, which in his view was like the matrix out of which the other two arose, and which he called "the spirit"—this category, if left unsubstantiated and unexplained, being an unnecessary metaphysical

⁴⁰ Kant (1966), Part I, Ch. 3, Appendix on the Amphibology of the Concepts of Reflection.

⁴¹ Russell & Whitehead (1910-1913).

⁴² Cf. Gödel (1962).

⁴³ Bateson (1972).

postulate that would place Bohm's theories both beyond the realm of positive science, and beyond those of philosophical phenomenism and phenomenology.

There can be no doubt that employing theories involving logical inconsistencies as proofs of the views of mystical systems is detrimental to the cause of mysticism. However, as noted above, the same will not be the case if the physical theories used do not exhibit logical inconsistencies of this kind, and so it would be perfectly admissible to use Bohm's theory if it were deputed of concepts such as a movement or flux taking place in a realm not involving continuous space or time, or occurring "from here to here," and so on.^{xxvii} However, no matter what theory of physics we may use as an antidote to those of common sense, it would be mandatory to warn our readers or interlocutors that science cannot access absolute reality, that scientific theories are uncertain and sooner or later are replaced for new theories, that science is but ideology, and that one is using a scientific theory merely in order to show that current scientific *beliefs* contradict the *beliefs* of common sense. This would amount to using scientific theories as *dispensable* antidotes to erroneous commonsense, rather than as positive theses to be conserved after use in the mistaken belief that they faithfully reflect the structure and function of reality: if we use a nail to extract another nail, the new nail must not be left in situ, and if we use a ghost to chase away another ghost, we must realize the new ghost not to be truly existent.

The above is the essence of the *via oppositionis*⁴⁴ that has been widely applied in both East and West. In the East, two most striking examples of this method are the dialectics of Lao-tzu and *Madhyamika* dialectics—and in particular Hui-neng's dialogical use of interrelated opposites, which he expressed as follows:⁴⁵

When you are questioned, if someone asks about being, reply in terms of nonbeing. If someone asks about nonbeing, reply in terms of being. If you are questioned about the ordinary individual, reply by describing the sage. If you are asked about the sage, reply in terms of the ordinary individual. From this method of reciprocal opposition there arises the comprehension of the Middle Way (*Madhyamaka*). Each and every time you are questioned, give an answer implying the opposite [of what you are expected to reply].

In the West, Heraclitus often affirmed interrelated opposites in the same paragraphs of his book—seemingly not in order to assert reality to be conceptual but contradictory, as Hegel did, but in order to cause the attempt to understand reality in terms of concepts to trip, tumble and collapse together with the mind that, as we have seen, is the root of *samsara* (the already quoted fr. 206 DK of Heraclitus' is a good example of this: "Things as a whole are whole and non-whole, identical and non-identical, harmonic and non-harmonic; the one is born from the whole and from the one all things are born"). An even more striking instance of the *via oppositionis* in Greece was the method of *isosthenia* (which Democritus of Abdera allegedly transmitted to Anaxarchus of Abdera, who in his turn supposedly transmitted it to Pyrrho of Elis, founder of the Skeptic School of Hellenistic philosophy, and which reputedly was also applied by Protagoras, as well as by Arcesilaus, who purportedly introduced into the Academy), which seemed to be just the same as Hui-neng's method of interrelated opposites, for it consisted in balancing evidence with contradictory evidence so as to lead beings to cease taking one view as true and its

⁴⁴ This concept was emphasized in Elorduy (1983).

⁴⁵ A shorter version of this appears in Wong-Mou-Lam (1969), p. 99. For the longer versions see: Suzuki (1972); Watts (1956).

opposite as untrue—and possibly to lead the mind to collapse. Another instance of this method is the argument *in utramque partem* or “in favor of both sides” (applied by Carneades when, in Rome, one day he preached the need for justice and the next day preached against it⁴⁶). Etc.^{xxviii}

Wilber says the true battle is not fought between science and religion, but between (a) the forms of both that are verifiable or refutable through experience, and (b) the spurious forms of both, which are dogmatic and can neither be verified nor be refuted through experience. Actually, as we have already seen, the ideological character of the sciences lies precisely in the mistaken belief that theories can be verified through experience, and the condition for the sciences not to be ideologies is that scientists never lose awareness of the fact that experience cannot absolutely verify their theories (though it may certainly refute them). In regard to spirituality, the experiences of the formless realms are themselves the verification of the existence of these realms, but they do not in any way demonstrate the authenticity of the mystic systems that transmit methods for attaining those experiences and that posit them as the highest spiritual accomplishments; on the contrary, such systems are sources of error and falsehood, for they help practitioners improve their self-deceit mechanisms in order to ascend in *samsara*, finally leading them to take spurious, transient and conditioned achievements to be the true, definitive realization of the unconditioned.

In case there is a battle, it is fought, on the one hand, between science that is ideology insofar as it does not know its real nature and its real limits, and science that is not ideology insofar as it knows its real nature and its real limits; and on the other hand, between the pseudo-mysticism that leads its practitioners to establish themselves in apparently non-dual states that in truth are transient and spurious, and the genuine non-dual mysticism that allows us to discover the unborn, which is undying and absolutely true, and thus constitutes the only true Refuge.

ⁱ Just by the way, Popper questioned the supposed absence of indeterminacies, and particularly of “u-indeterminacies,” in classical physics. In order to prove on logical grounds that classical physics is indeterministic insofar as it contains u-indeterminacies, he said theories were indeterministic if at least one event was not completely determined in the sense of being not predictable in all its details (Popper [1950-1951]). He derived this conclusion by showing that no “predictor”—i.e., a calculating and predicting machine, or, in today’s terms, a computer—constructed and working on the basis of classical principles, is capable of fully predicting every one of its own future states; nor can it fully predict, or be predicted by, any other predictor with which it be in interaction. Popper’s reasoning has been challenged by G. F. Dear on the grounds that the sense in which “self-prediction” was used by Popper to show its impossibility is not the sense in which this notion has to be used in order to allow for the effects of interference (Dear [1961]). Dear’s criticism, in turn, has recently been shown to be untenable by W. Hoering (1969) who, on the basis of Leon Brillouin’s (1964) penetrating investigations, argued, “although Popper’s reasoning is open to criticism he arrives at the right conclusion.”

ⁱⁱ More recently, Jacques Derrida (1967) “deconstructed” Claude Lévi-Strauss’ theories concerning the secondary role of written language in regard to spoken language, and the role of the former in the relation between the development of writing and that of evil, violence, social stratification, privilege, domination, enslavement, proletarianization, state control and so on, by showing the subterfuges Lévi-Strauss used to demonstrate his theories, and in particular how he consciously ignored the manifestations of violence in the Nambiquara society, with the aim of showing that Lévi-Strauss’s attempts to ratify the scientific credentials of his own theory of writing were characterized by a tremendous lack of rigor, even though he

⁴⁶ BénatouiI (2001), p. 34.

pretended to have surpassed the categories and abstractions of the traditional philosophical discourse. Derrida's extension of the field of writing—both empirical and essential—to a great extent intended to make evident the fundamental ethnocentrism of the Lévi-Strauss' distinction between literary and nonliterary cultures. Thereby Derrida supposedly was attacking not only ethnology—the very object of research of which (the nonliterary culture) was founded on this distinction, and the regenerating mission of which lied precisely in its criticism of ethnocentrism—but the very heart of the “scientific” project and enterprise. Thereafter Derrida applied his method profusely, and in fact it may be applied to most scientific theories and constructions in order to show them to be baseless. Derrida also applied his method to philosophy, and the results were practically the same as in the case of scientific theories. Derrida views all philosophical constructions as candidates for deconstruction, except when these constructions present themselves as mythology and relate, in which case they can hardly be candidates for deconstruction.

- ⁱⁱⁱ Tim Maudlin says there are two Kuhns, one moderate and the other one unruly, which are mixed up in *The Structure of Scientific Revolutions* (Sokal & Bricmont [1999], p. 85 of the Spanish version; the discussion of Kuhn goes from p. 82 to p. 88 of the Spanish version). Though there seems to be no solid basis for this conclusion, Sokal and Bricmont are right in their objection that, if the inductions based on the available data cannot give rise to trustworthy results in physics or biology, then they cannot give rise to trustworthy conclusions in the story of science, either. However, Kuhn's arguments and conclusions are less liable to ideological manipulation than those of experimental science (in experimentation, the design of the experiment is determined by the results the scientist expects to find, and it is he himself who does the observations, which may also be conditioned by his or her expectations; in the case of the history of science, what is interpreted is the records elaborated by the scientists themselves after having had to modify their theories or paradigms, or the records elaborated by historians on the basis of these records—which are far less liable to ideological manipulation than the design and observation of experiments carried out by the scientists themselves), and even if we are not allowed to take them to be “hard facts,” we can use them as provisional, disposable antidotes to the belief that the results of the “hard sciences” are “hard facts;” in other words, we may use them in the way in which below in this section I propose that the conclusions of the hard sciences may be used as antidotes to the substantialistic, discrete views of common sense.
- ^{iv} Though some of the criticisms of Feyerabend carried out in Sokal & Bricmont (1999, pp. 88-94 of the Spanish version), are to the point, they do not invalidate Feyerabend's general judgment on the sciences, which is equally to the point, and they do not justify the deriding, mocking tone of Sokal and Bricmont's evaluation of the German-born philosopher of science. For example, Sokal and Bricmont are right in noting that from the premise “all methodologies have their limits” it does not follow that “everything goes;” however, from this, the conclusion they draw in regard to Feyerabend—that he is the buffoon of the court of the philosophy of science—does not follow either. This is not the place to discuss the criticisms Sokal and Bricmont make of Feyerabend; suffice to say that, provided we are able to discriminate between founded and unfounded criticisms, Sokal and Bricmont's discussion of Feyerabend may be helpful to place the author in perspective and determine which of his arguments may be admitted and which must be rejected.
- ^v In Sokal & Bricmont (1999), Deleuze is criticized in two different sections of the book; however, the theory according to which philosophy and the sciences are “more than ideologies” is not among the objects of this criticism.
- ^{vi} It seems to be no coincidence that Erasmus ended up confronting Luther and the Reformation, which, as I tried to show in Capriles (1994a), prepared the ground for the development of material “progress” and the implementation of the modern project in general.
- ^{vii} It is significant that, in the same paragraph, Erasmus speaks of God as the “great architect of the Universe” and quotes (saint) Bernard of Clairvaux, who was a cousin of the founder of the Knights Templar.
- ^{viii} A civilization over 12,000 years old was discovered at the beginning of the 21st century, submerged just in front of the Western Indian coasts; however, since its exploration has not gone far enough, there is no way to determine the interests behind it. In the building of the Egyptian pyramids an instrumental interest seems apparent, but it is with the Pythagoreans of Alexandria, less than two and a half millennia ago, that the pace of development of instrumental science and technology knew a more marked increase. Then the triumph of Christianity produced a recess in the development of instrumental science and technology,

until the Middle Ages began to dream of the golem, which was developed in the last five centuries, since the time when the Modern Age is supposed to have begun.

^{ix} The advertent reader may have realized that, in my view, the roots of inherently instrumental science and technology go much farther back in time than Marcuse believed, and their development in the course of the present time-cycle is inevitable and has a key function in the *reductio ad absurdum* of all that must go out of human evolution.

^x Cf. note 50 to this chapter.

^{xi} Berman (1984) based this concept of Max Weber's idea of "*die Entzauberung der Welt*" or the "disenchantment of the world," which in its turn had precedents one century before in Schiller's concept of "*die Entgötterung der Natur*" or the "disdeification of nature." However, if we understand the term "disdeification of nature" in the sense of nature ceasing to be perceived as the direct manifestation of the divine, rather than in the sense of ceasing to perceive it as being filled with deities, then this process began much earlier than Schiller thought: the first major step in it may have been the one that gave rise to the theogenesis reflected in the manifestation of the gods in art discussed by Jacques Cauvin (1987). In its turn, the disenchantment of the world seems to have begun when human beings moved beyond the pancommunicative stage, ceasing to perceive the phenomena of nature as having personality. (CHECK WHETHER THIS NOTE IS NOT REPEATED.)

^{xii} According to Marcuse, this change in the interest at the root of science would carry with it key changes in its context, for its hypotheses, without thereby losing their rational character, would develop in the essentially different experimental context of a pacified world; consequently, science would arrive at essentially different concepts of nature and establish essentially different facts.

^{xiii} In regard to the views Marcuse expressed in ch. 6 of Marcuse (1964) and very briefly reviewed in other endnotes to this chapter, Habermas (1984) admitted that modern natural sciences are inherently committed to a view of nature as an object to be manipulated and controlled, and that a science of human beings based on the model of the natural sciences will be equally committed to a view of humans as objects to be manipulated and controlled; furthermore, he partly admits that this implies a necessary relation between the scientific domination of nature and the scientific domination of humans. However, Habermas does not admit that modern natural science is historically specific and not the only form that science can take, or that the liberation of both humans and nature requires a new science and technology grounded in a different interest. This is connected with the fact that he asserts that nature does not act as an interlocutor with whom human beings can maintain communicative relationships, for it does not and cannot reply to our messages. However, it is a fact that in the pan-communicative stage human beings perceived natural phenomena and related to them as though they were subjects, and, as we have seen, their interventions in the natural environment improved biodiversity (as shown in the regard to Amazonian aborigines in Descola [1996]), whereas in the pan-instrumental stage the interventions of human beings devastate the ecosphere (as shown by the self-destruction of so many civilizations reported in Dale & Carter [1955], and the mortal ecological crisis we have produced in our time). And, in fact, nature talks back to us, for it retaliates against our instrumental interventions with natural disasters, and it rewards the communicative interventions of aborigines with negentropy. Furthermore, in my own terminology and worldview, the essential characteristic of communicative relations does not lie in the responses or lack of responses on the part of our interlocutor, but in *our own* attitude: in them we act as though relating with a subject, whereas in instrumental relations we act as though relating with essents lacking subjectivity and the capacity to feel pleasure and pain.

^{xiv} In Illich (1971), we read:

"Some (institutions) have developed in such a way that they characterize and define our time; others are more modest and pass, so to say, unnoticed. The first seem to be in charge of the manipulation of human beings; we shall call them 'manipulative' institutions and we shall place them, for the clarity of this explanation, on the right of the institutional fan or spectrum; on the left, we shall place those which, on the contrary, make human activities easier. Let us be content with defining them as 'open' and uncontriving..."

"On both extremes we can observe the presence of institutional services; however, on one side, we face a contrived manipulation which causes the client to undergo advertisement, aggression, indoctrination or electric shocks. On the other side, the service represents increased possibilities in the frame of defined limits, while the client remains independent. On the right, institutions tend to become complex, in so far as their method of production carries with it a previous definition and the need to convince the consumer

that he or she cannot live without the offered product or service, which causes the budgets [of those institutions] to increase ceaselessly. On the left, the institution presents itself rather as a network to facilitate communication or cooperation among the clients who take the initiative [of using them]. “

I think the discoveries made by Foucault and Deleuze can help us improve the above criterion. If we are to decide whether an institution—for example, the fire brigade—is located toward the left, the center or the right of the institutional spectrum, we must observe its structure as well. The fire brigade is organized after a military model which conditions the experience of its members—the use and disposition of their space, time and knowledge—and that of the people who interact with them, precisely as required by the power structures of contemporary societies. Therefore, though other institutions are far more to the right than the fire brigade, the latter is in a sense a “right wing institution:” it helps its members and those with whom they interact to function within ever more complex and all-controlling power structures, and facilitates the ever more efficient use of space and time necessary for the development of modern organization (such as capitalism or, some time ago, the systems of openly dictatorial Marxist States). According to this criterion, a genuine left wing institution would be, for example, a Commune in which each and every member can organize her or his own space, time and knowledge at will—and, ultimately, transcend space, time and knowledge—in so far as he or she does his or her share of the common work in the Community.

^{xv} Also Islam martyred and killed many saints in the name of Muslim orthodoxy; one example is that of the great Sufi master Mansur el-Hallaj, whose martyrdom and death was ordered by the Caliph at the instigation of Sufi master Junayd of Baghdad—who, by the way, is held in great esteem by members of the Traditionalist Movement who follow the Muslim line instituted by René Guénon.

^{xvi} This *chi phowa* (*‘chi pho ba*) or transference of world involves the transformation of the demon mind into divine mind; cf. David-Neel & Lama Yongden (1981), pp. 268-271.

^{xvii} This is the school of systems thinking that was further developed by Gregory Bateson, Ilya Prigogine, Humberto Maturana, Francisco Varela and various others of the thinkers taken as a model by the advocates of the New Paradigm, which from the very beginning dealt with the self-organization of living systems. The alternative school is that of John von Neumann, which was mechanist, and was based on a system of input-output and linear thinking. Cf. Capra, Fritjof, 1986.

^{xviii} As Fritjof Capra (1975/1983) noted—and as Alan Watts had given to understand long before Capra—our current problems arise from a “crisis of perception”. Human beings have long suffered from fragmentary perception and delusion, but these, on the one hand, became ever more pronounced as the time cycle unfolded, and, on the other hand, attained ever greater power to tamper with Nature—thus achieving their *reductio ad absurdum* in the multi-leveled ecological crisis that we face. Changing our ways of thinking would not be enough if our experience kept being fragmented and our basic drives and impulses did not charge radically.

^{xix} In Díaz (1989), we read:

“...a paradigm that puts in the first place values of growth that are not so much quantitative as qualitative; [which does not place first] consume but the quality of life, the care of the environment, the satisfaction that each [has fulfilled her or his] needs for freedom, culture, peace, ecolog[ical balance], etc.”

Professor Díaz is basing himself on Offe (1985).

^{xx} According to Luhmann, systems theories of society cannot include the occurrences taking place within the bodies and minds of those who take part in the interactions that make up the social system, for:

“Communications presuppose awareness states of conscious systems, but conscious states cannot become social and do not enter the sequence of communicative operations as a part of them; they remain for the social system environmental states.” (Luhmann [1990], p. 16).

Thus Luhmann says systems theories of society should deal with the interactions between individuals but exclude all references to the actor or agent. Since an agent deprived of body and mind is but a fiction or a concept, and there can be no action without an agent, Luhmann concludes that it is not admissible to speak of communicative action: “Communication cannot be defined as communicative action because this would require an actor hardly thinkable without body and mind.” (Luhmann [1990], p. 6; by “communication” Luhmann means “interactions” or “exchange of information:” he is saying that interactions or exchanges of information may never be understood in terms of Habermas’ concept of communicative action, apparently on the grounds that, since all action implies an actor or agent, but his systemic approach to society precludes considering the actor or agent, the concept of action of one or another kind is inadmissible to systems theories of the kind he advocates. Habermas, instead, realizes that

unfortunately a great deal of human interaction is nowadays instrumental, and proposes that all interactions between human beings should be communicative—or, if necessary, emancipatory.)

The above quotation from Luhmann is an instance of the fallacy of *ignoratio elenchi*. From the premise that we should not take human actors or agents into account it does not follow that when we consider social interactions we are forbidden to determine whether the structure and function of these interactions is instrumental, communicative or emancipatory (which would be achieved by reading in the interactions the implicit attitudes of the parts, in order to establish whether those interactions are structured as though a subject were dealing with another subject which must be considered and respected as such or, quite to the contrary, as though a subject were treating a mere object as something to be manipulated which deserves neither consideration nor respect), for this would not imply including in the field of study the subjects of the interaction. Besides, if we conceded that the exclusion of subjects forbids us from reading into interactions the implicit attitude of each part toward the other, in the systemic theory of law we would also be forbidden from considering—as Luhmann does—the “expectations of the parts” or any other factor depending on consciousness (even when these expectations are explicitly manifest in interactions).

The fact that Luhmann’s theory rejects the concept of “communicative action” and gives the term “communication” a meaning more or less equivalent to the one Bateson gives the term “messages,” makes his theory quite suitable for instrumental manipulation. In his turn, Habermas is wrong when, in Luhmann & Habermas (1971), he takes for granted that nonsystemic theories of society as they exist today may manage not to be dehumanizing, and affirms that, on the contrary, the application of systems theories to society must always be dehumanizing and translate itself into social technology: in terms of the perspective of the book the reader has in her or his hands, presently all sciences are dehumanizing and manipulative, but it would be utterly wrong to think that systemic theories of society must necessarily be more dehumanizing and manipulative than other theories of society.

Systems theories are suitable for expressing nonsubstantialistic worldviews and for showing the illusion of substantiality to be but an illusion; however, nonsubstantialism does not in any sense imply the dehumanization of individuals. Quite on the contrary, nonsubstantialistic worldviews, provided that they derive from the realization of insubstantiality in Communion and are elements of a really effective set of skillful means for accessing the state of Communion and stabilizing this state (as is the case with the philosophy of Nagarjuna and the higher vehicles of Buddhism), are more effective than other worldviews in leading human beings to deal with other human beings communicatively, fully respecting their subjectivity. This is so because, as we have seen, only from Communion can there arise a genuine communicative, respectful attitude, both toward other individuals and toward the rest of the universe.

^{xxi} For a more complete and thorough criticism of Luhmann’s theories cf. the three works of mine (two of them with Mayda Hovecar) mentioned just before the call to this note, as well as Maturana (1985), and Rodríguez (1987).

^{xxii} Je Tsongkhapa, founder of the Gelugpa Tibetan Buddhist School, insisted that the system of “Thoroughly Nonabiding Madhyamikas,” rather than being the true *Prasangika* system, was a distortion of *Madhyamaka* touching on the fringes of nihilism. However, in Capriles (2005), and also in the upcoming definitive version in print form of Capriles (2004), I demonstrated that it is Tsongkhapa’s system that is not that of the true Prasangikas, but a misinterpretation of *Prasangika* thought based on the practice of a *Swatantrika* method, and provided substantial evidence suggesting that the true *Prasangika* system is that of the “Thoroughly Nonabiding Madhyamikas.”

^{xxiii} In Tibet, Gelugpa interpreters of *Prasangika* philosophy in general rejected the use of scientific views and in general of all kinds of autonomous theses; however, Tibetan *Mahamadhyamika* Masters insisted this was an error, for when dealing with relative truth it was necessary to admit also the plausible views of systems other than common sense, and in the refutation of relative truth with regard to the ultimate it was as valid to use the views of common sense as the plausible views of systems other than common sense. Of course, before globalization, views other than common sense changed as new authors wrote new treatises, and after globalization, the sciences change as new paradigms and pieces of knowledge replace old ones; however, at any moment we can use the prevailing views so long as we do not take them to be absolutely true.

The above approach was defended by authors as varied as the eighth Karmapa, Mikyo Dorje (*mi bskyod rdo rje*), and Ju Mipham (*'ju mi pham 'jam dbyangs rnam rgyal*, 1846-1912) Rinpoche.

^{xxiv} Einstein's theories imply that the entities of our experience not to exist substantially, insofar as they show them not to be in themselves separate from the rest of the field of our experience—which would hold just the same regardless of whether those entities and their subatomic structure as studied by physicists through their scientific instruments were part of a material world existing externally to and independently of our experience, or whether they existed exclusively in our own experience. In fact, according to Einstein's field theory, entities are not in themselves separate from the rest of the universal energy field: this theory pictures the universe as an undivided, continuous energy field, and notes that there is nothing different from the field, nor is there a gap in the field, that separates entities from the rest of the field. And if entities are not in themselves separate (our singling them out for perception being what causes them to appear as separate), they cannot be considered to be substances.

Aristotle developed different concepts of substance in different works, one of them being that of “sum of matter and form.” What happens if we resort to this Aristotelian concept of substance? In terms of this criterion, for something to be a substance it will have to conserve both its form and the matter constituting it (in fact, if an entity exchanges with its environment the matter that constitutes it, then it cannot be said not to depend on anything else than itself to be what it is, for it depends on matter that presently is not part of itself in order to continue to be itself in the future). However, so long as an entity conserves the matter that constitutes it, we will have the same substance even if this matter changes its state and by so doing changes its form in a predictable way; for example, water loses its liquid form when it freezes and becomes ice, or when it evaporates and becomes vapor; however, so long as it conserves the matter that constitutes it, and so long as it does not become something different from water, ice or water vapor, it will have to be considered to be the same substance. According to Albert Einstein's Field Theory, subatomic particles, which result from the polarization and extreme concentration of the energy of the universal electromagnetic field, do not conserve the matter/energy that makes them up, for they are made of the energy of the area of the field through which they seem to be passing (just as a wave in the ocean is made out of the water of the area of the ocean through which it seems to be passing); therefore, they cannot be considered to be substances in the Aristotelian sense just considered. And if the particles constituting the bigger entities formed by their combinations do not conserve their matter and hence cannot be said to be substances, the latter cannot be said to conserve their matter and cannot be said to be substances either.

^{xxv} The paper in which John Bell expressed his findings was written in 1964, but was published in the *Review of Modern Physics* in 1966.

^{xxvi} Bateson (1972) noted that in order not to include or exclude items not belonging to the logical type being considered, one had to exclude all such items from consideration, which meant that one was excluding them in order not to exclude them. Furthermore, this implies that, when dealing with the class to which *x* belongs, whatever does not belong to the same class as *x* cannot be considered either as *x* or as non-*x*, which violates the principle of the excluded third, the excluded middle or noncontradiction—which is what the theory of logical types was intended to keep in place. However, if we regard the theory of logical types as a mere convention necessary for resolving practical problems, rather than as an attempt to substantiate the supposedly ultimate character of Aristotelian logic, then it fulfills its purpose—and Bohm's theory incurs in a fragrant breach of conventional logic for not respecting the rules of the theory in question.

^{xxvii} I find it pertinent to note at this point that one thing is the error Kant objected to in Leibniz, which consists in explaining the phenomenal level of reality as resulting from the relations (which by their very nature are phenomenal) between entities of a wholly nonphenomenal level of reality, and something quite different is the physical theory according to which quarks do not occupy any space, and yet the whole of physical reality is made up by them and the relations between them: quarks are supposed to have mass, and therefore cannot be regarded as being nonphenomenal, even though entities having mass yet not occupying any space are hardly conceivable by common sense, which works on the basis of discrete reality. I also find it pertinent to note that the explanation of the four dharmadhatus in the *Avatamsakasutra* and the Hwa-yen school is different both from Leibniz's error and from the New Physics' conception of quarks: the four dharmadhatus involve four different perspectives on a single level of reality, which must go together and be explained side by side insofar as they are the four possible, different yet mutually complementary viewpoints on the same reality, all of which must necessarily be taken into account if we are to avoid the error of taking one single perspective as the only, total, absolute truth concerning that reality.

^{xxviii} The method of *isosthenia* or “balancing truth,” which consists in neutralizing delusory adherence to a particular viewpoint by affirming, as an other-directed assertion, a related yet opposite viewpoint (and possibly providing evidence substantiating the latter), seems to fully correspond to the method taught by Hui-neng, Sixth Patriarch of *Ch’an* Buddhism in China, as a conceptual way toward the nonconceptual realization of *Madhyamaka*, which was described above in the regular text of this section.

An example of this method is the dialogue referred in Capriles (2004) (adapted from Blofeld [1962]) and other of my writings, between *Ch’an* Master Ta-chu Hui-hai and a Tripitaka Master who tried to ridicule him by asking him whether changes occurred in the absolute condition of Buddha nature (*bhutatathata*). Instead of replying that they didn’t occur (which he knew was the answer that the Tripitaka Master considered correct, for the *bhutatathata* may be said to be the absolute truth, and according to the Mahayana from the standpoint of absolute truth no changes occur), Hui-hai stated: “yes, they do.” Triumphantly, the Tripitaka Master decreed: “Venerable Master, you are wrong” Hui-hai replied with a question: “Isn’t the true nature or condition of the Tripitaka Master the *bhutatathata* (i.e., the Buddha-nature)?” The Tripitaka Master answered: “Indeed, it is the nature of all of us.” Hui-hai then added: “Well, if you sustain that it does not change, you must be a very ignorant king of monk. Surely you should have heard that a wise man can transform the three poisons (hatred, desire and ignorance) into the three accumulative precepts, transmute the six sensory perceptions (the ones that take place through the five senses and the one that occurs through the mental consciousness) into the six divine perceptions, passions into Awakening and delusion into wisdom. If nonetheless you suppose the absolute to be incapable of change, then you—a Master of the Tripitaka—are in truth a follower of the heterodox sect that posits a plurality of substances and asserts that things come about on the basis of their own supposedly individual self-natures.” The Master of the Tripitaka had no alternative but to concede: “If you put it that way, then the absolute does undergo changes.” However, instead of agreeing, Hui-hai upbraided him, saying: “However, in your case, to sustain that the absolute undergoes changes is equally heretic.” In despair, the Tripitaka Master retorted: “Venerable Master, first you said that the absolute undergoes changes, and now you said it doesn’t. What is then the correct answer?” Hui-hai concluded: “The one who has realized his own nature, which may be compared to a Mani pearl that reflects all appearances (without adhering to them and without them sticking to it), will not fall into delusion no matter whether he states that the absolute does undergo changes, or that the absolute does not undergo changes. But those who have not realized this nature, upon hearing about the changing absolute, cling to the concept of mutability, getting caught in it, and upon hearing that the absolute doesn’t change, adhere to the concept of immutability, being stuck in it. (And this clinging to concepts is the very root of the basic delusion that Mahayana Buddhism invites us to overcome.)

Another example of it is a dialogue composed by *Ch’an* Master Ta-chu Hui-hai, in which an imaginary interlocutor asked him “What is the Middle Way,” and he replied: “The extremes.” When I found a Danish Vajra-brother called Jakob standing on the back of the Nyingmapa Buddhist temple in Clement Town (Dehradun, H.P., India) in the late 1970s, I asked him: “What are you doing here?” He replied: “Relatively I am here; ultimately I am not here.” At which I retorted: “Actually, it is relatively that you are not here, because the relative does not truly exist, and it is absolutely that you are here, for everything is the absolute.”

Perhaps the most impressive usage of this method by a Buddhist Master may have taken place when Milarepa was confronted by a Kadampa Geshe who was jealous of the quantity of disciples that visited the Kagyü hermit. In order to ridicule him before his disciples, and thinking Mila had no knowledge whatsoever of philosophy, the Geshe asked him whether space was obstructing or nonobstructing—to which the great repa replied, “obstructing.” When the Geshe triumphantly decreed, “you are wrong,” Mila took a walking stick and began banging it against empty space—which responded as though it were solid and therefore obstructing. Then the Geshe asked Milarepa whether matter was obstructing or nonobstructing. The hermit replied “nonobstructing.” When the Geshe triumphantly decreed, “you are wrong,” Mila passed his hand through the wall of the cave in which he was sitting. At this, the Geshe became his disciple.

The method of *isosthenia* is but the application, in a dialogue between individuals, of the *via oppositionis*: the “way of the opposition of mutually contradictory concepts” (a concept that has been emphasized in Elorduy [1983]), which the Madhyamikas seem to have applied as a key contributory condition toward the spontaneous collapse of the delusorily valued conceptual limits their school calls “extremes,” and therefore toward gaining access to the limitless condition that it calls the Middle Way. When the *via oppositionis* is applied in speech or writing by a single person who combines contradictory terms in order

to contribute toward the collapse in the reader or listener of the habit of combining delusory valued concepts into complex meanings that are taken to be absolutely true or false, so that the veil constituted by the net of delusorily valued thoughts may fall and as a result the true nature of reality may become evident, we have the very essence of *Madhyamika* dialectics as manifest in the works by Nagarjuna, Aryadeva and the *Madhyamika* Prasangikas.

This application of the *via oppositionis* also seems to be the very essence of many of the verses in Lao-tzu's *Tao-Te-Ching*. As noted in the regular text, there are many other fragments by Heraclitus that simultaneously assert opposite views, and which rather than being attempts to destroy the Principle of Non-contradiction, Law of the Excluded Third or Law of the Excluded Middle (as those who have interpreted Heraclitus as though he were Hegelian have taken them to be), are part of a strategy for breaking the reader's delusory valuation-absolutization of thought that, as we have seen, is at the root of the delusion that the Buddha called *avidya* and that the Ephesian called *lethe*, and that causes people to hold to one conceptual extreme as true, and reject the other extreme as false (a strategy that would work only on those who are logically bound by the Principle of Non-contradiction, Law of the Excluded Middle or Law of the Excluded Third). Concerning the method of *isosthenia* properly speaking, it was popularized by Pyrrho of Elis (c. 360-c.270 BC), the founder of the Sceptic School, who purportedly received it from Anaxarchus of Abdera while both of them traveled with Alexander's army through Asia. It is claimed that Anaxarchus in turn received it from his teacher Democritus of Abdera (c.460-c.370 BC), but there is no proof whatsoever that the method was actually taught by Democritus, and therefore the possibility cannot be discarded that Pyrrho and Anaxarchus may have received it from Asian sages during their travels. At any rate, it seems certain that the method existed in Greece long before Pyrrho and Anaxarchus traveled through Asia, for the "sophist" Protagoras (c.490-c.421 BC) is reputed to have applied it. In fact, Protagoras may have been justifying this method when, as Diogenes Laërtius tells us, he asserted, "...concerning any matter (*pragma*), there are two mutually opposed discourses (*logoi*)," and noted he considered both as being equally valid. (However, it is impossible for us to discern after nearly two and a half millennia whether Protagoras was a link in the venerable lineage of philosophers who used the method in question to lead individuals beyond grasping at thoughts and thus into the realization of the ultimate, unborn nature, or, as held by the detractors of the sophists, whether he was teaching his pupils techniques for the manipulation of the masses in the *agora* and/or means for the pacification of their consciences so that they could pursue illegitimate purposes without feeling remorse.)

In turn, in his treatise *On Nonbeing*, Gorgias of Leontini set to destroy Eleatic ontology by expounding his renowned three doctrines: (1) Nothing exists; (2) If something existed, it could not be known; and (3) Even if (something existed and) could be known, it could not be expressed in words. "Nothing exists" could as well mean the same as in the *Prajñāparamita Sūtras* and in the original *Madhyamika* literature: that nothing is self-existent. If this were so, the other two statements would be rhetorical assertions emphasizing the fact that conceptual knowledge cannot correspond in an absolutely precise way to what it interprets, and that it is impossible to express the nature of reality, or even its structure and function, in an absolutely precise way. However, we face the same problem again, for we cannot know whether this is so, or whether Gorgias was an opportunist who taught techniques for the manipulation of the masses in the *agora* and for the pacification of the consciences of people pursuing illegitimate purposes.

In general, scholars take the above statements by Gorgias and Protagoras to imply that they held mutually contradictory views; however, a *Madhyamika* would agree to the statements of both, for it is precisely insofar as no conceptual position can be absolutely true in regard to any given object, that mutually contradictory conceptual positions can be valid and held to be conventionally true in regard to an object. And, in fact, I suspect that Gorgias may have been saying precisely that no conceptual position can be absolutely true in regard to any given object, whereas Protagoras may have been saying that mutually contradictory conceptual positions can be valid and held to be conventionally true in regard to any given object—in which case both of them would have been expressing the very same view.

Another sophist, Cratylus, was renowned for raising his finger and remaining silent upon being questioned. He claimed to be a follower of Heraclitus, and concerning the Ephesian's statement that one cannot enter the same river twice, for new waters overflow (fr. DK 91), he asserted that one cannot enter the same river even once, for even while one enters the river, new waters have already overflowed (and therefore there is no continuous river that may be entered). (Plato's assertion in his *Cratylus* that the said "sophist" believed everything had a right name of its own seems to contradict this interpretation of his thought. However, in general Plato misrepresented Cratylus and other of the ancient philosophers: even his

depiction of Socrates is not the most plausible one, for it does not seem congruent with the renowned statement “I only know I know nothing;” furthermore, the Cynics’ depiction of Socrates provides a more plausible explanation of his death sentence.)

Neo-Academic philosopher Arcesilas (c.315-c.240 BC) introduced the method of *isosthenia* into the Academy (where it was said to be “of Socratic inspiration,” either because Socrates actually applied it, or in order to valorize it by ascribing it to the venerated teacher of the Academy’s founder). It was another neo-Academic, Carneades, who left as his legacy to us another, less well-known application in speech or writing of the *via oppositio* by a single person already mentioned in the regular text (which, however, this author is not sure may be therapeutic, and, contrariwise, thinks in some cases may be dangerous): the *argumentum in utramque partem* or “argument in favor of both sides,” which consists in developing an argument convincingly until the listeners or readers have been persuaded by it, and then developing the opposite argument in an equally convincing way.

Therefore the possibility may not be discarded that Heraclitus, Democritus, Anaxarchus and Pyrrho, Protagoras, Gorgias and Cratylus, Arcesilas and perhaps even Carneades, and quite possibly Anthistenes and the Cynics (or at least some of these) may have been links in a wisdom tradition somehow similar to that of the Madhyamikas, to that of *Ch’an* or *Zen*, and to that of Dzogchen. In fact, one may suspect such a tradition may have existed within the genuine, ancient Dionysian tradition, which as we have seen Alain Daniélou (1992) showed it to be one with the Shaiva tradition of India and the Egyptian cult of Osiris, and, as shown in Capriles (2000b) and in other works by this author, was one with Zurvanism, Taoism of Unorigination [the one represented by Lao-tzu, Chuang-tzu, Lieh-tzu and the Masters of Huainan, and quite likely by Chuan Chen Taoism as discussed in Liu I-ming, 1988, and Reid, D., 2003] and ancient Bön—the latter of which, probably since around 1800 BC, has had its own Dzogchen tradition and its own Mantric teachings (Namkhai Norbu [1996, 1997a, 1999/2001, 2004], etc.). If this were so, Cratylus raising his finger in reply to the questions of his interlocutors may have had the same meaning as the identical behavior of *Ch’an* Master Chu-ti, who succeeded to T’ien-lung (cf. Cleary & Cleary [1977], vol. I, Nineteenth Case, pp. 123-128). (In regard to Chu-ti’s method, consider the following: “When he was near death, Chu-ti said to his assembly, ‘I attained T’ien Lung’s one-finger *Ch’an* and have used it all my life without exhausting it. Do you want to understand?’ He raised his finger, then died.” [*Ibidem*, p. 125.]

Since we have enough fragments of Heraclitus’ book as to assume he may have been a representative of a genuine wisdom-tradition (which, as we have seen, must have been the Dionysian tradition), it may be useful to note that the Skeptics traced their tradition to Heraclitus. As noted in Cappelletti (1969):

“Ænesidemus, the most radical critic of the principle of causality in antiquity, ends up considering the [method of the] Skeptics as a propaedeutics to the philosophy of Heraclitus, in which paradoxically he sees the metaphysical foundation to the epistemological doctrine of the former (Braga [1931]). Another Skeptic, Sextus Empiricus, refers quite extensively to the epistemology and the psychology of Heraclitus in his work *Adversus mathematicos*, where he quotes the initial paragraph of his book.”

All of the above is considered in detail in my work in progress *Greek Philosophy and the East*. For a published explanation of the relationship between Shaivism and ancient Bön, cf. the notes to Vol. I of this book; for a more detailed explanation cf. Capriles (work in progress 3, work in progress 4) (note that Shiva’s dwelling place is Mount Kailash in Tibet, at the foot of which around 1,800 BC the great Bönpo Master Shenrab Miwoche taught the Dzogchen tradition of the Zhang Zhung Nyengyü [*rdzogs pa chen po zhang zhung snyan brgyud*]). Concerning the relationship between the Greek Skeptics and the *Madhyamaka* School of Philosophy, the reader may consult McEviley (1982); Capriles (1994a, 2004, work in progress 3); Gómez de Liaño (1998); Carré (1999, 2001).

To conclude, it should not be assumed that all thinkers of East and West associated with the *via oppositio* necessarily had the same wisdom and used it in the same way. The problem is too ample to be dealt with here; it will be further considered in my work in progress *Greek Philosophy and the East*.

(Concerning Anthistenes and the Cynics, I have already noted that it is clear that the latter had an *askesis* that aimed at the liberation of conditioned perceptions; if it were true that Diogenes was a disciple of Anthistenes and that the latter passed down a series of doctrines and practices to the former, then there could be hardly any doubt that Anthistenes’ assertion of the illegitimacy, both of negation [his phrase *ouk estin antilegein* had been used by Protagoras], and of definition in terms of the syllogism “a is b,” were “in the thread of Ariadna” of the ancient soteriological tradition that I assume would have been somehow akin to *Madhyamaka* philosophy. For an explanation of these two theses of Anthistenes’ in terms of the

relationship between the computations of the two cerebral hemispheres and between the two processes established in Freud's *Project* of 1895, cf. Capriles (1999b, work in progress 3.)