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### GLOBAL AND LOCAL IN INDIA AND IN THE WORLD

Come Carpentier de Gourdon

If India's civilization is to be defined by a few dominant features, those must probably be permanence, inclusiveness, diversity and transcendence. To an outside observer, India appears as what I like to call a "milfoil" country, in which innumerable layers have added themselves over thousands of years on a primordial, still mysterious *urgrund*. From the Paleolithic to the space and Internet age, every era of pre-history and history is represented, often side by side as those multiple, seemingly contradictory elements survive without eradicating their predecessors or successors. If one wonders about the factors which account for this almost boundless adaptability, an answer may be found in the fundamental principles of India's original culture and in particular, in the dilated, elastic and relativistic notions of space-time conceived in the land since times immemorial.

#### The Space-Time Frame of Indian Thought

Whereas other ancient societies counted years in centuries or millennia, India had arrived at astronomical figures such as millions, billions, trillions and quadrillions, used to express both distances in space and durations in time. Thus, the smallest time unit, the *truti* ( $10^{-7}$  or  $1/1687.5$  of a second) was still held to be divisible (into 3 *traisarenus*, described as "six atoms" (*anu*) whereby there is an implicit unification of time and space) since there is no basic "atomic" building block. However the *truti* which was also described as one three hundredth of a blink was seen as a unit of "atomic" not "real time" i.e. not applicable to the human reality. It is indeed intriguing that ancient Indian science would bother dividing infinitesimal times units.

In the "geo-astronomical" scale four historical *yugas* (ages) compose a 12000 year cosmic half-cycle (the 24000 years full cycle corresponds to the length of one precession of equinoxes) which itself has its place in a *mahayuga* of 4,320,000 solar years and a *mahayuga* is one of seventy-one in a *manvantara* (planetary age) of 306,720,000 years and one of a thousand in a *kalpa* of four billion three hundred and twenty million solar years.

There are fourteen successive named *manvantaras* (ours is the seventh, called *vaivasvata*) in our planetary cycle which is over four and half billion solar years long and yet only a small fraction on the cosmic time scale. One human year is only a 24 hour night-day (*nyctemera* in greek, *ahoratra* in Sanskrit) for the gods (*devas*) who live about a hundred of "their" years, each lasting 360 solar years. The relative nature of time is thus illustrated in a practical way. Likewise, a *kalpa* is merely one day for the god Brahma so that a day and night for him last 8.64 billion solar years and he lives for one hundred of his years, which amount to  $10^{22}$  or 311 trillion and 40 billion of our years, which is however only one day for Vishnu Narayana or Shiva Maheshvara (depending upon whether one worships Vishnu or Shiva) and so on, in ever widening circles within the infinite.

Time being cyclical, all beings and things traveled in recursive logarithmic spirals along successive ages, arrayed in periodic cycles which were themselves phases of larger cycles. Likewise, the universe we live in was said to be one of many, both visible and invisible, (Western scholars of Buddhism in the

last century used the word *chiliocosm* to translate the Sanskrit expression expressing the immense plurality of worlds) some occupying the same physical location on another plane of existence and consciousness so that they were interpenetrating, simultaneously real and yet mutually imperceptible to their inhabitants, just as the many diverse selves that compose an individual being are generally unknown to his “grosser” mind and senses. Distance could thus be a mere appearance conceived by the conscious analytical awareness as a way to orderly divide an otherwise undescrivable reality. The dynamic tension and interplay between *Rta* (law or order, at the source of *ratio* in latin) and *anrta* or death, the chaos resulting from entropy creates, maintains and ultimately disintegrates the universe before recreating the next one.

India, like China, understood very early that order is inseparable from its opposite and that the two are needed to build a balance providing temporary homeostasis.

Some contemporary cosmologists, like Sir Roger Penrose, are putting forth cyclical models (cf his latest CCC: Conformational Cyclical Cosmology) wherein a succession of extinctions and creations: big bangs and big crunches explains the birth and death of universes. In this framework the illustrious British mathematician highlights the non-mutual exclusiveness of infinity and finitude, depending upon whether Euclidian or non-Euclidian geometry is used, as Indian thought perceived many centuries ago.

The black-hole like, massless end state of a universe mirrors its initial pre-Big Bang massless condition in Penrose’s theory which seems inspired, knowingly or not, by the alternance of *prabhava-pralaya* familiar to Puranic scholars. On the other hand, at least one Indian scientist, Ashwini Kumar Lal in a paper published in the April 2010 issue of the *Harvard Journal of Cosmology* (and co-authored by Rhawn Joseph) has challenged the “orthodox” theory of the Big Bang occurring 13,75 billion years ago and has cited a number of observations that are inconsistent with that figure and would indicate the present universe is much older and may not have come into being through the “physical” explosion of a super-dense nucleus. Ancient Indian cosmology is certainly not proven but neither is the western accepted model and perhaps none ever will be as a definitive and complete theory may simply be impossible to arrive at, all things being relative, transitory and a-changing. However, an inaccurate and transitional theory is needed if it is elegant and useful in providing ways and means for understanding and creative action.

Indian civilization, especially in its metaphysical and philosophical dimensions, had a seminal influence not only on the traditional area of influence in Central Asia and around the Bay of Bengal, the Indian Ocean and the South China Sea –from Iran and East Africa to Vietnam and the Philippines - , formerly known as the wider “East Indies” to Europeans. It also critically impacted the great empires to the East and West since at least the beginning of the Christian Era, namely China, Rome and later the Islamic Khalifate.

Buddhism made a mark in Alexandrian monastic Christianity and in the syncretistic cults of the Mediterranean region, as attested by authors such as Origen, Saint Clemens, Dio Chrisostomus, Philostratus, Porphyry, Bardesanes, Palladius and Mani while it decisively shaped later Taoism and hence helped China, Japan and Korea build their imperial cultures and ideologies at least from the time of the Chinese Han, Wei and Sui dynasties. For instance, the *Ling Bao*(Precious Jewel) Revelation of Ge Chao Fu which formed the basis for a major Taoist lineage around 400 AD owes much to Buddhism, even more than the earlier *Shangqing* tradition with its emphasis on *neidan*:internal alchemy as meditation. Such was the debt to India that from about 166 AD, date of the Dao Jiao

memorial stele, the belief spread in China that Lao Tzu, the original master had gone to India to spread his “way” which had become the Buddha’s doctrine. The often inward looking Chinese were thus trying to take credit for a foreign spiritual influence which had deeply penetrated their civilization.

A similarly powerful Indian “infusion” into the scientific and religious culture of the Islamic empire, especially under the Abbasid dynasty, had several offshoots such as the various Sufi spiritual techniques (in the *malamatiya*, *hakimiya*, *rifa’i*, *melewi*, *naqshbandi* and other *tariqas*) and the development of mathematics, chemistry, metallurgy and other branches of knowledge in Nishapur, Samarkand, Bagdad, Damascus, Cairo, Tunis and Cordoba.

Yet, much of the prodigiously expansive mathematical and cosmogonic legacy of the Indian motherland was seemingly lost sight of outside the subcontinent, as if it had been too complex and mind-boggling to absorb by foreigners, untrained in the mental gymnastics of the Brahmin priests and Buddhist monks. Even the tradition of vivid and sometimes hair-splitting abstract debate carried by Buddhism waned in South East Asia and Sri Lanka though it was preserved wherever Mahayana Buddhism extended its reach.

Everything in India seems to attain colossal proportions and it is estimated that some fifty million more or less ancient manuscripts survive all over the subcontinent but it is worth noting that the “kernels” or developments of innumerable legendary and folk narratives found all over the world, as historical traditions, sagas or fairy tales subsist in India as myths or metaphors, while in the Old Testament for instance they are reported as historically factual and in the Christian Gospels as parables or episodes of the life of the Saviour just as in the later “Arabian Nights” they may have transformed in some cases into fabulous tales. There is no space here to provide illustrations of this transmogrification of anagogic allegories into popular stories or vice-versa.

### Indian Notions of Science and Technology

Those notions of the “Gentoos”, Hindoos or Brahmins, as they were described by puzzled foreigners are now found to be quite consistent with many of the recent data and theories emerged out of quantic physics, wide array radio-astronomy, infra-red telescoping, fractal mathematics and bio-chemistry, not to mention the neuro-sciences and ecology.

The self-assured Europeans of the Renaissance and Enlightenment were raised on a biblical creed which taught that the world was 6000 years old and they only reluctantly admitted that the Earth was not in the centre of the universe. They thought they were bringing God’s true message to the lands they discovered or at least the clarity of scientific reason to superstitious savages and hence tended to shrug at the wild speculation of the Indians but before the middle of the 19<sup>th</sup> century some began to doubt the overall superiority of their science and religion and one century later, the advent of Relativity and Quantum theories forced a drastic review of many dogmas of mechanistic science.

In parallel, the bases of “western” symptomatic medicine have had to be reassessed taking into account the notions inherited from very ancient Eastern traditions such as acupuncture, ayurveda and yoga

whose physiological principles were tested and demonstrated in the equally old martial arts and callisthenic practices of the East.

As Dr. Kapila Vatsyayan points out in her masterly lecture entitled “Science and Culture” at the Platinum Jubilee of the Indian National Science Academy, the latin word *scientia* comes from “sci”: to divide or cut (i.e. “scissors”), in order to analyse, like the greek :”schi” - which has given rise to the word schizophrenia – and the samskrit *chhinati*. In India on the other hand, *jnana*, *vijnana* and *prajna* represent a scale of knowledge, from factual information through comprehension to self-awareness, which are all etymologically reflecting unity and not division.

Likewise “culture” comes from “cult”, the knife or the plow used to till the soil while *sanskriti*, the later and approximate Samskrit equivalent signifies the polishing and refining of the original material (*prakriti*: nature), a process of cultivation as *samskriti* comes from *krishi*: agriculture. Hence knowledge has a different filiation in Indic civilization and is pursued according to a different strategy because it has a generally higher goal, union with the supreme reality and not the mastery over nature sought by Francis Bacon and his followers.

It is generally held that science demonstrates its validity and usefulness when technology develops from it by applying the laws it discovers and much has been made in the West about the relative absence or backwardness of a technical infrastructure in pre-colonial India. However many ancient and medieval Indian texts such as the *Ramayana*, the *Mahabharata*, the *Vishnu* and *Markandeya Puranas*, the *Vishnudharmottara*, the *Samarangana Sutradhara* and the *Yuktikalpataru*, the *Harivamsa*, the *Brihad Katha* et al. contain Leonardo-like, profuse and curiously detailed instructions for and descriptions of all sorts of machines, some as “modern” as mechanical vehicles, airplanes, spacecraft, submarines, terrifying weapons of mass destruction, robots and automata as well as semi-human animals endowed with special abilities, to mention only a few figments of the prodigious imagination of their writers. Flying machines (*kritaka vimanas*) are described in some treatises as being of three main types and upto twenty five different shapes and systems of propulsion are identified. There is even, in the *Mahabharata* and later texts a story about a huge flying unearthly golden or luminous city *hiranyapura* that traveled across the cosmos.

Raja Bhoja of Dhara, a 12<sup>th</sup> century royal scholarly mecene of Central India is reputed to have authored eighty four works (including the aforementioned *Samarangana* and the *Yuktikalpataru*) in various sciences ranging from astronomy to grammar, chemistry, medicine and engineering. Even if we suspect that he was given credit for writings produced by the academy of some 1400 eminent artists and scientists that he patronized in his capital city, we can still admit his vaunted proficiency “in seventy two arts”. In that age, such a profusion and variety of intellectual output was unmatched and it seems that medieval Indian society was sophisticated enough to conceive and revel in the “modern” genre of science-fiction.

Should we conclude, as some have in India and abroad, that some of those devices were indeed built or at least sighted in a remote era or rather that the human mind designed those theoretical constructs without systematically attempting to build them, perhaps out of fear of negative consequences that would make a technology-based society ultimately undesirable?

Indeed, the underlying matrix for all this artificial virtual creation is the *Mahamaya*, the web of life and connections that accounts for all existence according to both Hindus and Buddhists. This jewelled net of Indra contains all things potentially and its radical “ma” gave rise to the words for begetting or

creating and measuring. Magic is a modern avatar of the old word *Maya* and *Mayin* is the magician in Samskrit. According to Indian cosmology, man is a product of *Maya-Samsara*, superficially interpreted as illusion (due to its lack of ultimate substantial reality) in some western translations, but he can also master it and become a creator as well. The Internet, the worldwide web are an electronic reflection of this their metaphysical archetype as they bring all the world together in a digital universe where the atoms and genes of the material cosmos are mirrored in the bits and bytes of its electronic twin.

There is no hermetic separation between gods and men, between God and Man as *Ishvara* (from the root: ISR which gave rise to *Asura*, *Ashur*, *Osiris* and *Israel*), or *Purusha*, the lord of the city (which is the macrocosmic universe as well as the microcosmic living body) is enthroned in the heart of both.

Other central icons of Indian (or Indic) thought that find their parallels or reflections in contemporary scientific concepts are, among others:

- 1- The primeval seed or egg (*bija* and *garbha*) whose expansion into the multidimensional universe foreshadowed the modern “myth” of the Big Bang.
- 2- The field (*ksetra*) which symbolizes the cosmos and reality as an epistemic and spatio-temporal “plane” or continuum, manifested by the growth (*Brih*) of the seed of consciousness, as a particle that creates its force-field, in the language of quantic physics.
- 3- The identification of a divine principle with a force or energy, such as generation (Brahma), maintenance or stability (Vishnu) and disintegration for recreation (Shiva), which are indeed one as they manifest diverse phases of the same power. A similar tripartite classification gives rise to the three *gunas* (or features) shared in unequal proportions by all beings and things: *tamas* (density and inertia), *rajas* (dynamism and expansion) and *sattwa* (homeostatic radiant harmony). One of course cannot establish an equivalence with the four basic forces known to modern physics just as one cannot equate the Indian notions presented here with currently known scientific laws and models but our goal is to show the validity of the mental frameworks provided by Hindu-Buddhist-Jain schools of thought whose metaphors may be regarded as flexible and plastic allegories of mathematical equations. It is important to note as well the Indic “intuition” about Planck’s equation of Mass with Frequency which is the counterpart to the famous  $E=Mc^2$ .
- 4- The upside-down cosmic tree (*urdhva mulam, aswatha, kalpavrksa*) which has its projection in the dichotomic trees of scientific classification as also in the subatomic cascades generated in particle accelerators to mimic the process of creation.
- 5- The notion of zero, or *cunya*, which according to Pandit Jawahar Lal Nehru, together with the “decimal place-value system unbarred the gates of the mind” (in the *Discovery of India*). Arab (in fact Indian) numerals were first used in Europe by Leonardo Fibonacci who gave his name to the “golden ratio” that was known in India since very ancient times.

The zero is intimately connected with the metaphysical awareness of the vacuum, the material emptiness replete with potentiality that Greek theology defines as the Pleroma, the *Purna* of the Ishavasya Upanishad. *Cunya* is for the Bhagavad Gita, the mathematical sign for “the Sun of the Unmanifested (*Nirguna*) Atman”, which “being absolute, is far beyond all that we know as such...It is the void, it is also the full” (chapter 15, sloka 6) or as Buddhism puts it: “the light of the pure void”. Its alter ego is the Lemniscate: the *Ananta* or endless coiled serpent in the shape of an 8 found in Hindu Mythological iconography. From zero, Indian mathematicians, following the great Brahmagupta discovered negative numbers and quantities and the mechanism of extracting their

square roots which could only be possible in a culture for which the abstract was indeed the core of all things at least in their representations.

Such an acute awareness of the elusive nature of reality makes Indian philosophy and cosmology question their own assertions which are set in doubt, even in the seminal Rig Veda that goes as far as wondering whether the Creator himself knows the mystery of his creation:

“He from whom this creation arose, one knows not whether he made it or did not make it. The highest seer in the highest heaven may know the secret or does not even he know?” (“*tso anga veda ya vaa na veda*”) (*Rig Veda, X-129 Nisadiya Sukta*).

The lingering interrogation about the role and the very existence of that *Demiourgos* opens the door to the suspicion that the universe may be self-created and incessantly self-reproducing without an external agency as even the gods are mortal in the long run and submitted to its laws. Such an indeterministic cosmology transcends and renders meaningless the controversy between polytheism and monotheism and it relativises the meaning of history seen as the cyclical re-enactment of archetypal myths on the screen of time and space. On the contrary, “semitic” revealed religions closely link theology to history, held to be the unfoldment of the Divine Plan from a fixed beginning towards a pre-determined end, tantamount to perfection, i.e. unchanging and final, to be achieved by human effort or as an effect of Divine Grace.

### Building Blocks of Social Organization

In this fluid, impermanent, ever changing and essentially inexplicable continuum, human beings must rely on certain hierarchies of meaning in order to organize their lives and build coherent cosmologies which may not be ultimately true but which fulfill a necessary, indeed a fundamental role in a given geo-historical context. From the infinitely small of the subatomic particle and imperceptible instant to the boundlessly large universes that encompass one another, all things can be apprehended at three different vibrational levels: the material (or *kamaloka* i.e. realm of desire or volition), the formal or subtle (*rupaloka*) which harbours Plato’s Ideas and the causal or invisible (*arupaloka*) whence they originate. Living beings consist (artichoke-like) of at least seven shells, going from the baser organic shape to the inner one made of consciousness and enshrining the “divine” spark of the Atman or Brahman. As Dr. Kapila Vatsyayan puts it, that describes “a process from no form to the multiplicity of forms to beyond form” (*ibid.*).

In the human body, these seven spheres have their foci or “plugs” in the seven *chakras*, or neuro-psychic centres and the three main vibrational levels are accessed in the respective mental states of wake, dreamful sleep and deep sleep while a fourth state of consciousness (*turiya*) is one of pure bliss which corresponds to the undifferentiated consciousness which embodies the unity of all things, manifested and unmanifest (*Samadhi*). There are hence correspondences and connections between all areas of knowledge and all levels of beings.

More visibly, there are six concentric circles of existence: 1-*eka*: (the individual, 2-*kula*: the family or clan, 3-*grama*: the village or community, 4-*janapada*: the state or region, 5-*prithvi*: the earth and 6-*atma*: the soul or breath which is both cosmic and individual (Bharat Gupt, *Indian Civilization, Decline or Revival?* New Delhi, 2008)). Since it is all encompassing, the Scriptures unanimously hold that for Atma everything else must be given up. All human material and relative “realities”, considerations and

values are secondary to the consciousness that makes them possible or apparently real. Within that spiral of overlapping spheres, governance is understood on the basis of decentralization, delegation to the next smaller unit and what is known in the European Union's technical vocabulary as "subsidiarity". Thereby individual freedom and group solidarity are both to be preserved.

In the economic sphere, plurality and locality can manifest in the use of various community-based currencies which facilitate the emission and circulation of credit outside the monopoly of global banking institutions, thereby restoring to money its significance as a sign (*roupya* in India, from *rupa*: form) which has been eloquently demonstrated by Mostafa Moni in his essay *Towards a General Theory of Credit and Money* (in the *Review of Austrian Economics*, vol 14: 4) in which he points out that it is not a commodity but "a relation, a credit/debit arrangement ...a standardized measure or weight", independent of the metal or other substance used to lend it substance. *Maya*, like money is also a measure but decentralizing credit through technically improved forms of barter, on which much of rural India still depends, may be the only way to create abundance and thereby escape the vicious cycle of poverty and want that entralls most of mankind.

Human desires and goals, family relations, local and national solidarity and even universal social and political concerns are valid and respectable but cannot take precedence over the non-material essence in which all exist and in which they will disappear. Christ says nothing else when he commands those who follow him to "let the dead bury the dead" and to give up their kith and kin for the Kingdom of Heaven. Only the awareness of the metaphysical gives the physical world significance. Technology is a child's mind game (*tekne* in greek is related to *teknon*: child) but it does not embody the higher knowledge and may in fact turn us away from it.

The attitude of Indic thought to the universe and to the human condition is closely related to the Stoic philosophy of epistemic expansion professed by the Roman philosopher Seneca who rejected the mere utilitarian exploitation of the earth while he acknowledged that the mystical communion with Nature that characterized the mythical Golden Age was no longer accessible to society as a whole in his relatively sophisticated times, at least not to his imperialistic fellow-citizens in Neronian Rome and in other highly structured states.

Indian wisdom generally oscillates between the categories which Juhani Pietarienen in an essay entitled *The Principal Attitudes of Humanity Towards Nature* (in *Philosophy, Humanity and Ecology*, Vol 1, Henry Odera Oruka (Ed.) ACTS and AAS, Nairobi, 1994) defines as "Naturism" and "Mysticism", the first being mainly collective in character and the second primarily individualistic, but it actively seeks and treasures knowledge, as we have already pointed out and sees it the highest good. It holds the universe, spiritual and physical, to be the supreme teacher and guide and not a mere mine of material riches to be exploited for the satisfaction of greed.

As Sirkka Heinonen in an article entitled "Rethinking the Critical Triangle between Humans, Nature and Technology" defines Seneca's doctrine: "through nature, humans can raise their level of knowledge, not only quantitatively but also qualitatively. Thus, the goal is to specifically acquire immaterial wealth although indirectly this could lead to the growth of material wealth" (*World Affairs*, July-September 2010). The latter has indeed its place in the Indic scheme of things. It is however not the "summum bonum" but only a tool for achieving stability and contentment that only cognitive satisfaction gives, according to the Roman philosopher since by itself, technological progress and scientific advances do not provide it and do not even lastingly solve material problems which they tend

to replace with new, bigger ones. On the other hand, striving for the realization of the real human nature or the higher self alone makes for true progress so that inner moral and spiritual space is more important than the outer, physical one. The genuine *Brahmin* of the Upanishads (“he who knew Brahman: *Brahmavid*”) led what Seneca called the theoretical life in which knowledge is “a way of life, pursued for its own sake without any other goals” (Heinonen, *ibid.*).

The stoic concept of science is akin to the approach that Fritjof Capra describes in his recent book on Leonardo Vinci’s scientific method (Fritjof Capra, *The Science of Leonardo*, New York 2007) producing a “coherent unifying picture of natural phenomena” through a “persistent exploration of patterns interconnecting phenomena from a vast range of fields” which he contrasts with the strategy followed by the academic establishments on the basis laid out by Bacon and Descartes among others. It also is related to the concept of the noospheric civilization defined by V I Vernadsky and his fellow, mostly Russian adepts of the Cosmism school.

India kept a wide space available to those who wanted to return to the rustically simple living of the realm of Saturn by instituting a stage in life (*vanaprastha*) when an individual could retire in the forest after fulfilling his basic obligations to his fellow-men.

If we survey the subcontinent’s oldest known archeological remains, in the Indus or more accurately Sarasvati-Sindhu civilization, we find that they keep the traces of at least several hundreds of towns and medium sized cities which are remarkably homogenous and functional in their architecture and planning. Their well laid out infrastructure for provision of water and collection of sewage, geometrically arrayed streets and important community spaces bear witness to an enlightened, peaceful and productive society that seems to have avoided excessive social inequality. There is an in-principle consistency between the material structures built by that civilization and the moral principles and social theories upheld by its Scriptures

Mahatma Gandhi, though in many ways an intellectually westernized Indian who owed much to Ruskin, Thoreau and Leo Tolstoy for his worldview, still held close to traditional thought-systems with regard to society, science, technology, the economy and the natural environment. He willingly accepted science but only insofar as it could lead to what was later called appropriate technology, suitable to the needs of the vast majority of the people, which in India were the rural poor. In his prophetic letter of early October 1945 addressed to Pandit Nehru, soon to become the country’s first Prime Minister, he wrote:

*“If India is to attain true freedom – and through India the world also, then sooner or later the fact must be recognized that people will have to live in villages, not in towns; in huts, not in palaces I must not fear if the world today is going the wrong way – it may be that India too will go that way! – but it is my bounden duty up to my last breath to try to protect India and through that the entire world from such a doom (...) While I admire modern science, it should be refashioned aright. My ideal village will contain intelligent human beings. They will not live in dirt and darkness as animals. Men and women will be free and able to hold their own against anyone in the world. There will be neither plague nor cholera nor smallpox. No one will be idle, no one will wallow in luxury. Everyone will have to contribute his quota of manual work, India has enough and can have enough – if some of her sons did not corner the good things and deprive the masses of their dues”.*

Rather predictably for who knew him, Nehru replied a few days later objecting that “*the village, normally speaking, is backward intellectually and culturally and no progress can be made from a backward environment*”. The sophisticated, Oxford-educated politician did not see eye to eye with the Mahatma as he believed in social and technological modernity as displayed in the West and throughout his life he promoted what he called a ‘scientific temper’ to address all problems without undue regard for traditions and spiritual beliefs.

### Impact of New Sciences and Emergent Technologies on Mankind

The transformation of the human reality and of its equation with nature caused by science and technology is challenging all societies and particularly those which remain in transition between a “primitive”, mostly non-monetary agrarian economy and the contemporary financial-high tech globalised regime. India is probably the largest and most complex nation-state going through that intermediate state. It has a large and rapidly expanding technically educated elite which has taken very well since more than a century to the fast evolving scientific age and has contributed its share among top researchers in disciplines. A congress of philosophy and the foundations of science ([www.cpfs-res.in](http://www.cpfs-res.in)) held in Delhi in December 2010 under the auspices of the World Institute for Advanced Studies illustrated in its sections the areas where cutting-edge research is ongoing: CLAIM (cognitive and logical aspects of interdisciplinary methodologies), GREAT (genomic revolution and emerging advances in therapeutics), NICE (neuro-scientific investigation of conscious experience), QUICK (quantum understanding, information, communication, knowledge) and UNLANA (unifying natural law, advances and new approaches).

The tidal wave of new technologies that are rushing in from the future horizon is already having particularly complex and interesting effects on Indian society. The relatively imminent Singularity Point, to be reached by 2048, when according to Ray Kurzweil (*The Singularity is Near, when Humans Transcend Biology* (New York 2005) electronic (technogenic) intelligence will exceed human mental capabilities and the increasing ability to not only map but also “write” or draw and “reboot” genomes, (a goal of J. Craig Venter and his Institute) and eventually neural networks are to be viewed from the metaphysical perspective of Indic knowledge which predicted this possibilities and placed in the wider context of the cosmic law, *rta* or *dharma*. The digital world of our creation described by Jan Amkreutz as World 3.0 has been anticipated in the Upanishadic analogies and metaphors.

The strategy predicated in the Indian tradition subordinates the exploration of outer (material) space to the investigation of the inner (spiritual) space, also infinite, so as to use the physical power gained through science in full awareness of what is desirable and what is forbidden, given that as Francis Bacon noted, everything is possible. Such a “Hindu-inspired” perspective is provided by Ken Wilber and Andrew Cohen in their book *The Guru and the Pandit: A Vow to Live Forever* in the magazine *What is Enlightenment*, (no. 39, September-november 2005).

If the cosmos is an inconceivably vast multi-dimensional field of networks, made up of co-local intersecting “m-brane” filaments, of both dark and radiant matter-energy, then it can be understood as an “internet” in which all “stuff” that constitutes it is circulated, recycled and utilized as data is in the world wide web. Harnessing this property would enable all to “create” all they wish or need out of “nothing”, as some nano-technology specialists are now speculating. For instance, in an article in the 2009 Bulletin of the *World Public Forum Dialogue of Civilizations*, Mike Treder, director of the Center for Responsible Nanotechnology, USA predicts that in the next two decades the first “nano-

assemblers” will be produced which he describes as a device the size of a laser printer, making “from the bottom up” any product for which the atomic-molecular blueprint has been (presumably) downloaded from the Internet. Such a goal is being pursued through various projects, such as the University of Nottingham’s Digital Matter Project, headed by Prof. Philip Moriarty or the USA’s DARPA’s similar undertaking.

Treder points out the great dangers inherent in such a development for planetary peace and even survival, although on the surface the nano - and subsequently pico- and fento—technological revolution should usher in an age of plenty for all but his call for a responsible global management of that seemingly unlimited resource echoes the warning enshrined in the Hindu and Buddhist scriptures about the threats posed by the power of knowledge when it is unregulated by Dharma and not made subservient to the cosmic order in which man cannot usurp the supremacy of the whole. The latter of course includes all beings and things over which he has no divine right to rule. The Book of Genesis in the Bible teaches a consonant lesson through the allegory of the Tree of Good and Evil and the Forbidden Fruit although it also invests Adam with hegemony over all other creatures, beginning with his wife.

The ancient knowledge capital of India does provide its population with an almost implicit cultural familiarity with the new visions of reality that are emerging from frontier areas of science and that are taking us well past the logical barriers erected since the dawn of the Age of Reason. However human beings risk losing the minimal necessary bearings in this shoreless ocean we are sailing into and here the spiritual guidelines and beacons provided by the native ancestral traditions of many other parts of the world have a critical role to play. Their revival should be spurred on by the rapid evolution towards geopolitical and geo-economic multi-polarity.

### Transition to a Multi-Polar Asia-Centric World System

It may be significant that the consecration of both China and India as dominant nations is forecast, according to projections from current data, to take place between 2029 and 2048, in the very period when computer technology is expected to pass the Turing Test and subsequently reach the Singularity Point defined by Kurzweil. Therefore a geopolitical transformation will broadly coincide with a technological metamorphosis and we must all realize that there is no case in history when the dominant polity

does not acquire, in one way or another, the latest inventions that may contribute to its power and prosperity. The new hegemon may thus be expected to benefit from the most advanced knowhow that will be available by then, whether they gain it on their own, purchase it from financially hard-pressed, over-indebted foreign nations or access it by espionage.

The shift of economic power towards East and South Asia in the last three decades is already having as a concomitant effect an increase in the civilizational and spiritual influence of the area on the rest of the world, especially the still relatively predominant West. The future of the global system is being predicted in various ways by professional observers. Some, like Professor Immanuel Wallerstein project a US-China alliance across the Pacific intended to counteract the rise of a Eurasian bloc including Western Europe and the Russian Federation as well as possibly, West and South Asia. Others see a loose economic and political confederation emerging between the Atlantic and the Pacific,

embracing most states from Portugal to Japan while North and South America together would constitute the rival alliance vying for predominance.

In some of those scenarios India would be allied with the Western Empire (in the sense used by Antonio Negri and others) while according to others, it would join hands with China, Russia and other Asian nations within a commercial and strategic pact foreshadowed by the SCO. David Egner in a perceptive analysis of the history of empires (*World Affairs*, October-December 2010) believes that, given the three possible policies vis-à-vis the US-driven New World Order: joining it, remaining peacefully on the fringe or opposing it, India, in view of its disagreements with and misgivings about China and its “Indo –European” and Anglo-Saxon colonial heritage could choose the first option, while Russia seems to be opting for the second and China is already challenging the Western Empire on many theaters (the arms race, the global currency system, industrial dominance, Africa, East Asia, South America and even in the European and North American economies).

In either of those prospective frameworks, the land of Brahmanism, Buddha and so many other masters of wisdom is likely to be playing anew its role as a “world teacher”, as she was in days of yore for the Greeks, Romans, Chinese, Japanese, Indochinese, Malays, Tibetans and Arabs, but now both in terms of its ancient spiritual disciplines and in the new NBIC critical knowledge-based technologies in which it is making rapid progress (nanotech, biotech, infotech and cognitivetech). No culture has a better karmic DNA to fine tune in a metaphysical and psychological context Kurzweil’s and Bart Kosko’s anticipations about spiritual machines and consciousness bearing-computer quantum chips, whether or not we believe in the realism of those forecasts. As a matter of fact some promising research has been done for some years, in Russia, India and the West on the possible use of certain electronic technologies and devices, such as the Tesla Coil, to facilitate and enhance neuro-psychic and physiological processes studied and sought in yoga and ayurveda. In that fashion a selective marriage between ancient disciplines and new sciences is already taking place.

India should thus come into its own within the emerging cognitive civilization, also defined as the Existential Age.

THE END