

**Recursionism and Reality:**  
Representing and Understanding the World

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# **Recursionism and Reality**

## **Preface**

The following pages are a summary of my ideas on intuitive and scientific representations of reality. I hope they answer the question why common sense and science are able to make sense of the world. In my view, recursive representation is the basis of mental images not only of physical systems but also of behaviour.

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# **1 Many Worlds**

**1.0** Science has revealed the laws that govern the macroscopic and the microscopic worlds. But between the outer reality and the experiencing self lies the agency of the mind and between the domains of classical physics and quantum mechanics is metaphysics. This middle space involves the subject and, therefore, it can only be addressed by philosophy – where words stretch to provide insight that cannot be reduced to simple declarations.

Although metaphysics deals with existence and reality, its formal study is limited to narratives on reality and existence, and their linguistic analysis. The study of knowledge and ethics are also mutually dependent and related to politics and aesthetics, which are choices in the field of force and power and the sense of art and life. But due to the limitations of language, these conceptions are shadows whose original form remains elusive.

**1.1** Language is limited because it can only relate to relations between things, whereas reality concerns change, and things are continually transformed. Language expresses associations between things in a sequential manner, whereas their unfolding is simultaneous and parallel. Nevertheless, language provides the infrastructure with which we construct our ordinary view of reality and even if this view is limited, analysis of meaning can help obtain important and deeper insight. In particular, such analysis makes one aware of paradoxes that inform us of the limitations of our knowledge.

**1.2** The beginning cannot be unitary, because the one cannot, by itself, become many. The one can only be defined in relation to others. There can neither be only one, nor many at the beginning, because that would undermine order, and imply perennial chaos. The beginning must thus not be of things, but of the order itself, together with the potential for all its manifestations.

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When manifestations reside as impressions they become the ground on which further expressions of the recursion takes place.

Recursion is logical. When viewed in the mind's eye, one becomes aware of duality out of which mathematics is born.

**1.3** Brain and mind are not identical. The self is the bridge that spans the many layers of being. But the brain is the base on which the mind rests, therefore its examination can reveal the higher layers of being by pointing to the paradox in assuming otherwise. The interrelationships in the outside world, in the physical world as well as in society, are mirrored in the organization of the brain.

**1.4** Metaphysics cannot be reduced to logic: it deals with paradox and inversion. Art and creative action illustrates this most clearly. Time flies into the future, but we live facing the past, burdened by it. What we seek in search of happiness is precisely what is sure to bring despair. Although we speak of the world as a collection of things, we can only celebrate impermanence. This impermanence has a recursionist foundation, expressed in repetitive patterns.

## **2 Mind's Evolution**

**2.0** Reality is process and its representations. Process itself is seen in mind in motion of objects, which are defined in terms of location in time and space in change. Since representations are sequential, reality is seen in slices that are put together by the mind.

**2.1** A causal change underlies objects in change; there is a logical basis to a representation; and action follows intentions. When assembling the slices together, the mind imposes a larger logic on them.

**2.2** The object has several forms associated with it. First, is the physical form in transformation; second is its rational or logical form; and third, is its causal form. The object also has a unique emotional content.

**2.3** Mind in motion is an object with the representations of the outer and the inner worlds as its fields. Reasoning emerges out of the capacity to make abstract representations.

**2.4** Mind's evolution depends on representations, innate nature, and intention. Since representations and innate nature are an expression of the past and being, the world, as understood by mind, is created by it.

**2.5** Intentions cannot belong to the world of objects because they would then be subject to causality and thus not be free. They must transcend space and time, and be a part of the order underlying recursion.

**2.6** The process of evolution is accompanied by expansion and enlargement, growth and decay. This is true both at the individual and social levels. It is also true of mental objects.

### 3 Impressions in Recursion

**3.0** Our experience of the world is in terms of impressions. Some of these assume iconic power after we have embellished them in the theater of the mind, and they become the scaffolding for the construction of our own personal reality in which things are glued together by hopes and dreams. This is a reality that is tantalizingly close to coming crashing down any moment it runs into conflict with other actualities. But the interplay of these realities has its own logic that becomes apparent when one moves beyond appearances to relationships and patterns of change.

**3.1** Patterns recur across space, time, scale and fields. Recursion is an expression of the fundamental laws of nature. It is more than structural relationship, for it is to be seen both at the physical and the abstract levels as also across relational entities. Recursionism provides a way of knowing as it helps us find meaning by a shift in perspective and by abstraction. It is the unitary unifying principle in Nature.

As we learn to recognize the same forces and patterns recurring on different levels, we are able to unite these levels and their diverse phenomena into a meaningful and organic whole. But the manner in which this structure is put together represents a larger meaning, which is a consequence of the underlying aesthetic.

**3.2** Recursionism refers not only to replicated form but also to nesting across scale and time. It emerges out of the same elements combining repeatedly at different levels. It encompasses form and function. Mind is the embodiment of the infinite regress of this recursion. Without such regress mind cannot emerge, and since machines cannot be designed to have recursive structure, they will never be conscious.

Objective reality is bound by logic and relationships. The recursive order behind it does not lie in space and time; it is transcendent.

**3.3** Beauty, which is recursive symmetry, and power, which is recursive asymmetry, both appeal across form. Evolution is a dance of beauty and power, where broken symmetries become the basis for new symmetry. The dance of the peacock attracts not only to the peahen but also the human. Animal displays have universal significance.

At the deepest level, there is no meaning; only symmetry or pure play.

Power and expansion is basic to evolution. It is repeated from the smallest structures to the largest ones. Social structures also reflect dominance and growth; therefore, they are also subject to decay and extinction.

**3.4** Art is the creation of archetypal patterns. Since the structure of natural patterns is concealed by the chaos of the surface forms, good art mimics concealment and recursion. In performance, poetry, and narrative, meaning is best communicated by suggestion. A word, with its suggestive power, is worth a thousand pictures.

The experience of the creative expression makes one aware of its source within oneself. Art is the best education for self-development.

**3.5** The nature of cognitive systems is determined by the underlying biology. Therefore, biological forms are fundamental to art and social organization. But just as there are innumerable biological forms, made even more numerous by growth and decay, there are innumerable cognitive systems.

Each cognitive window comes with its own recursive logic. Natural, logical, creative or artificial languages express unique perspective. Recursion turns this perspective into a unique signature that is seen across other cognitive tasks.

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**3.6** Patterns repeat within biological structures, and they are replicated in artificial forms such as dresses, toys, machines, monuments, and in art and architecture. The forms that Nature makes are the models for our own creations. Forms at one scale mimic those at other.

Patterns also repeat in the use of artificial signs, but each person uses them in a consistent manner.

**3.7** Ideas are like organisms. They replicate and die like biological entities. They have similar relationships, and also a generative unity. The web of ideas is similar to the web of life. Ideas also have their ambiguities because of the ambiguities in the models of things that concretize them in our minds.

**3.8** Recursionism across species implies that our behavioral patterns are determined by biology just like for animals.

Freedom is the urge to perform by instinct; it is the urge to find harmony. Those who think they are free are not; those who appear to be in harmony with the world around them are.

**3.9** Language – both in the inner and social discourse – opens up new worlds of possibilities, spawning whole universes within. This brings opposites together creating a unique tension.

Words express the recurrent essence of phenomena, through which we can recognize them. Meaning is only possible because of recurrence.

**3.10** Animals have the same spectrum of emotions that humans possess. It is through the lens of emotion that we communicate with animals. Feeling is higher than thinking. Cognitive categories come in wholes!



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**3.11** Each organism makes sense of the world within its field of activity. Our pet, an Australian cockatiel, has lived with us for over eleven years. One would think that living in a totally alien environment would confuse the bird, but he has special relationship with different members of the family, and unique ritual related to play and ownership. Bird and man understand each other at various emotional levels because of the common recursively expressed structure.

**3.12** The ability to communicate with each other amongst humans, just like that of other animals, is a consequence of recursionism, which defines a common ground on which overlay the unique experiences of different people.

**3.13** Recursionism is the explanation why in an ant colony the castes adjust their populations to maintain definite proportion; it is the explanation of why new biological forms emerge in the evolutionary chain.

Recursionism reflects a universal imperative towards greater unfoldment of existing structures. It is a self-organizing, self-regulating principle which allows for growth as well.

**3.14** Continuing conflict in society mirrors the interplay of oppositions in physical and biological worlds. There is reason in our animal self and madness in our human self. We seek reason in search for destiny that we absolutely abhor.

**3.15** As animals, humans live their lives according to some specific script, derived from one of many religious or social ideologies. Each ideology is a frozen view, limiting freedom. The tail of the emotional dog is perfectly rational; the animals of the wild act according to their nature. Our being has automaticity at as many levels as we can think.

**3.16** Freedom is the capacity to choose one of the ideologies, although one becomes a prisoner as soon as one has made the choice. Creativity is the capacity to

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jump across the ideologies to connect to the archetypal patterns of existence and appearance.

**3.17** Recursionism is also at work across space, time, function, and form for processes of generation and transition. Evolution is a manifestation of recursion in increasing complexity.

**3.18** The process of recursion works across many levels, creating multitude of appearances at the level of the individual minds and in their many narratives.

**3.19** Unity exists on different levels of manifestation. Order becomes apparent in the background of chaos when we identify the appropriate scale on which the phenomenon is projected.

**3.20** Globalization is a recursionist process that is transforming the world system into an organism with components that have extreme specialization. The war against the other, that characterized colonial expansion, will be replaced by war against previous selves. Rather than war to capture physical space and property, the new war will be to dominate history.

## 4 Names of God

**4.0** Language is the concern of being. Its expressions are the snapshots of the continuing transformations around us.

**4.1** The universe as a collection of past, present, and future, both real and imagined, is more than just the physical world. Since there exist numerous individuals, and each individual has many minds, there are, in reality, numerous universes.

**4.2** Given the multiplicity of minds in the universe, there can be no single law, unless this multiplicity is the projection of a single consciousness. Given also the primal urge to expand, struggle for different visions of the universe, both past and future, cannot be avoided.

**4.3** Through the prism of becoming, reality looks much different than from the prism of being. The unstated glue that joins the sentences in a narrative holds many clues to its meaning.

**4.4** *Names of God.* There are those who insist that God has a specific name, and if you don't know it then you deserve to be killed; others, who demand that one must wear the right shoe first; and others who insist on the singing of specific songs, in a particular fashion.

If you agree to conform to the sensibility of the proselytizer, you are safe. You then have to stop singing the songs you sang before, and sing new ones. You have to eat certain foods, and not eat certain other foods. You have to believe in new fairy tales, and forget other stories you had heard as a child.

But it must be granted that underlying aesthetic sensibility is the idea of one's place

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in the universe and the relationship between man and Nature. Somehow this idea gets projected in attitudes that define how we do things.

What does it mean when it is said that one believes in God? Since we can rehearse faith only in terms of words or images, it is often the idea of someone in the sky observing the world. God is viewed by some as being jealous and vindictive, by others as forgiving and loving. Those who abhor images give the greatest value to sounds -- or a specific name that has come down the generations.

Others really speak of the “prophet” -- the person who claimed to have heard the message straight from God or his angel. In such traditions, God does nothing; the “prophet” intercedes when decisions are made.

This God is normally powerless, but at some future time when the dead are to be raised, the “prophet” intercedes with him as to who should be sent to heaven and who to hell.

The focus is on the dead, on afterlife. To the extent it is about the living world, it is to dispatch those who don't believe in the “prophet” to hell as soon as it can be done.

The belief that the afterlife depends on the work done for the prophet here on earth leads to a particular attitude and much energy.

Because one will be raised from the dead, it is necessary to bury the dead. In such a conception where the God is busy keeping tabs, there cannot be an infinite universe. And overseeing God cannot brook images to be made by anyone because that would be a challenge to his powers of creation.

**4.5** In our strangely split world, we see the machine-like physical universe which is subject to laws, as well sense the freedom of spirit and action. A part of our understanding is based on a consideration of the past, of efficient causes, but as individuals with hopes and aspirations, we do not dismiss insight that emerges out of a consideration of final causes related to the future. These two sides are complementary to our experience of the universe.

One side is that of conventional science, and the other is that of spirituality. Mind, the instrument of our knowledge and experience, straddles these two sides of reality, and if we did understand it we will be able to broaden the arena of science beyond its current limitations.

One may speak of God, who represents the spirit, the understanding behind reality. When conceived as a multitude, the gods are first and foremost the constituents of the individual's consciousness. They may be seen as the precognitive and cognitive canterers in the brain, or the archetypal projections of an objective consciousness on the subjective mind.

Consciousness is awareness of the external world, of the self as an entity, and of one's inner thoughts and feelings. These three aspects lead to outer sciences, spirituality, and psychology, respectively.

We know now that mind is not to be viewed as a computer that responds reflexively to stimuli. The brain has considerable plasticity, and it reorganizes itself in response to inner and outer processes. Since each one of us has unique experience, the mind constructs a reality that is unique for each individual.

Mind's agency expresses itself in many unexpected ways. As a result of injury to the brain, a person may lose the capacity to see colours, recognize faces, comprehend speech, read maps and, most astonishingly, to read while still managing to write -- so long as he is not looking at the paper.

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Consciousness cannot be denied to a prelinguistic infant or to a deaf-mute, making it clear that language is not essential to it. But subverbal awareness is different in quality to one that is accompanied by language and inner dialogue, indicating that consciousness is an extensive property, that is, it has form, quality and degree associated with it.

During ordinary awareness we take our consciousness so much for granted that we are unable to comprehend its true nature. It is when we pay attention to those whose consciousness is different from ours that the majesty of it becomes apparent. When we look at the ways of the children and the very old, or of those from different cultures with different beliefs, and of those whose minds are “broken” or put together in a way different from our own, we become aware that we know very little about consciousness.

Neuroscience offers us one kind of lesson regarding the nature of the mind, a lesson related to its working as a complex machine. More specifically, we learn what happens if parts of this machine are missing, and this lets us infer mind's character and, strangely enough, it turns out to not to be machine-like at its core. It also provides understanding of the stages in the development of the minds of children. The conscious spirit has thus been described:

*He is never seen, but is the witness;  
he is never heard, but is the hearer;  
he is never thought of, but is the thinker;  
he is never known, but is the knower.*

*There is no other witness but him,  
no other hearer but him, no other thinker  
but him, no other knower but him.*

Cognitive deficits show that mental capabilities are localized and decentralized, and that the mind constructs its reality. This reality is based not just on abstract and mechanical rules but also on personal, emotional factors that incorporate judgment and feeling. Without this element of feeling we would behave like robots.

**4.6 *Phantoms.*** A person accidentally cuts off his right index finger but he cannot shake off the phantom of the finger, rigidly extended as it was when it was cut off. The person doesn't want to bring his hand to his face, afraid that he may poke his eye with his phantom finger. Amputees with artificial lower limb need to incorporate the phantom into their body image, lacking which walking is not possible. Phantoms feel real pain.

In anosognosia, patients have a difficulty in recognizing their ailments. A patient whose left arm and leg is paralyzed may insist that his paralyzed limbs are functioning normally, even immediately after failing to perform a simple task.

Experiments have uncovered other tricks played by the mind. In one study, subjects were asked to flex the index finger of their right hand suddenly at various times of their own choosing while the electrical signals in their brain were being recorded on an EEG. It was found that there was a gradual build-up of recorded electric potential for a second or a second and a half before the finger was actually flexed. This indicates that the conscious mind takes over a second in order to act. In contrast, the automatic or reflex response -- as in the blinking of eye to a light flash -- is over five times faster.

In another experiment on patients undergoing open brain surgery, it took about half a second to register a stimulus applied to the skin, despite the fact that the brain would have received the signal of the stimulus in about a hundredth of a second and the pre-programmed reflex response takes only about the tenth of a second. In other experiments, regions of the somatosensory cortex were stimulated after the touching

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of the skin. If the electrical stimulation occurs about a quarter of a second after the touching of the skin, then due to “backwards masking”, the touching of the skin is not felt at all. The conscious perception may be masked by a later event so long as that event occurs within about half a second. There is further evidence that the experiencing of time in our consciousness is delayed by about half a second by the conscious self.

If the mind sequences events irrespective of their objective order, it is to be expected that it also creates other aspects of reality. Dreams join these fragments of imagination to create their own universes. Cognitive centres do not only reveal to the mind, they also conceal by agnosia, caused not by injury to the pathways in the brain but by deliberate forgetting.

The phantom limb phenomenon shows that the mind keeps a map of the complete body even when a limb is missing. It is this process that codes objective truths which may be inferred by looking within.



## 5 Mimic Worlds

**5.0** Mimicry exists across levels, but it requires sensitivity and care to notice it.

**5.1** Animal behavior has its recursive nature, or part-whole hierarchy. Animal societies are “superorganisms.” For example, ants in an ant colony may be compared to cells, their castes to tissues and organs, the queen and her drones to the generative system, and the exchange of liquid food amongst the colony members to the circulation of blood and lymph. Corresponding to morphogenesis in organisms the ant colony has sociogenesis, which consists of the processes by which the individuals undergo changes in caste and behavior.

**5.2** Recursion may be viewed all the way up to the earth itself seen as a living entity. The earth itself, as a living organism, may be viewed like the unconscious brain. Paralleling this recursion is the individual who can be viewed as a collection of several “agents” where these agents have sub-agents which are the sensory mechanisms and so on.

**5.3** The continuing reorganization is a response to the complex of signal flows within the larger system. Hormones and other chemical exchanges among the members of the colony determine the ontogenies of the individuals within the colony.

**5.4** Another fundamental communication within the superorganism is the one that defines its constitution. This, much slower process, may be seen in the founding of the ant colony by the queen, who governs the process of caste morphogenesis. Within the new colony, the queen, having just mated with her suitors shakes off her wings and digs a little nest in the ground, where she now is in a race with time to

produce her worker offspring. She raises her first brood of workers by converting her body fat and muscles into energy. She must create a perfectly balanced work force that is the smallest possible in size, yet capable of successful foraging, so that the workers can bring food to her before she starves to death.

**5.5** The queen produces the workers of the correct size for her initial survival and later, after the colony has started going, she produces a complement of workers of different sizes as well as soldier ants in order to have the right organization for the survival of the colony. When members of a specific caste are removed from an ongoing colony, the queen compensates for this deficit by producing more members of that caste.

**5.6** The government of a society constitutes classes in a reflexive manner to fulfill the need for proper functioning. If the governing myth of the society is a single god, this will be mirrored by the creation of a dictatorship. Democracy, with its several competing power centers, cannot be imposed on a mono-god culture.

## 6 Masks of Power

**6.0** The body has its own rhythms that are indifferent to the wishes of its resident spirit.

**6.1** Men and women in their mutual attraction are driven to the very emptiness they are trying most to avoid.

**6.2** With the progression of time, the male component progressively becomes weaker compared to the female. This happens both at the level of the individual and society.

**6.3** Boys are raised to be the other of girls and women. Since there is no single female prototype, this creates confusion and anxiety. The position of the female in society sets up the grammar for its dynamics. Societies where women are hidden behind veils create especially powerful self-doubt in the male.

**6.4** Boys are a part of the women's world before puberty; they spend much time in the company of female relatives and teachers. They are snatched from this secure world in different ways in different cultures. In cultures where women are segregated, the description of heaven recalls this world of females.

In some tribal cultures they are physically removed and their face slashed as a mark of passage from the world of women to that of men where childhood games are now replaced by war raids. In capitalist society, they are crushed under debt for education, which they can escape by soldiering for war, or gambling at the stock exchange. Boys – and men – fight very hard for ribbons.

**6.5** *America and exile.* America entered my consciousness first through the photographs of construction workers on the walls of a skyscraper -- looking

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fearless, laughing at the frozen traffic of the street fifty-odd floors below -- in an old encyclopaedia at home. My mother had received a part of the set, and of these the American volume was the most interesting. Lacking other books, I went over this volume again and again, and with each new visit the subjects of the photographs appeared bigger, until America became a mythic presence.

It was not just the tall buildings that were impressive; it was also the endless space, desert and emptiness. At that time, not knowing better, I took its spirit to be the counterpoint to that of my Kashmiri childhood, unfolding through ancient custom in small houses and narrow alleys of old places, hallowed by the memory of countless generations.

It was only later I realized that the secret behind the beauty of America was no different from that of my own valley -- the secret lay in how they intimated to us our terrifying aloneness.

And after I had lived in America for several years and become a father, I learned that beauty and aloneness have another side, that of solace and sanctity. I understood that the comfort of the security blanket of the baby came from a reification of sacredness, the desperate cries for mother in face of seeming abandonment investing the clutched blanket with its magical power.

Children eventually outgrow the security blanket. In reality, they exchange it for other things that soothe fresher wounds. In place of the fantasy of a secure space arises the more aggressive fantasy of dead enemies. The sacred slowly expands its domain to litany, kneeling, affirmation of faith, and paradise.

Of the many forms of the sacred, those of total abandonment and total concealment are the most powerful -- more than the skirt of the minister and the mullah, the ashes and the saffron shawl of the swami. But I didn't know this in the Kashmir of my boyhood. It was then a place of sober moderation where people went through

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their ritual out of habit, without passion. Propriety counted for everything. The breast-beating of Muharram was a gentlemanly affair; I was to see the bloody frenzy with knives and chains much later in Ladakh.

One common vanity was the burqa of the women in the bazaar, but it covered only partially, without sanctimony. These were poor people who wore their piety to show off that they were more religious than they actually were to strangers, to earn anonymity from people who did not care for them.

We were innocent then, building our worlds out of the fragments of old habit. A distant relative lost his job soon after he was married. Every morning he left home - he lived with his parents and his bride -- with a packed lunch and briefcase and took the bus to a park, where he spent the entire day. Relatives knew his situation, but he carried on with the charade because he did not wish his wife to know, for fear of losing face. She actually knew, although pretended otherwise. This went on for several weeks, fooling no one but strangers in the bus and the bazaar.

An evil wind has since destroyed that old simple Kashmir. I had a premonition of this disaster on a visit fifteen years ago in the averted eyes, in the barely concealed rage in people I had known before. It was a rage unlike the one that sprouts from a personal wrong. It was like a fog that hung over the place in heavy layers, covering everyone, even those who would normally be happy in their own world.

That's when I saw the total shroud. It was not the badge of poverty of the burqa of my childhood, but a covering that hid everything excepting the eyes -- a sign of nameless passion by stylish women who wished to be the usherettes of a terrible, retributive revolution. They were not like the women I had grown up with, nor those I had seen in the Middle Eastern airports who threw off their veil the moment the plane took off beyond the reach of the moral police.

The total shroud may appear similar to the mask, but isn't. The mask arouses

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temptation and fear; it makes the reveler anonymous, as it did in the frenzied worship of Dionysus. The shroud separates the worlds of men and women, to limit possibilities here so that one may dream of paradise -- there can be no arrival or transformation, only rage, dislocation, wistfulness.

I thought of times long gone by when the Church opposed masks, fearing they tampered with human appearance and invited idolatry, disingenuousness, and the devil. It was actually a turning away from the real world that made the best live their lives only for the hereafter.

The dam of rage broke several years ago. People were killed and exiled. Those who were left behind faced a naked fear that unhinged the minds of many. The crazed became totally passive, not even wishing to wake up in the morning, or they got into murderous fury.

Music, dance or song could have healed but they are taboo for many? Religious passion was then cooled by a voluntary forgetting, a refusal to see things for what they are, by an agnosia like that by injury to the pathways of the brain. A stage arrived when one hid one's own experience from oneself and even falsified things and history, only revealing them, through hints beyond conventional forms and words, by an excessive sentimentality and repetitive motions.

The landscape of my childhood memories lay defiled and I sought a place for myself where I could be connected to new sacred ground. America, in spite of its vast spaces, lacked the sanctities that spring from the magic of childhood not merely one's own, but also of forefathers. Even more, America was the region of worldly contest.

Now that war has come to the shores of America, its certainties appear naive, and the contest has lost its excitement. Strangely, after it has become like all other

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lands, I know why I didn't find the place I sought here. I couldn't find it because it lay all along in the world of my own heart.

**6.6** If the heart sorrows over physical loss, the spirit rejoices over hope of understanding.

**6.7** Our concerns are mostly the opinions of others. There is recursion in the world of thought.

**6.8** Too much of understanding may lead to suffering, but out of that emerges compassion.

## 7 Worship of Many Gods

**7.0** A society that limits expression and creativity will correspondingly be constrained in its creativity as well as its organization.

**7.1** The origin of the idea of democracy in ancient city-states of Greece and India had something to do with the worship of many gods.

**7.2** The heart of the desert monotheism is its injunction against images, its tribal laws, and its tendency to submission or revolt. The West has abandoned this heart. In it, religion is now confused with the Euro-American historical tradition. Popular culture is the new Babylon, television the new temple. America is the successor to Rome and not to the Papacy.

**7.3** Another difference between paganism and monotheism is humour. The monotheistic god is an angry one and any insult to it leads to quick retribution. In contrast, pagan gods are playful and you can make fun of them. Paralleling this, the pagan king had a clown to bring him back to earth should he become too arrogant. In our own pagan world, we have TV clowns belittling the president and the religious elite.

The most conservative religious leaders have seen the writing on the wall as far as the segregation of sexes is concerned. Neither will people give up their TVs or their glossies. Images will not be banished -- in the struggle between the word and the image, the image has won a complete triumph.

**7.4** Only one idea of monotheism, that is centralization of authority, lives on in many parts of the world. But centralization of decision-making will not work in the long term because the decision-maker is swamped with so much information that the decisions become arbitrary.



**7.5** Communism, correctly seen as a mutant form of extreme monotheism, collapsed because of the information-swamping problem. But communism had one additional weakness. As the religion of dialectical materialism, it had no cosmology for life after death.

**7.6** Europe has resurrected its pagan gods. Rather than praise Athena, Sophia, and Apollo as in Greece or Durga, Sarasvati, and Vishnu as in India, Europe and America praise Security, Education, and the Constitution. It is the same thing; only the representation of the abstract idea has changed.

**7.7** Monuments to modern gods are being built. Images are used, as in the Statue of Liberty or the symbols of the pop culture. The method of worship has changed, no doubt, but the style of worship only reflects contemporary aesthetic ideas, which change from age to age. The new paganism has its strongest temples in colleges, universities, theater and film.

**7.8** Countries with their own pagan traditions will resurrect their gods in their own way to make peace with the modern age. The change will be harder in places where the memory of the gods has dimmed. For those where the past has been completely obliterated there will be extreme dislocation. Even in places where the past lives on just below the surface, the transition will not be easy. Since elemental passions are involved, there will be war.

## 8 Prison Rodeo

**8.0** Suffering is a consequence of ignorance of one's own nature and that of the larger plan behind the process. It is the pain of imprisonment, and of darkness, the pain of taking the *being* rather than *becoming* as primary to reality.

**8.1** Suffering also is due to the stopping of the natural process of expansion and recursion at the individual and societal level due to the conflict with similar urges of others. A society that does not allow natural expression, like that of music, dance, art, and science, will spread suffering in its fold.

**8.2** Suffering can be eliminated by being free, by mindful and creative action, and by compassion for all.

**8.3** Inaction, to avoid conflict, does not lead to fulfillment, which requires facilitation of the process of recursive evolution. One must look not only at one's own salvation but that of all other beings.

**8.4** *A prison rodeo.* I was at a rodeo the other day. Organized in a large, high-security prison, it was a fund raiser for prisoners so that they could continue to ride horses and run their workshops. The prison itself is situated on high ground and the prison property is so large that you can see the skies to the horizon in all four directions.

After entering the main gate the road slopes gently upwards for miles, as if this were the navel of the earth. The vastness of the grounds, very little tree cover, high watchtowers and a razor-topped wire fence around must make the inmates feel that they are at the end of the world.

The actual accommodations of the inmates are a cage to compel the beast in the prisoner to submit to the stronger will of society. The reward for good behaviour is

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permission to work in the workshops.

Some may not like the characterization of the beast within, but I believe that not only the criminal but the rest of us also have an animal lurking within who is kept in check by fear of retribution and the civilizing force of culture and habit. The rate of incarceration is different from nation to nation and it seems to set the tone for civil behaviour. Currently, there are about 800 prisoners per 100,000 people in America and perhaps less than one tenth in most other countries.

In the rodeo, the stands were packed with visitors from far and wide. One section was separated by chain link fence from the others; this is where the prisoner-spectators sat. Other prisoners in striped shirt uniforms were helping in the supervision of the show, some others were participants in the rodeo competitions for pride and good points.

There were stalls where one could buy handicrafts including leatherwork, clocks, and woodwork made by the prisoners. Food and drink stalls sold hot-dogs, hamburgers, funnel-cakes, cotton candy, ice-cream and other treats to entice young and old.

It felt somewhat like a village fair, but not quite so. The difference was perhaps the nature of the contests the rough rides, and the riders being thrown, trampled upon, and gored. In one contest, four “poker players” sat a table in the arena and a frightened bull was let loose, the victor being be the person who moved last. The bull was goaded to attack the players and he tossed the players, one by one, several feet into the air with his horns. There was something in the air reminiscent of the contests of ancient Rome.

Many participants were limping or walked stiffly, a few were carried away in stretchers. Some, in spite of obvious injuries, kept on returning, driven by jailhouse bravado.

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The rodeo is one of the few places in modern living where we see animals and men interact on somewhat of an equal basis. The zoo does not achieve this because of the asymmetry of its situation. These apart, the modern man knows animals from TV shows or as pets, or from their packaged body parts in grocery stores.

Animals in the wild or captivity experience emotion of love and anger, suffering and loneliness, jealousy and disappointment. Animals are curious, they worry, they hate, and they anticipate happiness. I have personally seen a bull separated from its long-time companion shed big tears in obvious grief.

If we don't interact with animals, how would we know if there is an ethical way of treating them? Granted that all life is part of a food-chain with the larger and the more powerful consuming the smaller and the weak in logic of fishes, don't we still need to ensure that there is no unnecessary cruelty and violence in our interactions with them?

I am not one to argue for absolute non-violence as even farming requires the killing of worms and pests. Neither do I argue for vegetarianism, although a case for vegetarianism could be made based on production efficiency and on compassion for life. But not everyone has the same sensibility and, therefore, there should be no compulsion in dietary matters.

One could base the treatment of animals on the principle that each species should be allowed to live in conditions as natural as possible. It is only in such conditions that we could hope for the animal to realize its biological purpose. There may be important lessons to be learnt about nature of mind, behaviour, and biology that could be invaluable to man's own survival. Being compassionate to animals is not entirely altruistic.

On the other hand, treating animals with cruelty not only dulls our own sensibility

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but may also lead to dangerous diseases. Giving cows feed made out of dead cows led to the incurable mad-cow disease.

Until recently, man and animal lived in some kind of equilibrium. Everyone saw death, both of one's own kind and of animals in ritual slaughter and in hunting. The mechanization of raising and killing animals has destroyed this equilibrium.

Animals are raised in factories, in most unnatural conditions. Their diet is unnatural. Beef cattle in the United States are raised at feedlots after they have turned six months old. Here in further eight months they are fattened to over twelve hundred pounds and then slaughtered.

The feedlots are like enormous cities of cattle with tens of thousands of residents. They are taken off hay and grasses and fed corn, antibiotics, steroids, and vitamins (which may be animal in origin).

The sanitation is shocking. The animals wallow in their own refuse and a cloud of fecal dust hangs around. The digestive system of the animals is not suited to the corn feed and it leads to several diseases which are kept suppressed by the steady feed of antibiotics. American houses and cities might be clean but where the animals are grown is horribly unclean.

Similar animal factories are being used to raise chicken pigs, catfish where these animals hardly ever move once they are born, because of the crowding.

**8.5** Those who oppose human suffering must also oppose inflicting pain on animals. But animals in military, scientific, and commercial enterprises are often put through unnecessary pain.

The treatment of beef cattle in meat factories is ethically indefensible and it has arisen out of a system of subsidized corn production and relentless and mindless

pursuit of profit.

It has been calculated that to fatten a steer in eight months of stay at a feedlot requires corn raised with the help of fertilizer made out of about 280 gallons of oil. Since oil is extremely cheap in the US compared to Russia and Argentina, the meat produced in those countries cannot compete in price. Fossil fuel based agriculture in the US may have contributed to the collapse of the Soviet Union and the continuing crisis in Argentina.

During pregnancies sows are confined in stalls that do not permit them to turn around and walk to and fro. The veal calf will spend its whole life constrained to a pen so its anemic muscles will remain tender when butchered. This calf is not even provided enough space to lie down.

**8.6** These horrors must not be allowed to continue. The public should insist that animals are raised in hygienic conditions where they are not required to be given antibiotics everyday. People should be prepared to pay somewhat more for their meat. It may even be good for people because since obesity has become a modern curse.

**8.7** The workings of the modern meat factories warn us of the danger of globalization. Logic of efficiency taken to extreme limits without regard to humaneness and compassion can create conditions that deaden the soul. That reduces us into an existence no better than that of animals.

**8.8** Industrial processes applied to living beings create demoniac structures that consume everything in their wake. Their culture is obsessed with facts, but it lacks wisdom or imagination. It is these structures that we must fight for the sake of humanity.

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**8.9** We cannot hope to reduce personal suffering if we don't have compassion for animals and approach all life with reverence. We are the stewards of the earth and we must live up to our responsibility.

## 9 Modernity and Tradition

**9.0** Modernity is associated with the idea of industrialization, a strong nation-state system and identity, progress, rationality, reason and objectivity that emerged in the mid-eighteenth century Western Europe. All this sounds great, but there is a price to pay. Mechanistic logic in human affairs results in oppression and regimentation, objectification of life, and alienation and loss of freedom. From it arise self-hate and destructive behaviour.

**9.1** The end of Cold War led some to announce the end of history; in reality, it only intensified the struggle in different societies between modernity and tradition. In the US, the right has exploited the deep unhappiness with the oppressive aspects of modernity by promoting its economic and social agenda as a palliative, when, in reality, its policies promote further “industrialization” of human affairs. The right’s prescriptions may be false; but it is winning because the left has not come up with a consistent argument to counter it.

**9.2** Meanwhile, “industrialization” of human affairs marches on, facilitated by new technologies. This globalization is not only in the spread of American pop-culture or control of increasing public space by the multinational corporations, it is also in the practice of law, which in traditional society was quite decentralized. Modernity in the legal sense is the notion that only the state or the sovereign can lay down the body of rules for citizens to follow. Here it draws from the tradition of the Christian Church with its claim to be the sole interpreter of law.

**9.3** The resistance of Muslims to westernizing modernization is natural, given that it sees itself as a revelation that supersedes Christianity. But the agents of westernization have been surprised by the claims of other non-Western societies for validity of their culture and attachment to their own social and legal arrangements.



**9.4 The Matter of Law.** The modernist is puzzled because he does not understand the Hindu tradition, a situation getting worse due to the declining knowledge of the classical foundations of this tradition. According to Werner Menski in his *Hindu Law: Beyond Tradition and Modernity*, “Hindu law today must be seen as a postmodern phenomenon, displaying its internal dynamism and perennial capacity for flexibility and realignment.” Menski argues that the modernist reading of the tradition is a caricature, perpetuated because “studying Hindu law is often seen as regressive activity.” Menski adds:

*Anything ‘Hindu’ is quickly denigrated in many ways, not only by many followers of the monotheistic religions, but also those who imagine and assert that a modern world, by which is often meant a Western-inspired world, can do without so-called primitive religion and cultural traditions. Lawyers (as well as more recently whole cohorts of diasporic Indian scholars)... have had specific reasons to argue for modernity. Colonialism added its own ideologies and arguments to subjugate not only Hindus, but also Hindu law, all in the name of universalistic legal constructs.*

*In the complex process of scholarly manipulation, many scholars have engaged (often unwittingly) in misleading and sometimes simply wrong representation of Hindu ‘tradition’. Prominent amongst these misrepresentations is the assumption that ancient Hindu texts ‘prescribed’ certain rules, which even infects the most intricate subaltern writing.*

In recent years, arguments such as Menski’s have been criticized by the modernists as being dangerous because they provide support to the political right. But that is a false argument because the political right in India has not analyzed civilization dynamics in terms of the push and pull between modernity and tradition. Indeed, the right’s insistence on a common civil law for all Indians is inspired by the modernist ideology as are its many policies that promote centralization. The right has mostly been

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reactive, fighting at best for symbolic gains, hoping –erroneously, as it found to its grief -- that these would suffice to ensure victory at the next election.

The stakes are very high since they have implications for the manner in which India will be able to respond to the pressures of globalization. Menski reminds us:

*Arguments about the inherent political incorrectness and modern irrelevance of Hindu law have conveniently forgotten that the so-called modern traditions have their own roots in specific Western cultural and religious traditions. So how could Indian be called upon to ‘modernize’, if that simply meant, at one level, shedding the social and cultural concepts that make up the fabric of the various hybrid Indian identities? How can hundreds of millions of Hindus be expected, let alone forced, to abandon Hindu law?*

*Modernity, calling on all ‘others’ to assimilate to the supposedly higher, apparently secular and ‘modern’ value system represented by the West, amounted to thinly veiled pressure to abandon various indigenous traditions and convert to the supposedly universal notions of modernity. In other words, modernity expected and demanded unidirectional assimilation to alien lego-cultural norms and models, and a stepping outside of one’s own inherited traditions. It demanded de-Hinduization, abandoning of Hindu customs, habits, and traditions. While modernity was, at one level, not concerned about religion, it expected the modern world citizen to be of a secular disposition, thus seeking to prescribe one particular religious perspective as appropriate for modernity.*

Since the modern university is a vehicle for westernization, with hardly a representation for those who are schooled in the Indian classics, there hasn’t been a proper debate on identifying the proper tension between modernity and tradition in the Indian context. This is one reason the state has been paralyzed in making legal reforms, and has ceded decision making in many spheres to the judiciary.

**9.5 Modernity and Temple Administration.** It is in the relationship between the state and religion that the lack of clear thinking becomes most apparent. Observers of recent Indian history express incredulity at how the Indian state (whether ruled by the left or the BJP), which professes to be *secular*, has taken over the management of most Hindu temples. This has proceeded in the face of corruption, and diverting of the temple income for non-religious purposes, or even for the maintenance of religious institutions of rival religions.

Typically, the government creates trusts to run these temples, with active management entrusted to officers of the Indian Administrative Service, with the government's representatives sitting on the board taking decisions regarding where the income is to be banked (gaining kickbacks from the banks in the process) and how it is to be invested, and even the sale of temple properties. Naturally, these bureaucrats have no interest in any larger vision associated with the temple.

In spite of its numerous shortcomings, the medieval temple included all *jatis* as stakeholders in a complex system of obligations under the *yajamani* system. But that is not the case with the government controlled modern temple, where the bureaucrat is the supreme authority. Operating in a system without appropriate checks and balances, it is easy for him to succumb to greed. For such an officer, who is on a temporary assignment as a temple chief, there is no incentive to look at the larger role of the temple in the community, and he, at best, is an instrument of the *status quo*. Such temples are not the harbingers of social change that they should be.

A few months ago, I heard from one of the government trustees of the Vashno Devi temple in Jammu, who was visiting the United States. He wanted some advice on how to go about recruiting faculty for the newly established Mata Vaishno Devi Temple University, of whose existence I was not aware until that moment. He explained that the government had decided to create this university with the income of the Vaishno Devi temple; this university, it had been decided, would focus on information technology and biotechnology.

I asked him why the university, which is being run on the donations of the pilgrims, did not include Hindu religious studies on its curriculum. He said since the university operated within the parameters of a secular state, it could not teach any subject related to Hinduism. The bottom line: the donations of the pilgrims support activities that have nothing to do with the pilgrimage.

The control of the Hindu temples by the government, when the mosques or the churches have not similarly been taken over, is defended on the ground that the modern Indian state is the successor also to the earlier pre-British Indian states where much of the great temple ritual was around the person of the king. The chief ministers, being the democratically elected successors to the kings, are within their rights to continue with this tradition irrespective of what the Constitution says.

Meanwhile, many Hindu groups have begun agitating for the Hindu temples to be restored to the Hindu communities. If there is need for a better legal and administrative framework for the running of temples, they demand that all Hindu communities are made stakeholders with complete separation between the government and the management boards, with the judiciary to act as referee in case of dispute.

The modernist reading of the tradition is a caricature. The modern university is a vehicle for westernization, with hardly a representation for those who are schooled in the classics of other people, with the result there hasn't been a proper debate on identifying the proper tension between modernity and tradition.

**9.6** The control of institutions by the bureaucracy is only a small part of the larger war for individual freedom. If government control over production led to totalitarianism in the twentieth century, now the danger is much greater.

Technology makes it easy for the state and multinational corporations or even guilds to assume unprecedented power over not only production but also distribution. This

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power is likely to be exercised in neocolonial control of national economies and natural wealth; meanwhile, it is being increasingly applied to the last frontiers before man, the human body and the mind.

**9.6** Western medicine has become a hand-maiden to pharmaceutical firms, resulting in the vast majority of Westerners becoming dependent on some sort of medication.

**9.7** Globalization has led to the use of media and marketing theory to sell organized religion and to separate individuals from their traditions and cultural history.

But our age of confusion is also an age of enormous promise. One hopes that out of the current conflict will arise better understanding and compassion and more freedom for people everywhere. But this will be, at best, a rocky road.

## 10 Endangered Future

**10.0** For five hundred years after Columbus reached America, Europe expanded by colonizing new territories around the globe. This expansion peaked about fifty years ago. In 1960, one-fourth of the world's population was of European ancestry; in 2000, it is one-sixth; in 2050, it is expected to be less than one-tenth. The average fertility rate of European women has fallen to 1.4, which is much less than the 2.1 needed for maintaining the population.

If these trends continue, by the end of the 21<sup>st</sup> century, Europe's population is expected to decline to one-third of what it is today. In Italy, in 2050, barely 2 percent of the population will be less than 5 years old, and more than 40 percent will be 65 years or older. The situation is equally grim for Germans and Russians. In France, more than twenty percent of the children are of immigrant groups. Europe will become a new melting pot consisting of major groups from the Arab world, Africa and Asia. The United States will likewise be transformed.

**10.1** As the native populations age, the burden on the youth to support the pensioned will become increasingly severe. The only way out would be for Europe to allow even more immigrants to man factories and offices. Clearly this would have far-reaching impact on Europe's culture.

**10.2** The liberals consider it politically incorrect to speak of this demographic problem, yielding free room to the right to define the issue. The conservatives have played on the public's fear of a collapse of the culture of the West, although it is kept out of public discourse. Since the left does not deal with it, the right is only getting stronger politically.

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**10.3** The situation has been blamed the West's declining populations to fall in morals, lax immigration, and social programs that take away the incentive to have children.

**10.4** It is to counter these dangers that the conservatives wish to weaken the state; progressively shift education of children from the public arena to church-run schools; and ensure that the school curriculum remains west-centric.

**10.5** The share of the European portion of the world population increased during the colonial era, and if it is going down now, it is because the rest of the world is yet to go over the development hump that the West has crossed. They claim that the fertility rates will go down everywhere, and the world's population will reach a stable value.

**10.6** The reality of the situation is much more complex than the critique of the conservatives. First, culture in the West has been changing for reasons other than immigration or social security also. Witness, for example, the musical tastes or sexual mores now, where what is considered the norm now would have been frowned upon a half-century ago.

**10.7** Much of the change of the culture is driven by new technology. For example, the birth control pill revolutionized sexual mores. Man's control of nature is also taking the mystery out of life.

**10.8** Man is increasingly living in artificial environments, out of touch with the rhythms of nature.

**10.9** Some cultural anthropologists are comparing the situation with the deliberate

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introduced by Western oil companies, the tribe has threatened to jump to death over a high cliff.

**10.11** There are many ways to commit collective suicide. With their traditional way of life destroyed, the Pacific Islanders are eating themselves to death. Fully three quarters of the adults in Nauru and Samoa are obese, and afflicted with ailments that were earlier absent.

**10.12** There are many who see in the present trend the same dangers that took Rome to its fall. In just a few decades after it was the master of Western Eurasia, Rome was so decimated by disease, famine, and infertility that it submitted willingly to the sword of the barbarians.

Globalization will lead to manufacturing and computing jobs to increasingly relocate to Asia. It is not certain that the West's economic security will be guaranteed by its dominance of the financial and the knowledge industries alone.

**10.13** Edward Gibbon in his famous history on Rome's fall wondered if the end was inevitable. Historians have suggested that increased state control had weakened the empire.

The concentration of power in the hands of the medical and insurance establishments in the West has increased. Even more disquieting is the increasing mechanization of life that has led to a spiritual vacuum, and alienation from nature.

**10.14** If the youth do not wish to marry and have children, it is because they feel like cogs in the machine-state and are extremely unhappy. Some are joining charismatic religious groups, and some are dropping out altogether. Many are so depressed that they are rejecting logic: it has been estimated that about twenty percent of Americans believe that the world is coming to an end any day.



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The entertainment dished out by the movies and TV bolsters the sense of the mechanical nature of life. Given a pervasive spiritual crisis, it need not surprise us that people, or perhaps even communities, feel that suicide is the only escape.

**10.15** Despair does not arise out of the knowledge that we evolved from monkeys, but rather out of the pressures of the soul-less modern life.

## 11 Colonizing Body and Mind

**11.0** We may divide recent world history into three phases of colonization. First, 1500-1920, in which colonization meant physical and military control of territory, and it was characterized by conquest, slavery, and genocide of indigenous peoples; second, 1920-1990, in which rose the Marxist heresy, there was development of new systems of financial control, and unceasing war amongst colonial powers directly or through their proxies; and 1990-onwards, when, with the defeat of Marxism, colonization has come to include new territories inside man, namely body and mind.

The invention of new mechanisms to control production and distribution of commodities and information is a natural outcome of comprehensive industrialization. Since the outer world has been largely conquered, the focus is now on control of material and informational transactions. The individual is the final frontier, and the state as a daemonic force (*daemon*, meaning machine-like) strives to expand into the mind and body of the individual.

The state (directed by the government and corporations) uses its hegemonic authority to promote capitalism by celebrating it in law, religion, art, science, and cinema and by disparaging alternative ways. The mind is controlled by “education” in school and university and by corporate advertisement in the media. This creates certain images that, like little *deus ex machina*, decide for us as to what we should do, robbing us of our individual agency.

Science and medicine have made astonishing progress, but this progress has been used by hegemonic institutions to promote their own agendas. For example, the health care industry promotes the lifelong dependency of individuals on medication. The food industry place additives in processed food so that one’s hunger is increased, without

care for whether it leads to bulimia, anorexia nervosa, or obesity. Processed food and drinks leach calcium causing disease and damage to the system.

Where eating less and exercise would do, individuals are steered by advertisement towards lifelong dependence on expensive drugs or procedures such as heart bypass or stent implantation, even when they are not required. Studies have shown that there is no difference in long-term survivability whether one has heart surgery or one depends on medication alone.

**11.1** *Asuric systems.* *Asura* is a Sanskrit term for a material power. *Asuric* systems strive for increasing control over the outer and internal environments of man. For the dominated, it leads to a state of emptiness and worthlessness. When things have gone too far, there is revolt and the system collapses. Both communism and radical capitalism are *asuric* and oppressive systems.

The medical and insurance system in the US has become *asuric*. FDA, a body that is partly funded by the drug companies decides on what are “proven” treatments against different maladies. A certified medication need not bring about a general restoration of health; its effectiveness needs to be merely shown for a symptom, without concern for its side-effects.

The drive to control production and distribution of all commodities is the beginning of a new colonization. Europe’s age of colonization began with *letters patent* (open letters), which were granted by European monarchs to adventurers to discover and conquer foreign lands on their behalf. Corporations now wish to dominate the inner world of man using modern day patents.

These patents include those on certain life forms, plants, seeds, and medicines. Patents have also become a way to prevent farmers from saving seed, turning the farmer into a kind of a mechanic who has a minor role in the agri-business industry. Contrast this to the farmer of an earlier age who thought he was to protect the earth, maintain its fertility, and contribute to feeding the community.

The freedoms allowed in the radical capitalist system are not as great as one imagines. It is an improvement over communism, because one many not be killed for heretical views, but the system makes dissent pointless by an elaborate system of rules and prohibitions, and monetary penalties.

**11.2 Genetic control.** New intellectual property rights treaties, through the World Trade Organization, are trying to prevent peasants from having free access to their own seed. As even traditional uses of medicinal plants are patented, people will lose the right to grow herbs in their back yards. With giant corporations controlling farming, will damage the ecology and reduce biodiversity, with serious consequences for the future.

Edwin Black in his “War against the Weak” (2003) chronicles how American institutions such as Carnegie Institution and the Rockefeller Foundation together with the US Department of Agriculture and the State Department funded scientists from such universities as Harvard, Yale and Princeton, operating out of a complex at Cold Spring Harbor on Long Island, to create of the pseudoscience of *eugenics* that institutionalized race politics as national policy.

“Defective” family trees were identified and subjected to legislated segregation and sterilization programs in the first decades of the 20<sup>th</sup> century. It is estimated that about 60,000 Americans were coercively sterilized, and the victims included poor people, brown-haired white people, African Americans, immigrants, Indians, Eastern European Jews, the infirm. The idea was to breed a eugenically superior race, just as agronomists would breed better strains of corn, and to reduce the reproductive capability of the weak and inferior.

Those who actively supported eugenics included America's most progressive figures: Woodrow Wilson, Margaret Sanger and Oliver Wendell Holmes. The American eugenic research came to the attention of Adolph Hitler, and it may have partially shaped his ideas on race.

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The current genetic engineering is thankfully not focused on people, but its efforts in agriculture come with claims that are reminiscent of the earlier eugenics movement. For example, even though the claim is that genetically modified plants are inherently superior, there is no proof. There may be, on the other hand, great risks associated with it.

Genetic engineering goes beyond the hybridization of conventional crop breeding. In hybridization the farmer selects the two best plants and cross-pollinates them in order to create a better plant. In genetically modified organisms (GMO), on the other hand, the DNA structure of the plant is altered by introducing genes from other species and it can only be triggered by a chemical.

Transgenic organisms are not equivalent to farmers breeding because this manipulation crosses species boundaries. We cannot quite tell the dangers that lie in this process, and it may carry unneeded economic and environmental risks for the public. Genetic engineering uses artificially constructed parasitic genetic elements, including viruses, as vectors to smuggle genes into cells. Critics claim that the insertion of foreign genes into the host genome is likely to lead to harmful and fatal effects including cancer of the organism.

**11.3** A few years ago Monsanto Company developed *Terminator Technology* to develop seeds that, after one season's growth, do not germinate, forcing farmers to buy their seed for the next year's planting from them, rather than using their saved seed for the next years planting. There was an international outcry against the new technology, and in 1999, Monsanto backed off, but there are indications that the company may only be using a different strategy for greater acceptance of its technology.

Cross-pollination is causing pure lines to be contaminated with genetically modified DNA. It is being suggested that the contamination is a deliberate ploy, because once

genetic contamination reaches a significant level, it would be *fait accompli*. The total acreage devoted to genetically modified crops around the world is expanding.

Monsanto also offers genetically engineered “designer” trees and forests. It is the primary global producer of glyphosate, the active ingredient in its best-selling herbicide *Roundup*. Glyphosate's mode of action is to inhibit an enzyme involved in the synthesis of certain amino acids. It is absorbed through foliage and it is only effective on actively growing plants. Monsanto produces seeds which grow into genetically engineered plants that are tolerant to *Roundup*. The genes contained in these seeds, although naturally occurring in other species, are patented and protected by intellectual property laws. Current *Roundup Ready* crops include corn, sorghum, cotton, soy, canola, and alfalfa.

The business model behind the use of GMO crops consists of the following conditions for the farmer:

- Cannot save and replant Monsanto's genetically engineered seed.
- Must use Monsanto's proprietary chemicals.
- Must comply with Monsanto's confidentiality statement.
- Must pay Monsanto of technology fee of \$15 per acre every year.
- Must allow Monsanto to monitor the entire farm for three years after using patented seeds.

Farmers have been arrested in the US for using seeds from the previous year's crop for next planting. Manipulation and control of genetic information carries with it the specter of *Brave New World*. With corporations controlling not only economic transactions but also the genes of future generations of individuals, fear is created that people will become serfs of the corporate empire.

**11.4 Drug patents.** The pharmaceutical industry sees drug patents as a means to dominate health care. The U.S. legal code recognizes that a patent is a type of property, and a drug company has the exclusive right to use, control and profit from a

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patent for a 20-year term. Patents make drug companies monopolies. But this has made the price of drugs so high that proven treatment for many diseases is not being provided in the poor countries. High prices are forcing old people to choose between drugs and food.

The International Intellectual Property Alliance (IIPA), a coalition of seven powerful US trade associations, was formed in 1984. It pressured the US Government to pass the Special 301 legislation in 1988 which makes countries that do not subscribe to intellectual property protection (IPP) subject to stiff tariffs. Mexico was forced to accept IPP as the condition of entry into NAFTA.

To make drugs affordable for the poor, drug companies could use the strategy of charging more in places that can afford it and less in places that can't. But they are afraid of arbitrage: if a pill costs a dollar in Tanzania but \$1,000 in New York City, there's strong incentive to smuggle it from Tanzania to the US. To make things worse, drug companies are using ploys of ancillary patents to extend the life of the patent beyond its normal period.

Some relief was provided by the 2001 Doha Declaration on the Trade Related Aspects of Intellectual Property Rights according to which a WTO member may infringe on a pharmaceutical patent in case of a "national emergency" or "extreme urgency" as in the case of epidemics. The "least developed: countries were given further relief until 2016.

In 2000, the U.S. Agency for International Development started funding a \$1.2 million technical-assistance program administered by the Commerce Department. As part of the program, the Commerce Department sponsored Nigerian officials and lawyers to attend two patent-law writing conferences. The draft legislation that emerged had intellectual-property protections exceeding those required by the World Trade Organization, and critics accuse the US of having influenced the outcome.

The US government is also using bilateral and regional trade agreements outside the WTO to pressure developing countries to implement TRIPS-plus standards. (TRIPS or Trade-Related aspects of Intellectual Property Rights, is an Agreement drawn up by the World Trade Organization to ensure intellectual property rights are respected within international trade.)

**11.5** What happened in Nigeria is being repeated elsewhere. In India, the government just issued a decree changing the rules of the game in a manner that favors international drug companies. The attempt for domination by the drug industry is of historic importance.

The Indian ordinance still needs parliamentary approval and, there is some chance that the decree will not become permanent. It is an issue that has the potential of uniting Indians from across the political spectrum. Indian pharmaceutical companies have thrown in their weight behind the rule change because they sense that they have become powerful enough to be partners of the Western drug companies.

But it is not a question of whether this is going to be helpful to Indian pharmaceutical companies. Rather, it is a more basic issue of corporate control over mind and body of people all around the world.

It appears that the extension of the patent protection regime to India will make it cost-attractive for international drug companies to set up shop in India in partnership with Indian companies. But it is naïve to expect monopolistic corporations to act altruistically, whether they are originally from the West or the East.

A wit once remarked that evil is ordinary and banal. The individuals within the drug companies are doing what is rational, and the intentions of particular individuals may in fact be noble. The problem with colonization, whether it be for political control or for control of bodies and minds, is that it creates a command system, and such systems impoverish. The colonization of the 18<sup>th</sup> and 19<sup>th</sup> centuries ruined prosperous countries. The system that will emerge if the drug companies are to have their way



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will force people in the poorer countries to fit in the Western model of a consumer society, which will only lead to destitution, disease, hunger, epidemics, and civil war.

India's technology was flourishing before the British. It has been estimated that India's share of world trade in 1800 was about 20 percent (equal to America's share of world trade in 2000). First, the British cut off India's export markets. Soon the innovations of the dawning industrial revolution gave their products a cost advantage that became permanent in the absence of new investments to upgrade Indian factories. As India became de-industrialized, it turned into a huge monopoly market for British products. British Raj made token investments in science and technology. In 1920, India's scientific services had a total of 213 scientists of whom 195 were British!

A command system is bad because it leaves the decision making in the hands of a few people at the top of the organization. The leadership suffers information overload, and it cannot respond quickly to changing circumstances. This is the main reason the communist system, a command system par excellence, failed. A command system is also liable to be misused and made an instrument of oppression, and this remains a danger in the drug patenting system.

Given that the present system is not working, the time has come to think of a new system altogether, which would be good both for the rich countries and poor. One idea is to abolish drug patents, and for the creation of a fund to give grants to universities and companies to develop new medicines. But it is not likely that such a radical change will be adopted. Rather, the world will just muddle through by means of a patchwork system that is optimal neither for the companies, nor for the people.

## 12 The Fight over Water

**12.0** Although it is not a hot political issue in India yet, water security has major implications for economic growth and public health. Together with transportation and electricity, it constitutes one of the three weakest components of Indian infrastructure. With increasing industrialization and the cities becoming larger, water shortages in India –as in the rest of the world-- will worsen.

**12.1** Water consumption is rising much faster than the rate of population growth. This is expected to accelerate as people switch to Western-style lifestyles and diets - one kilogram of meat needs more than five times as much of water as a kilo of cereals.

**12.2** Water pollution is increasing and the amount of useable water is declining. Groundwater levels are also dropping rapidly. More than a million people in India die from waterborne diseases each year.

**12.4** A third of the world's population lives in countries with serious water scarcity. In another twenty years, two-third of the world's population would be in this situation. Water may be the petroleum of the 21<sup>st</sup> century. Some have suggested that wars will be fought over it.

**12.5** The bottled water industry has taken off in India because most of piped pressurized water is also contaminated. There is increasing acceptance that it is a commodity and not a fundamental human right. On the other hand, if politicians were asked about it, they would say that it is the responsibility of the government to provide safe drinking water.

**12.6** If access to basic water requirements is a human right implicitly supported by law, then why aren't local and central governments in India working to ensure safety

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of all drinking water? Enormous human and economic costs stem from waterborne diarrheal diseases. There is lost productivity and health costs.

**12.7** Clean water initiatives contributed to the development of the West. In the US, the federal Clean Water Act of 1972 that imposed stiff controls on municipal and industrial waste and underwrote waste treatment along rivers and bordering lakes.

**12.8** But there is a strong lobby for privatization of water. Critics of this policy note that international water companies form part of the World Water Council (WWC), which advocates “handling water as merchandise, whose just price can only be set by the market.”

**12.9** The increase of water price for reduction of demand forces the poor to pay more for it, just for survival. On the other hand, where water is free as in many places in India, there is enormous wastage. Water taps are not closed, and water keeps on running until the municipal pumps have shut down or the overhead tanks have run dry.

**12.10** But, treating water as a commodity has led to disastrous results. In September 1999, to comply with the “structural reforms” accompanying an IMF loan, the Bolivian government gave Cochabamba’s municipal water system to Aguas del Tunari, a multinational consortium of private investors.

Within weeks of the transfer of ownership, water prices rose to pay for the improvement of the city’s water system. Bills doubled or tripled, and for some it amounted to a quarter of their monthly income. In response, protesters shut down the city. As rioting spread to other cities, the Bolivian government rescinded the water contract and turned over control of city’s water to a cooperative.

**12.11** Water privatization has failed in other places as well. Vivendi, the French multinational company, had its thirty-year water contract with the Argentine province

of Tucumán cancelled after two years because of alleged poor performance. Similar cancellations took place in Peru and Brazil because of popular opposition.

**12.12** Although privatization of the entire water resource for the community – including that for bathing, washing and drinking – has not been successful, people seem to be quite willing to pay high prices for safe drinking water.

**12.13** Water projects in poor countries commonly deliver safe pressurized drinking water to just the prosperous sections of the cities. Most governments are unwilling to extend safe water and sanitation services to slums for fear of legitimizing them. In these communities, people are forced to use the channels between homes to relieve themselves, which leads to contamination of both ground and surface water.

**12.14** In the industrialized world, the common sequence of treatment processes for water collected from protected sources includes self-purification from sunlight, filtration through sand, and chlorination. These techniques are not feasible in poorer communities. Boiling water for disinfection for drinking requires substantial quantities of fuel, and chlorination is too expensive.

**12.15** Ashok Gadgil of the Lawrence Berkeley National Laboratory in California has invented a new method for disinfecting water without polluting the environment. His invention uses ultraviolet light, powered by only 40 watts of electricity. This invention has received international acclaim and it deserves to be more widely known in India.

Gadgil's system can disinfect four gallons of water a minute for only two rupees per ton. Compact in size and weighing only seven kilograms, this system has no moving parts. It requires little maintenance -- just cleaning the water pan every few months and changing the UV lamp once a year. It uses less electricity than a table lamp and can be powered by a bicycle generator, wind, or even solar cells.

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This technology been licensed to a U.S. start-up company, WaterHealth International, which is now working with Naandi Foundation, an Indian NGO, to provide water to the rural poor in a pilot project. Their drinking water meets or exceeds WHO standards for very modest price -- currently set at Rupee 1 for 15 liters!

Recharging of ground water by building barrages and holding dams and providing safe drinking water to all communities should be taken up as a national priority by the government.

## **13 Asia's Two Butterfly Syndromes**

**13.0** The ease with which public opinion was

smoke,” the Japanese realized that they were in no position to defend against the West. Perry insisted on negotiating only with the Emperor, and, in a few months, he received the treaty he had been sent to obtain.

### 13.3 *Bushido* and Madame Butterfly

Certain literary creations present a mythic encounter that captures the meeting between different cultures perfectly. *Madame Butterfly* does this for Japan and the West. A short story written by the American author John Luther Long in 1898, it is the sad tale of the young Cho-Cho-San (nicknamed “Madame Butterfly”) and the dashing US Navy sailor Lieutenant Pinkerton, who is modeled after Commodore Perry.

Pinkerton is waiting out his hardship posting in Japan. A marriage broker finds him Cho-Cho-San, and he goes through the motions of marriage with her, converts her to Christianity and forces her to relinquish all ties to her friends and family. Believing her marriage to be real, the naïve Butterfly allows herself to fall in love with him. Pinkerton departs with his ship, promising to return. During his absence, Butterfly gives birth to his child.

Pinkerton does return, but when Butterfly learns that he has married an American woman who wishes to take her child back to the United States, she attempts suicide. When Pinkerton and his wife arrive to pick up the child, the house is empty. A stage version of the story was produced on Broadway and also in London. Giacomo Puccini saw the show in London, and realizing the promise in it he set the story to music. His *Madama Butterfly* was first performed Italy in 1904 to much acclaim, and has continued to enjoy great success.

*Butterfly* captures the stereotype of the Asian woman’s submission to her husband that mirrors the fidelity of the peasant to the feudal lord. In Japan, the real political and military power in the Tokugawa period of 1603-1868 was in the hands of the shogun who distributed lands to his loyal vassals, the *daimyo*, who, in turn, granted lands to

the samurai. A strict code of conduct, called the *bushido*, governed the samurai. When disgraced, a samurai was expected to perform *seppuku* (suicide) for his family's honour. Madame Butterfly's suicide in the story is thus according to the norms of this code of honour.

Japan's loyalty to the United States after the Second World War has been according to the *bushido*, and it included even paying for most of the costs of the 1991 Iraq war. Japan has been loyal to America by not being too aggressive with its exports to the US and not getting into sectors such as aerospace that would hurt American interests.

### 13.4 China as Monsieur Butterfly

Chinese self image is very different from that of Japan. China has long seen itself as the Middle Kingdom, but the modern Chinese state confronts fundamental contradictions. It is a communist state that follows unabashed capitalism. It claims to be guided by modern values, yet it sees itself as a successor to the domains of the Qing Dynasty. Since it has not yet created institutions that provide a democratic legitimization of the state power, it uses state-coordinated demonstrations as an instrument of its policy. We saw this, most recently, in the demonstrations against Japan last month.

The story of how Taiwan was wrested wrongfully from the Qings by Japan in 1895 still plays big in China and it wants this wrong to be righted as soon as possible. Periodically, threats of war are issued if the "renegade province" were to declare independence. China's capitalism comes without West's legal protections, and it remains deeply tied to its authoritarian tradition. It aspires to responsible leadership yet it has proliferated nuclear weapons technology to Pakistan. It is the main economic benefactor of North Korea, which remains one of the biggest foreign policy headaches for the United States.



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In contemporary writing, David Henry Hwang's acclaimed play *M. Butterfly* goes to the heart of these contradictions and China's complex interaction with the West. The play is based on the true story of French diplomat Bernard Bouriscot, who, in 1964, began an affair with a Chinese opera singer Shi Pei Pu in Beijing. The two became lovers and Shi Pei Pu claimed a few years later to have given birth to his son. Bouriscot had to leave Beijing during the Cultural Revolution, but he was able to get Shi Pei Pu and their boy to join him in Paris a few years later.

In 1982, Bouriscot and Shi Pei Pu were arrested for spying for China. Bouriscot claimed at the trial that he had passed intelligence to protect Shi Pei Pu because the Chinese had found out that Shi Pei Pu was his lover and the mother of his son. The prosecution responded by revealing that Shi Pei Pu was in fact a man! Bouriscot, a sophisticated person who had had many affairs, was humiliated by this announcement, but he later explained that he had been deceived by Shi Pei Pu's extreme modesty, which he believed was an Oriental custom.

*A former French diplomat and a Chinese opera singer have been sentenced to six years in jail for spying for China after a two day trial that traced a story of clandestine love and mistaken sexual identity....Mr. Bouriscot was accused of passing information to China after he fell in love with Mr. Shi, whom he believed for twenty years to be a woman.*

-The New York Times, May 11, 1986

David Henry Hwang's diplomat in his play is named Gallimard, who falls in love, not with a person, but an imagined stereotype. His Chinese lover, Song Liling encourages this stereotype, playing the role of the Oriental woman as demure and submissive. Gallimard, who had thought of himself as the macho Pinkerton, husband of the beautiful and fragile Butterfly, is the one disgraced. In the end, when Song Liling disrobes completely, Gallimard is so humiliated that he kills himself.

In a courtroom scene, Song explains why Gallimard is deceived. The real reason is the many wrong assumptions by Westerners about the Orient, seen as inscrutable, feminine, submissive, and agreeable. This is further complicated by the Western male's drive to conquer. Song concludes that Westerners will "lose in all dealings with the Orient."

**13.5** The two butterfly syndromes represent two different responses of Asia to the West. As part of its experience as an imperial power, China has created a complex web of encirclements of potential enemies. This is why it continues to support North Korea, which provides a useful regional buffer against US encroachment in the Korean peninsula.

### **13.6** Wheels within wheels

During the Cold War, China was a partner to the US in a struggle that eventually destroyed the USSR. Now, China has even more leverage since it has become America's factory and it hopes to use the festering Korea problem to offer a strategic partnership to the United States in exchange for the US acceptance of a "Hong Kong" solution to the Taiwan issue.

China is keeping its pressure on Taiwan by the rapid upgrade of its military. It is on the verge of launching a new fighter jet that resembles the design of Israel's Lavi warplane, which is reported to be superior to the F-16. It has nearly doubled the number of short-range missiles aimed across the Taiwan Straits over the past two years to over 700. By acquiring dozens of new warships and submarines and strengthening its air power, China has the ability to knock out Taiwan's airfields and ports before the US could intervene.

**13.7** A side-show to China's competition with Japan and ultimate rivalry with the US is its relationship with India, which has the potential to become the third largest world economy in the next couple of decades. The US administration is pressing for a

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strategic partnership with India as a counterweight to China's ambitions. Condoleezza Rice has termed it more benignly as a "Strategic Partnership Initiative." China, on the other hand, is arming Pakistan and Bangladesh with missiles that are clearly aimed at India, but it is asking the US not to supply Patriot II anti-missile system to India. It doesn't approve an Indian entry into the Shanghai Cooperation Council yet it seeks to become a full member of the South Asian Association of Regional Cooperation Council.

**13.8** The two Butterfly syndromes are not unique to Japan and China, but also apply to other countries of Asia, in their unique fashion. For example, India's Macaulayite class is very loyal to the English. Pakistan has been very duplicitous in its dealings with the West concerning the struggle against terrorism.

## 14 Taiping to Tiananmen

**14.0** Current economic projections – such as the one by Goldman Sachs -- suggest that by 2050 the hierarchy of the largest economies would have China as the largest, followed by the USA, India, Japan, Brazil and Russia. Such historic shift of power is not likely to be smooth for a variety of reasons.

**14.1** First, and foremost, is the complex, symbiotic relationship between the Chinese economy and American prosperity and indebtedness. A large fraction of the American trade deficit is with China. This is now becoming a political issue in the US, but since the Chinese purchase of American bonds is keeping the interest rates in America low, the recent American demand for a revaluation of the yuan is largely shadow boxing.

**14.2** Nevertheless China and the United States remain economic competitors. The Chinese appetite for commodities is driving up world prices. In *Mapping the Global Future*, an assessment of the world's prospects in 2020, the US government's National Intelligence Council says China is expected to boost its energy consumption by 150 per cent. The Chinese feel vulnerable since America controls the sea lanes from the Middle East. Consequently, the Chinese are building up their naval power to defend these sea lanes and also entering into exploration agreements with Central Asian and South American countries. In my own view, the mutual economic and business linkages will ensure that there would not be a military conflict between the US and China.

**14.3** The *hukou* system

China's real dangers are internal. The main challenge is the idea of Western individualism which goes against the Chinese tradition related to order and harmony in society. The failed Taiping rebellion of the mid-19<sup>th</sup> century, the communist

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revolution of Mao Zedong, and the Tiananmen protests were attempts to find Chinese answers to this Western challenge.

Looking from outside, the centralization of power by the Communist Party, and absence of institutions that provide outlet to vent frustrations of the public, appear future vulnerabilities. But Chinese leaders haven't yet found a new paradigm that would be in harmony with its own history as well as the needs of the times. Meanwhile, certain problems are festering, such as its *hukou* (household registration) system of two Chinas in which more than one-sixth of the population is denied the rights that others have.

Under the *hukou* system, people must live and work in the place where they are permanently registered, which is normally their place of birth. Households are designated as *rural* or *urban*. Urban workers are permitted to change jobs and they are provided with state housing and pensions. Rural workers need government permission to seek work in designated urban areas. In their jobs, rural workers are required to enter into bonded contracts which they can break only if they pay the employer a large amount of money. Employers prefer to recruit young, single women, who are housed in cement-block dormitories; the fear of the registration laws ensures that the women spend most of their time in the factory complex.

In effect, the *hukou* system perpetuates two Chinas, where the rural sixth has become the underclass in relation to the urban population. The urban folks are like the silk-industry bourgeoisie, and the women of the peasant families are like the workforce for cocoon production.

Absent legal safeguards for the rural people, local governments have recruited gangsters, known in Chinese as "the black society," to collect extortionary taxes. According to a recent World Bank report, China's rural poor have suffered a six percent decline in living standards since Beijing's accession to the World Trade Organization in 2001.

### 14.4

The mix of foreign ideas, bureaucratic control, greed, and corruption has led to several social explosions from time to time. Given that the Communist Party in China allows no opposition to it, could there be periods of breakdown of order? A historical breakdown of monumental proportions was the Taiping Rebellion (1851 - 1864). One of the bloodiest conflicts in history, it was a struggle between the forces of Imperial China and those inspired by the Christian convert Hong Xiuquan. It is estimated that this war cost more than 20 million civilians and army lives. Both the Chinese Nationalists and the Communists, two groups that later ruled the nation, claimed to have been inspired by it.

The British East India Company started to import opium to China in early 19<sup>th</sup> century. Warren Delano, maternal grandfather of Franklin Delano Roosevelt, was an important figure in this business. The Chinese resisted the importation of opium, but the Western powers insisted on carrying it out in the name of free trade and this led to the Opium Wars of 1839-1842 and 1856-1860. The treaties of Nanjing and Tianjin, which legalized the opium trade, also legitimized missionary activities throughout China.

This story had an American connection in the name of Issachar J. Roberts, a Baptist minister, who was Hong's religious teacher. Believing that he was the Son of God and the younger brother of Jesus, Hong announced that his mission on earth was to rid China of evil influences of Manchus, Taoists, Buddhists, and Confucians. In the late 1840's, Hong reorganized his movement into a military organization. In 1851, after repulsing an attack by the Imperial forces, he declared that a new Kingdom of Heavenly Peace had been established; he himself was the Heavenly King and the era of the *Taiping* (Great Peace) had begun.

The rebellion got off to an impressive start. Its soldiers raced northward through the central Yangtse valley to Nanjing. However, they were repulsed in Beijing. For the

next ten years, the Taipings warred continuously to maintain their territory. But, slowly, the Kingdom began to unravel and in June, 1864, Hong poisoned himself.

The Tiananmen Square protests of 1989 were squelched before they became an unstoppable force. Although sparked by students mourning the death of a liberal Party leader, they were a consequence of the inability of the Communist party to resolve its differences in an orderly manner. It was the struggle between reformers and conservatives being played out in the streets in which the demonstrators called for greater democracy, and an end to official corruption.

As the protests spread nationwide, the hard-liners got the upper hand and Beijing was placed under martial law. The Tiananmen Square was not cleared, and on 30 May students erected the “Goddess of Democracy” statue to the cheers of a large crowd. On 4 June, on the orders of the Party elders, troops and tanks of the Army cleared Tiananmen Square. Hundreds (some say, nearly three thousand) of unarmed protestors were killed. The Chinese government has refused to give out the number of dead and wounded.

**14.5** The Taipings wanted to create an ideal theocratic state, whereas the Tiananmen protestors wanted an ideal liberal state. The liberal state model would solve the problems of *hukou* and hasten the creation of a civil state, but its goals are different from that of the Communist Party, which remains provincial in many respects.

**14.6** *The use of nationalism.* It is the reluctance to face up to these tasks of bringing democracy within, that Chinese leaders have used hegemonic nationalism related especially to Taiwan for its internal political purposes. The same reason leads to a selective use of history. Recently, there were state sponsored demonstrations against Japanese atrocities in the Second World War, yet China is purging its own textbooks of its own war in the late 1980s in Vietnam, and whitewashing the events of the Tiananmen Square protests.

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China has asked Koizumi not to visit the Yasukuni Shrine for the Japanese war dead, which Koizumi has done anyway, to Chinese anger. There are also tensions between China and Japan over Japan's republishing of a controversial textbook and over territory in the East China Sea. The Chinese have orchestrated protests against Japan's bid for a permanent seat in the United Nations Security Council. Although, the Chinese government has used these protests as instruments of national policy, there is no telling whether in future such protests could get out of hand.

The Chinese economy also has to carry the burden of an aging population that is proportionately greater than in other large countries. The demographic problem of China will get worse in the next decade.



## 15 New Rivalries

**15.0** China and India are currently the engines of world economic growth. But India's is still a minor part in the world-wide competition for scarce resources. China has become the world's second-largest importer of oil after the United States. It is building new cities and a network of superhighways, both of which are only deepening its appetite for oil, steel and other industrial materials. The rise in price for oil, which recently crossed \$60 per barrel, has profound implications for Indian industry, since it continues to operate in conditions of chronic energy shortage.

**15.1** In its ongoing strategic rivalry with the United States, China holds a trump card – nearly 800 hundred dollars in foreign exchange reserves. Until now Beijing has been content to buy low-paying US government bonds, indirectly financing America's huge trade and budget deficits. According to one view, there is a domestic imperative behind this policy. The Communist Party hopes to gain legitimacy in the eyes of its citizens that it lost after the Tiananmen massacre sixteen years ago by appealing to nationalism by reclaiming Taiwan. By integrating its economy to that of the West, it makes itself immune to Western sanctions if it should take over Taiwan by force.

**15.2** In reality, China and America are already dependent on each other. Much of American manufacturing has relocated to China to take advantage of low wages. China cannot let its currency appreciate against the dollar, because then its products will be too expensive for Americans to buy, which would result in the closing of its factories, and social unrest and unemployment.

**15.3** *A new phase.* The contest between China and the US has now entered a new phase. Beijing has moved beyond holding US government bonds to the purchase of American companies. Last year Chinese computer maker Lenovo bought IBM's PC operations for \$1.7 billion. More recently, fridge and washing machine maker Haier

bid \$1.28 billion for US domestic appliance group Maytag, and the China National Offshore Oil Corporation (CNOOC), which is 70 percent owned by the Chinese government, offered \$18.5 billion in cash for the American oil company Unocal.

The bid by CNOOC is raising objections in the US on national security grounds. Unocal has global reach and its control would make China a formidable player in the new energy “great game.” Beijing is pursuing several other initiatives to secure oil and gas that will bypass American or European companies before reaching China. This includes negotiating with Russia for a pipeline to bring Siberian crude to Daqing, China's northeastern oil hub.

**15.4** As its economic power increases, China’s foreign relations are being transformed by its energy imperative. Beijing is entering into deals with countries around the world to diversify its economic and trade relations. It has already become the second largest world economy as seen from the figures for GDP, which uses PPP (purchasing power parity) dollars, China’s economy is two-thirds that of the United States, and India’s, which is at the third position just ahead of Japan, is one-third of China’s.

The gap between the US and China and India is shrinking rapidly because of Asia’s much higher growth rate. Chinese analysts are arguing that the US should approve the Unocal deal so that China becomes America’s partner in the management of global energy resources. Some analysts have warned that if this approval doesn’t come through, China will be forced to expand its business with “rogue states” such as Iran, Sudan, and Myanmar.

China’s recent tensions with Japan, South Korea, and other neighbors are energy related, regarding control of disputed islands in the Pacific with potential oil deposits. These tensions would worsen as oil prices go up.

**15.5** *The great game in Southern Asia.* India’s own attempt to ensure energy supplies with a gas pipeline from Iran has met with opposition from the United States on the

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grounds that it would strengthen Iran's economy. The victory of the anti-American nuclear-hardliner Mahmud Ahmadinejad as the country's next president is only going to make that opposition stronger.

Ahmadinejad's won massive backing from Iran's rural poor, who want a continuation of handouts based on oil and natural gas revenue, which run to about a fifth of the per-capita GDP. As Iran's economy continues to flounder, it will come under increasing pressure from the West to renounce its quest for nuclear weapons in exchange for technology. It is not clear that the radical mullahs who run Iran will listen.

Afghanistan is partially pacified; it remains to be seen whether the old plans of Unocal to build a pipeline from Central Asia to the Arabian see through Afghanistan and Pakistan will be revived. Unocal promoted the pipeline in the 1990s through its intermediary Zalmay Khalilzad, who has since served as American ambassador to Afghanistan and now to Iraq. If the Iranian pipeline to India is not built, then this may be substituted by a Central Asian pipeline through Afghanistan.

If China's bid for Unocal is approved by the United States, the "great game" for energy will become more tangled. Already China has signed a \$70 billion deal to buy Iranian oil and natural gas. It has also blocked American efforts to raise the issue of Iran's nuclear weapons program before the United Nations Security Council.

## 16 Thanks, but no Thanks, to the Empire

**16.0** The French and the Dutch have spoken. Their “no” to Europe’s new draft constitution halts the strengthening of the union of the 25 countries for it needed approval from all the nations to take effect next year. Europe wants to take time out. How to resurrect the process in a year or two is the challenge confronting the leaders.

Europe’s process of unification is a turning inward of an expansion that began in the fifteenth century and accelerated with the industrial revolution. At the end of the Second World War, the idea of a united Europe seemed perfect as the third force in a world dominated by the rivalry between the US and the Soviet Union. But the Soviet Union broke up fifteen years ago, and, economically, the world is becoming multipolar with the emergence of new powers such as China, India, and Brazil.

**16.1** The empire paradigm was in consonance with the principal technologies of the past two centuries, such as transportation, electrical and chemical industry, which required consolidation of political and financial power. The twenty-first century is the age of information and the internet. The profits are in the management of information and this does not require physical control of land. The cost of direct empire can be great as witnessed by the American occupation of Iraq.

**16.2** Meanwhile, pressures of global competition are increasing the mechanization of life. American pop-culture is superseding local traditions and many have started grumbling about the social costs of unfettered globalization. There is fear that a super-state such as the European Union will increase the concentration of political power, making it harder for the voices of the individual to be heard.

**16.3** The drive for single Europe was supported by influential sections of both the left and the right. For the left, it represented the idea that different nations could come together to create a new future, which would allow the region to move beyond the horrible fratricidal wars of the twentieth century, and it would be able to play a role in

global affairs as an equal to the US. For the right, it was an opportunity for Europe's businesses to become competitive with that of America by bringing down tariffs within the region and making it easier to invest, by having a single currency.

**16.4** But now important groups in the left and the right are having second thoughts. For one side, it is the bureaucracy, and the loss of jobs to workers from the newly admitted East European countries; for the other, it is the danger to tradition from immigrants who are not assimilating to the mainstream culture. On the one side is the view that a larger Europe may benefit the economy but the cost to the local cultures is too high to pay for progress; on the other hand is the argument that united Europe is an anachronism.

**16.5** The forces unleashed by the globalization of the past fifteen years have led to concentration of wealth and increased the gap between the rich and the poor. Just as America is turning from a meritocracy to an aristocracy, a united Europe will accelerate the concentration of wealth as it depends increasingly on low-wage immigrant and illegal workers, and farmers lose control of their farms to agribusiness. This process calls to mind events that took place nearly eighteen hundred years ago in late imperial Rome.

### **16.6** *Latifundia* and decline of Rome

Historians hold big farms, called *latifundia*, as being a major factor in the decline of Rome. If migrant Mexican workers provide cheap labor in American farms; slaves did so for the *latifundi*. There was a consolidation of farms into ever larger estates. Slave labor depressed wages to subsistence level, increasing unemployment amongst the citizens. The dispossessed took to crime.

As unemployment increased, Rome had to institute the dole, in terms of pork, oil, and bread, and subsidy to the farmers. The rule by aristocrats led to a spiritual malaise.



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The Dutch were angry at the increases in prices that have accompanied the replacement of the guilder by the Euro and unhappy at the expansion of the community. The murders of the politician Pim Fortuyn and filmmaker Theo van Gogh had already increased anti-immigrant sentiment.

The Dutch were also afraid that they will lose the freedom to provide their own solutions to social problems. Unlike the Anglo-Saxon world, their approach to drug addiction is from a pragmatic and social point of view; the addict is not seen as a criminal.

**16.8** America believes that a united Europe would be its ally in its competition with China for economic supremacy. Europe could facilitate emergence of democracies in the Middle East, and to that end America has pressed Europe to hasten Turkey's admission into the union. But America realizes that their relationship will be beset by differing national interests as has happened in the continuing Iraq war.

Europeans believe that America's militaristic approach is depriving high technology areas of research funding, and deepening the international economic malaise. They complain that whereas the US has kept its own economic burdens low by not allowing full citizenship rights to its Mexican migrant workers, Western Europe is being asked to take on the burden of the immigrants from East Europe, North Africa, and Turkey.

America is witnessing a widening gap between rich and poor, ballooning costs of medical care, relocation of factories to China, and outsourcing of office jobs to India. It is not clear that to be a bigger state is an advantage in the current circumstances. The US political establishment has been paralyzed, as if by Medusa, by the health care problem. A looser union might enable Europe to respond more nimbly to emerging challenges.

## 17 The Revenge of Medea

**17.0** If we look back at history, we see periods where conventional wisdom did not seem to work. Something gets in the air which makes counter attitudes quite popular. People go happily to ruinous wars. In the 5<sup>th</sup> century BC, the Athenian democracy voted year after year to continue the Peloponnesian War with Sparta, a war that was to last nearly 30 years.

**17.1** On the other hand, the post 9/11 story seems somewhat like 490 BC when the Persians attacked Athens, and there was talk of going back to oligarchy. Anyway, the Persians lost, but the Athenians convinced the other Greek cities that they needed to keep the strong Greek navy together in case the Persians came back again.

**17.2** The Delian league of several city-states was founded in 477 B.C. under the presidency of Athens. It had provision is made for an annual revenue, for periodical meetings of the council, and for a permanent executive. Athens was the centre of its power and its fleet was mainly Athenian, the commanders entirely so; the assessment of the tribute was in Athenian hands; there was no federal court appointed to determine questions at issue between Athens and the other members; and, worst omission of all, the right of secession was left undecided. By the middle of the century the Delian League has become the Athenian empire. Henceforward the imperial idea, in one form or another, dominates Greek politics.

In the year of 454-453 B.C., the treasury of the Delian League was moved from Delos to the Acropolis of Athens. The Athenians took one-sixtieth of the tribute paid by the allies as first fruits for the goddess Athena Polias, patroness of the city. The Athenians began to grow exceptionally wealthy. The League was no longer at war with Persia and the tax money kept rolling in.



**17.3** Although the League had been formed against Persia, Athens soon used it to limit the power of Sparta, its long-time rival. This led to a war, in which Athens did well at first, but a losing campaign against the Persians in Egypt decimated the Athenian navy prompting several members of the Delian League to revolt. Athens made peace with the Spartans. Sparta recognized the Athenian Empire in exchange for Athens giving up claims to continental territories.

**17.4** Pericles, the leader of Athens during this period, symbolized the democratic wing of the polity. Yet he changed the rules of citizenship: before him anyone born of a single Athenian parent was an Athenian citizen; Pericles instituted laws which demanded that both parents be Athenian citizens. The Assembly was given unprecedented power over the selections of officials; elected officials, such as military generals, were not chosen by the Assembly, but the Assembly did hire and fire all other public officials. In addition, the Assembly served as a law court hearing major cases. Any decision made in a court of law could be appealed to the Assembly where a court of free citizens would hear the case. There was no standing army, either, as there was in Sparta; free citizens could choose to serve in the military.

**17.5** The Athenians used their military might to pressure the other cities to continue to sending money. When Miletus refused, their city was destroyed by the Athenians. Within their own city, the Athenians reduced taxes. It was during the Age of Pericles that the great works of Greek tragedy and comedy, the plays of Aeschylus, Sophocles, Euripides, and Aristophanes, were written in this time in the city of Athens. They also used the payments from the other cities to build monumental works of architecture, such as the Acropolis, and the rebuilding of the Agora. The other cities in Greece turned against Athens. They formed a league together with the Spartans in the Peloponnesian War which lasted from 431 BC to 404 BC. Finally, the Spartans won with the help of the Persians and the Athenians lost. Nearly all of Greece was wrecked by this long War, and the Classical period was over.

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**17.6** It cost a lot to maintain the Athenian empire, as it is to maintain any empire. Increasing cost requires expansion, leading to the creation of new enemies. With the death of Pericles, it became easy to bring various parties together against an overbearing Athens.

**17.7** We are in the middle of an extraordinary transition in the world brought about by a confluence of technology and history. We live in a virtual reality created by movies and television. Ordinary people are suffering from an information overload, and they are quite ready to believe anything. As the world economy gets more globalized, there is increasing concentration of power. The world system is transforming into an empire.

**17.8** Information is a commodity, as is clear when one considers finance and arbitrage. If buying and selling of information is valuable, its creation in terms of “myths” is even more so.

**17.9** Ultimately, information itself has no intrinsic value. Decisions are based on myth – existing, and the ones that are being created.

**17.10** The clash of civilizations is nothing but a clash of different myths. On one side is capitalism, modernity, machine-paradigm; on the other side is tradition and religion. But both sides are intertwined and conflated. In the US, the Christian Right has embraced capitalism completely, even though capitalism-governed change may be inimical to tradition.

**17.11** The Greeks speak of how the Titans emerge out of Chaos. Until 1989, when the Soviet Union collapsed, American capitalism had kept itself in relative check. Since then, greed has overtaken it, as we saw in Dick Grasso’s 170 million dollar paycheck a couple of years ago, and in the Enron and WorldCom scandals.

**17.12** The defeat of the Soviet Union was in part due to the exertions of the Mujahedeen, who were described by the then President Reagan as the equivalent of the Founding Fathers of the US. The defeat of the Soviet Union was like the capture of the Golden Fleece by Jason, with the Mujahedeen as the equivalent of Medea.

**17.13** The Mujahedeen were fighting in part for capitalism, and a lot of the wealth of their sponsors in Saudi Arabia was invested in the United States. But after the Soviet Union fell, America lost interest in the Mujahedeen.

**17.14** The Mujahedeen sent two photographers with booby-trapped camera to kill Ahmed Masud, paralleling how Medea killed Creusa, whom Jason wished to marry because he was bored with Medea. In mythology, Medea completed her revenge by killing her own two children. In real life, the al Qaeda destroyed the twin towers, symbols of world capitalism.

**17.15** In Euripides's recounting of the story, Medea escapes from Jason in a dragon-drawn chariot given to her by grandfather Helios; in Afghanistan, Osama bin Laden's soldiers escaped from the United States from Kunduz in aircraft provided by Pakistan, the guarantor of the Taliban regime.

**17.16** "I am loyal to my friends, dangerous to my enemies. To such a life glory belongs." Medea declared in the play by Euripides, quite like the pronouncement of glory that has been used by al Qaeda to recruit people to its cause.

**17.17** When Jason left Colchis, Medea fled with him and lived as his wife for many years, bearing him two children. Jason later wished to marry Creusa, daughter of King Creon of Corinth, but Medea sent her an enchanted wedding gown that burned her to death. In another version of the legend the angered citizens of Corinth stoned them to death. Afterward, Medea fled to Athens, where she married King Aegeus.

**17.18** Medea feels remorse and shame for killing her brother. We feel sympathy towards her, because this foreshadows what she will eventually do to her own children.

**17.19** Jason sees his children as Greeks, and therefore not Medea's children, but his alone. Medea's murder of her own children is half-suicide.

## 18 Biology and the Past

**18.0** Advances in genetics have made it possible to trace ancient migrations. It is now generally accepted that modern man arose in Africa about 200,000 years ago and from there spread first into India and Southeast Asia by coastal migration that probably included some boat crossings. There are several estimates of the time when this spread into India took place. According to the geneticist Stephen Oppenheimer, settlements in India appear about 90,000 years ago. From India there were later northeastern and northwestern migrations into Eurasia and the Far East.

**18.1** The “Out of Africa theory” has superseded the earlier multiregional model according to which the Europeans, the Asians, and Indonesians arose independently in different parts of the world. There is overwhelming evidence that archaic lines --- such as Neanderthals in Europe --- simply died out, and the specific characteristics of the different races is not a consequence of a mixing of the regional and modern populations but rather of adaptation to unique climatic conditions.

**18.2** Microevolution, as in the mutations of the mitochondrial DNA (inherited from the mother) and the Y chromosome (inherited from the father), helps us trace and connect populations across time and region. When the random mutations are calibrated one has a genetic clock. The clock can be validated in a variety of ways; for example, by using the knowledge of when the potato plant spread around the world from its Andean origin.

**18.3** Even without historical evidence related to the spread of the potato plant, a scientist can deduce the Andean origin of the plant from the fact that there exist many varieties of it in Peru and just a few lines in Asia, Europe, and Africa. Given the genetic clock and the distance between the DNA of the European and the current Peruvian varieties, one can estimate the period the plant was taken to Europe.

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**18.4** The new findings turn on its head the previous view of the origin of Indians. The earlier view, popular in Indian history books, was that the Indian population came in two waves from the northwest around four or five thousand years ago, displacing the earlier aboriginals, descendents of regional archaic groups.

**18.5** The new view is that subsequent to the rise of modern mankind in Africa, it found a second home in India, which is the point of migration for the populations of

habitation of the Southeast Asia is almost as old as that of India and Australia, and the Chinese, as also the Japanese, are relative latecomers into northeast Asia.

**18.9** Dental anthropology provides important clues in the retracing of ancient migrations. The Indian type of teeth is called *Sundadont*, and it is also found amongst Southeast Asians, Micronesians, and Polynesians. Contrasted from Sundadonty is *Sinodonty* (dental features that include shovel-shaped incisors, single-rooted upper first premolars, triple rooted lower first molars and other attributes), the degree of which is seen to increase as one travels north through the Mongoloid populations of mainland East Asia, and it is seen in extreme in the Americas. The South Asian origin of the pure-blood Ainu inhabitants of Japan is confirmed from their Sundadonty.

### **18.10** *The Kennewick man*

The Kennewick Man, a 9,300 year old skeleton was discovered in 1996 on the banks of the Columbia River near the Washington town of Kennewick. The skeleton was caught in a controversy because the Native American groups did not wish the body of an ancestor to be dishonored. On the other hand, there was much interest to study the skeleton further because its features were very different from that of the typical north Asian type from which the Native Americans are descended.

Scientific study has shown that the Kennewick Man represents the *Indian (South Asian) type*. The skull is long and narrow and the teeth are of the Sundadont type. This should not be extrapolated to mean that the Kennewick man actually came from the Indian subcontinent. But it confirms the spread of the Indian type all over the ancient world, from which it was displaced by later adaptations to different climates.

### **18.11** *Language families*

When the theory of the Aryan invasions into India is replaced by an “Out of India” viewpoint, one can readily explain regularities in languages that are spread widely. Linguists see connections between India and languages that extend to distant lands.

Thus the Indo-Pacific family covers the languages of the Australian aborigines and the Papuans, the Austro-Asiatic cuts across from India to the Pacific (the Munda in India, the Thai, and the Vietnamese), and the Dravidian has connections with the Altaic (Japanese, Korean, and the Turkic).

**18.12** Within India, the connections between the structure and vocabulary of the north and the south Indian languages indicate much internal migration of people. The genetic evidence indicates that the Dravidian languages are the more ancient, and the Aryan languages *evolved in India* over thousands of years before migrants carried them westward to Europe. The proto-Dravidian languages reached northeast Asia through the sea route. If Aryan evolved out of proto-Dravidian, the attempt of the linguists to construct a *pure* proto-Dravidian vocabulary is in all probability wrong.

The idea that the development of the Aryan languages took place in India explains how a variety of such languages are to be found in the sub-continent. Both the so-called *kentum* and *satem* language families are represented: Bangani is *kentum*, it is found in the Himalayan region; and languages such as Sanskrit, Hindi, and Assamese are *satem*.



## 19 El and Yehweh

**19.0** History can be a great friend in times of crisis. Consider the ongoing sexual molestation and homosexuality crisis of the Catholic Church. Looking back into the Church history one finds that celibacy was adopted only a few centuries ago. The medieval popes were princes. Anyone fond of Italian history would recall the Medicis and the Borgias, in particular, Pope Alexander VI and his beautiful daughter Lucrezia. Many bishops in early Christianity were married, as were 39 Popes. Celibacy was introduced to ensure that the organization of the Church did not lose power to any one family. It was sold wrapped in the theological formula that each priest was to be married to the Church and each nun to Christ. The Church can easily abrogate this theology, claiming connection to an older tradition.

**19.1** History helps in understanding current religious questions by explaining the original meaning of words and lending perspective. It is essential for regeneration and renewal because it lets one see the context in which certain ideas and practices arose.

**19.2** Consider the general belief that East and West are forever apart because their religions originated in different circumstances. Is there no commonality between the two? I have argued elsewhere that perhaps the idea of monotheism for Akhenaten was derived from his Mitanni (Indic) queen, Tadukhipa. But can we go any further than speculation and speak of textual reference in support of the idea?

### **19.3** *El and Yahweh*

The Abrahamic religions trace their lineage to El and Yahweh. The Jewish and Christian God is called YHWH in Hebrew and spelt as Yehweh or Yahvah. According to the Huston Smith's book *The World's Religions* (p. 222): "Allah is formed by joining

the definite article "al" meaning "the" with "Ilah" (God). Literally, Allah means "The God." ... When the masculine plural ending *im* is dropped from the Hebrew word for God, *Elohim*, the two words sound much alike.” *Eloah* (Hebrew feminine) is similar to *Ilah* (God).

**19.4** What is the origin of the *Ila* and *Yahweh*? *El* was the chief god of the Phoenicians and the Ugarits. Yet *El* is also the name used in many Psalms for *Yahweh*. In 2 Kings 22:19-22 we read of *Yahweh* meeting with his heavenly council. The Ugaritic texts have a similar account, with the difference that the “sons of god” are the sons of *El*. Other deities worshipped at Ugarit were *El Shaddai*, *El Elyon*, and *El Berith*. Since all these names are applied to *Yahweh* by the writers of the Old Testament, we can be sure that the Hebrew theologians assimilated the earlier mythology into their system.

**19.5** Besides the chief god at Ugarit there were also lesser gods and goddesses. The most important of the lesser gods were *Baal*, the goddess *Asherah*, *Yam* (the god of the sea) and *Mot* (the god of death); *Yam* and *Mot* are the Hebrew words for sea and death, respectively. *Asherah*, a very important character in the Old Testament, is called the wife of *Baal*, although she is also known as the consort of *Yahweh*. Inscriptions dated between 850 and 750 BC say: “I bless you through *Yahweh* of Samaria, and through his *Asherah*!” And at ‘*El Qom* (from the same period) this inscription: “*Uriyahu*, the king, has written this. Blessed be *Uriyahu* through *Yahweh*, and his enemies have been conquered through *Yahweh*'s *Asherah*.” The Elephantine Papyri tells us that the Hebrews worshiped *Asherah* until the 3rd century BC.

**19.6** *Baal*'s name occurs frequently in the Old Testament. Some Israelites viewed *Yahweh* as a God of the desert and so when they arrived in Phoenicia they thought it only proper to adopt *Baal*, the god of fertility. One of the central Ugaritic myths is the story of *Baal*'s enthronement as king. In the story, *Baal* is killed by *Mot* and he remains dead until the new year. His victory over death was celebrated as his enthronement over the other gods. The idea of an annual ritual death was widespread

in the ancient world and it had a solar basis. The death and regeneration was taken to occur on the winter solstice, to celebrate the beginning of the New Year. The Old Testament also celebrates the enthronement of Yahweh. As in the Ugaritic myth, the purpose of Yahweh's enthronement is to re-enact creation. Yahweh overcomes death by his recurring creative acts.

**19.7** The major difference between the Ugaritic myth and the Biblical hymns is that Yahweh's kingship is eternal and uninterrupted while Baal's is interrupted every year by his death. Since Baal is the god of fertility the meaning of this myth is quite easy to understand. As he dies, so the vegetation dies; and when he is reborn so is the world. Not so with Yahweh; since he is always alive he is always powerful.

**19.8** When one reads the Psalms of the Old Testament and the Ugaritic texts one finds that Yahweh is acclaimed for things previously associated with El. These Psalms appear to have been originally Ugaritic or Phoenician hymns to El which were adopted by the Jews. El is called the “father of men” “creator,” and “creator of the creation,” attributes also granted Yahweh by the Old Testament.

### **19.9** *Ila and Yahvah*

The different Semitic gods have cognates in the Vedic pantheon. Yam may be connected to the Vedic Yama who in RV 10.10.4 is seen as being born from the waters, and Mot to the Vedic Mrityu, death. But more to the point, Ila represents Agni as in Yajurveda (VS) 2.3, whereas Ilaa represents Earth, speech, and flow. There is also the Vedic Yahvah. As an epithet it is associated with movement, activity, heaven and earth; it means the sacrificer and Agni, the chief terrestrial god. It is associated with energy like the Yahwah of the Semites. The name Yahvah occurs 21 times in the Rigveda. It may be compared to Shivah, an epithet for auspiciousness in the Rigveda, that later is applied regularly to Rudra.

**19.10** Are Ila and Yahvah like El and Yahweh just by coincidence? We don't know, but we certainly do know of the Vedic-god worshipping Mitanni of North Syria who could have served as the intermediaries in connecting the Indians and the Semites.

Ila and Yahvah are not better known in India because names in themselves are not central to the Indic system. The essence of the Vedas is that God is a category beyond words and one may describe its aspects by a variety of names. This is the reason there are 3 names (the triplicity arising from the three-fold division of the inner and the outer universes), or 33 names, or 330 million names of God. It is remarkable that the god lists of the Ugarits also contain 33 names.

**19.11** It would be foolish to deduce that if Yahvah and Yahweh are identical names then the Vedas become the source of the Abrahamic traditions or Christianity the fulfillment of the Vedas. The Indic gloss on the matter is that names in themselves are mere sequence of syllables and they mean nothing; it is not names but the way of seeing reality that matters. The Western and Indian spiritual traditions as they exist now are quite different and they represent the unique genius of each region. But perhaps the commonality of origin could help people see the universality of the spiritual quest and help build bridges across cultures in these difficult times.

## 20 America's Angst

**20.0** America's preemptive wars, although explained as necessary response to the events of September 11, 2001, have a much more complex economic and social basis. The first is the recognition that American industry is bound to lose its dominance as countless disciplined and educated workers in China, India and other Asian countries prepare to work at a fraction of the wages in the West. The second is the cult of consumerism as the dynamic within the American society that is leading to a hollowing of traditional values.

**20.1** Rising medical costs are making it hard for American companies to compete even with its rivals in the developed world. But there are such entrenched interest groups in the country that neither the Republicans nor the Democrats know how to deal with these fundamental issues related to the economy and society.

**20.2** The Republicans response to the challenge is rather simplistic: an appeal to religion (even Armageddon and the end of the world) as if virtue alone (if the lack of which is assumed to be reason for the danger) would change the force of history, the need to make "other civilizations" play by Western rules, or a barely concealed push to control the world's resources through war, if necessary. On the other hand, the Democrats under Clinton wished to do perpetuate the dominance of the West using the ITO and other globalization strategies. The thinkers amongst the Democrats rightfully acknowledged that it is for the good of the world that the differences between the rich and the poor nations should be bridged.

**20.3** The philosophical foundations to the Republican approach are provided by people like Samuel Huntington, a student of William Yandell Elliot at Harvard University, who was a defender of the British Empire and the Southern Confederacy. In Huntington's view, "The balance of power among civilizations is shifting: the West

is declining in relative influence; Asian civilizations are expanding their economic, military, and political strength; Islam is exploding demographically with destabilizing consequences for Muslim countries and their neighbors, and non-Western civilizations generally are reaffirming the value of their own cultures."

**20.4** Quoting Michael Dibdin approvingly, Huntington adds: " 'There can be no true friends without true enemies. Unless we hate what we are not, we cannot love what we are. These are the old truths we are painfully rediscovering after a century and more of sentimental cant. Those who deny them deny their family, their heritage, their culture, their birthright, their very selves! They will not lightly be forgiven.' The unfortunate truth in these old truths cannot be ignored by statesmen and scholars. For peoples seeking identity and reinventing ethnicity, enemies are essential, and the potentially most dangerous enmities occur across the fault lines between the world's major civilizations."

**20.5** Huntington is only following the ideology of the English political philosopher Thomas Hobbes. According to Hobbes, competing desires lead men in a state without civil government in an endless war. For Hobbes, the way out of this is was an authoritarian version of the social contract. This permanent state of war among men could only be contained by a dominant power "to keep them all in awe."

**20.6** Huntington's more recent *Who We Are?* is a critique of internationalists and multiculturalists because in his view America is basically a Christian and Anglocentric country and it shouldn't be allowed to change. He warns that the imperiled primacy of English, the dangers of immigration and multiculturalism, and a growing divide between the working class and "denationalized elites" will lead to internal conflict. On the global stage it pits the Americans and the English against the non-Anglocentric peoples in a clash of cultures.

**20.7** Indirectly, he urges the export of the Anglocentric values to the rest of the world by a dominant America, providing the philosophical basis to the New Imperialism to keep peace in the world, as the British Empire did in the 19<sup>th</sup> century.

**20.8** But Huntington's lessons are based on a selective use of history. The current religious struggle between the West and Islam cannot have any resolution since neither side is prepared to concede. The only resolution can be a transformation of both sides by acceptance of perennial and universal values.

### **20.9** *The Economic Imperative*

America's current angst and pessimism is not a consequence of the continuing turmoil in Iraq alone. Americans are a pragmatic people and as soon as it is clear that the cost of the War is too burdensome, the administration will change direction or the voters will elect a new government.

**20.10** Americans are shocked by the double dealing by elements of the ruling class in Saudi Arabia and Pakistan, but they are certain that they will prevail in the larger campaign against terrorism and transform these states. They may be underestimating the cunning of their enemy, but it doesn't cause them anxiety.

**20.11** They also feel that the American system of capitalism is strong enough to weather the corruption in the boardrooms of American companies as exemplified by the fall of Enron and WorldCom or the \$180 million payout to the now-resigned chief of the New York Stock Exchange.

It is not the War or the Wall Street scandals but the relentless loss of the manufacturing and service jobs due to the high cost of health care, and the very transformation where unalloyed capitalism has brought American society, that is the cause of the current pessimism. Many American businesses have become uncompetitive.

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Just in the past year the cost of employer-sponsored health care increased about 14 percent. According to one report, the costs for prescription drugs and doctor visits jumped by at least 50 percent in the last three years. These numbers are being driven up by the rise in prescription drug prices, hospital and doctor fees.

The situation is so bad that my friend's aged in-laws must pay \$6,000 in prescription costs every month. Three years ago the same friend lost his wife to terminal cancer. She was in and out of hospital for six months. The total medical bills for this period totaled \$1.2 million. Although the friend had to pay only about \$30,000 from his pocket, the expense was ultimately borne by other members of the medical plan.

The cost of health care was not this great twenty-five years ago. A visit to the dentist for routine cleaning of teeth then was \$15; now it is \$100. The average physician's salary was one-and-a-half times that of an engineer; now it is four times.

The disproportionate rise in the salary of physicians reflects the general trend in America of the widening gap between low- and high-end incomes in all institutions, and a widening of the gulf between the rich and the poor.

This may not have mattered too much in the pre-globalization era when national economies were isolated. But in the age of the Internet, design work or service cannot be prevented from being done at a location where the costs are lower. Manufacturing that has already fled to Asia cannot be brought back unless tariffs are imposed on imports, that will cause a breakdown in international trade. It would lead to sharp rise in prices and a corresponding drop in standard of living with other unintended consequences.

More than limits to military power, Americans are discovering limits to economic power. Service and manufacturing jobs will continue to leave the country.



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Globalization was seen as essential for the West for access to large markets to maintain growth for its industries. The Internet was not fully developed then and the possibility that it would become the medium for the migration of service jobs to the poorer nations was not foreseen.

American politicians are aware that the current situation cannot be allowed to go on for too long. Already, there is a trade deficit per year of more than 500 billion dollars and the federal budget deficit is of the same magnitude. But the politicians feel powerless to challenge the American Medical Association, that has kept the supply of doctors low for high medical salaries, and the drug companies, that insist that their profit margins should be large as incentive to develop new drugs.

The current health care situation is in part a consequence of the direction that modern medicine has taken. Vast numbers of people are on medication for attention deficit disorder, high cholesterol and blood pressure. It is not even clear that newly designed medicines are always superior to the older ones. But the drug manufacturers and the consumers are caught in a cycle of promise and expectation that is driven by aggressive advertising and the payments by medical insurance.

Modern diseases that are a consequence of life styles required of contemporary professions appear to be impervious to inexpensive treatment in the current system.

Politicians, unable to deal with the basic problems of modern medicine or challenge the lobbying arms of the drug companies, are working to reduce the government bureaucracy so that fewer employees would be entitled to government health benefits. Many functions of the army are being contracted out for the same reason.

In a confused response related to the low stock of all things run by the state, many groups on the right wish to strengthen the parochial Church-run schools at the expense of public education system. But the main reason the public schools do a poor job of

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teaching mathematics and the sciences is the low salary of the teachers, a consequence of the declining tax base of most communities.

The American system will eventually find a way to deal with its current challenges. Its agricultural, aerospace, chemical and electronics sectors remain strong. But the difference between it and the newly industrializing nations is bound to close.

Americans believe that capitalism with its rewards to the daring provides it the energy and drive for breakthroughs in science and engineering. If its research centers can create new technologies, the loss of the old manufacturing and service sectors will not matter. But whether that will happen any time soon remains to be seen.

## 21 Globalization East and West

**21.0** Globalization of the world economy is causing manufacturing and office jobs to leave the industrialized world. The expectation is that the higher end service and manufacturing jobs will remain in America, because of its domination of knowledge production in sciences and humanistic narratives, such as history, art, and the social sciences.

**21.1** America sees itself as the city, with countries such as China and India that do labour intensive jobs as provinces. The city has special skills and services that are a magnet for the wealth being generated in the provinces. These magnets are knowledge, financial and entertainment industries, and a superb infrastructure. Since America already has an enormous trade deficit, its higher standard of living is already maintained by the capital and goods inflows from the rest of the world.

**21.2** This current phase of globalization has some parallels with the earlier globalization unleashed by the industrial revolution of the early 19<sup>th</sup> century, and the spread of colonialism. But ultimately, more than the knowledge of science and technology, the British Raj was based on its superiority of organization and control of the public discourse and education. The East India Company used several stratagems to annex Indian territories, such as the *doctrine of lapse* for rulers who died without male heirs. The idea of British superiority, drummed into the students at school, was used to keep out Indians from the superior positions in law, medicine, science, and administration until 1910.

**21.3** British ideas formed the core of the *divide and rule* policies that frustrated Indian freedom fighters. Many of these constructs persist even after more than fifty years of independence, suggesting that Western hegemony in the social sciences will last a long time.

**21.4** The fundamental shortcoming of India's centralized system of education compared to the non-centralized Western one explains the persistence of old attitudes. If we consider the representations of Indian culture as a struggle between the hegemonic West with its imperialist moorings and India, with its lived experience that is at odds with the Western narratives, the upper hand remains with the West.

**21.5** A tightly controlled centralized system is like a blind elephant, since the persons at the top cannot have the resources to process all the information being generated. (As an aside, such information overload is the reason that the Soviet Union collapsed because no economist, howsoever competent and patriotic, could have the capacity to deal with the massive information of the marketplace to set rational prices for the goods produced in the government factories.) If there is a lesson here, it is that fully autonomous and even private universities must emerge to provide the necessary churning that leads to reform.

**21.6** Academic institutional power is now used by the Western academy to foster its constructs of India. Just a few US-based journals control intellectual output in Indian studies, directly or indirectly, promoting ideas that support Western interests. Indian academic scholars, wishing to partake of Western material comforts, are part of the bandwagon of this critique.

**21.7** It is amusing, but not surprising, that the fiercest opposition to reform in education comes from the academy in India. Indian curriculum remains Westcentric. Take, for example, Ayurveda, for which last fall the US National Center for Complementary and Alternative Medicine decided to establish an Ayurvedic Center of Collaborative Research to study medicine as it is practiced in India. It is hard to imagine that the Indian medical establishment would approve of such a Centre in a mainstream medical college. Or consider the long battle that had to be fought for years to establish a Sanskrit department at the JNU, or how there is no required teaching of the history of Indian science and technology at the IITs, or the history of Indian business at the IIMs.

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In a new stage in the economy of the knowledge industry, there is now a direct recruitment by Western universities of scholars of Indian origin who have internalized Western constructs. In this sense, it may not be a loss. On the other hand, the graduate of the India university who stayed back to teach in India may not have known Indian texts in original (since he does not know Indian languages), and he may have simply adopted Western theories, but by living in India there was always the possibility of absorbing Indian culture by osmosis, perhaps from the office clerk or the barber. The Indian professor in the West will not have the opportunity for this learning of India by living it.

It is natural for cultures to be hegemonic, the process of domination being a side-effect of the economy of knowledge production and dissemination. If large cultural areas maintain their identity, there is bound to be a region of overlap and accommodation. With India's rise, its ideas are becoming increasingly popular the world over. Unbridled consumerism has led to a moral crisis and, with the hollowness of the material life exposed, there is a great desire to be connected to spirituality.

For example, in the US, almost every YMCA teaches yoga, although it is a different story that some Churches are speaking of Christian yoga, without mentioning the origins of this tradition. This yearning for wisdom was expressed by Zimmer over fifty years ago when he said, "We of the Occident are about to arrive at a crossroads that was reached by the thinkers of India some seven hundred years before Christ. This is the real reason, why we become both vexed and stimulated, uneasy and yet interested, when confronted with the concepts and images of Indian wisdom."

Meanwhile, we need urgent reform in the system of school and college administration, and curriculum reform, so that classics of Indian literature, science, and the arts are integrated into the experience at school and college without loss of material on other cultures and history. This should be done with a commitment to the highest standards of scholarship, requiring the establishment of independent, autonomous institutions

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that do not merely look back at the past, but see it for what it is, a living system of traditions.

It is sad that Indian traditions tend to be supported in India only after becoming popular in the West. To deal with the challenges of the future in these uncertain times, we need to be fortified by the story of our past and our culture. That strength is necessary to discover creativity and art that will be liberating.

## 22 Paris Burning

**22.0** The fall of 2005 saw Paris burning for several weeks. Last time the city came this close to anarchy was in the summer of 1968. Then noisy demonstrations by anarchists and Communists almost brought the government to its knees.

What began in a ghetto suburb of Paris spread, by the eleventh night, to 300 towns across France and to Belgium and Germany. After nearly two weeks of uncontrolled mayhem, and burning of about 6,000 cars, buses, as well as schools and houses, President Chirac revived a 1955 curfew law -- originally meant to fight war in colonial Algeria -- that allowed local authorities to impose curfews and a state of emergency. But peace has not yet returned and there are new incidents of rioting and arson every night.

The rioters have no specific demands excepting to be free of French police and a rage at French society and culture. It is as if they are impelled by this famous slogan from 1968:

*On ne revendiquera rien, on ne demandera rien. On prendra, on occupera.*

We will claim nothing, we will ask for nothing. We will take, we will occupy.

### 22.1

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It is true that there is a widening gap between rich and poor. Whereas globalisation can be an engine that lifts countries out of poverty, as is happening currently in Asia, it also disrupts life and society. The globalised market place is leading to the formation of a ruling international aristocracy that is out of touch with the poor. It becomes easy to overlook the need to invest in education and cultural resources, especially in an atmosphere of war.

The Right sees this in terms of the battle between the civilisations of the secular West and Islam, pointing out that France's situation is not unique. European nations that have a more assimilative approach to its Islamic immigrants have had similar problems. Last year, the filmmaker Theo van Gogh was ritually murdered in multicultural Netherlands. This year, there were the 7/7 London bombings, and more recently there was a riot in Birmingham, England and another one in Denmark.

If it is a clash between rival civilisations, one can almost foresee the future. The post-industrial economies of the West require increasing number of immigrant workers -- mostly for menial jobs which native Europeans shun. At the same time, Europe's native populations are shrinking due to a declining birthrate which has fallen below the replenishment rate. The immigrant population will not only become a larger proportion over the next few decades, both through higher relative birth rates and further immigration, it may even become the majority in certain countries.

The European is mystified that in spite of its tradition of freedom of religious belief and expression, the immigrant groups have not assimilated into the secular fabric of its life. The reasons related to economic deprivation is not the entire story, when it is



noticed that many figures in the jihadist organisations come from privileged families. Also, the immigrant has agency and the native population cannot always be blamed for unemployment and poverty, as is seen from the very different experiences of the Indian and the Pakistani communities in Britain, who started from the same situation fifty years ago.

The rioters, the bombers, and the terrorists see themselves as revolutionaries. They have a critique of the West; they speak of its decadence, the breakdown of the family, and its drug and sex culture. They are able to tap to the despair that has entered into the modern life as a consequence of the mechanisation of life, and alienation from society. They claim that a solution exists in the clarity and zeal of early (Salafi) Islam.

**22.2** Irfan Husain, who is one of the most astute observers of the scene, writing in the Pakistani newspaper *Dawn* has this to say of what is driving the Islamic revolution: “Apart from wishing to restore the Caliphate, they also want to reverse the expulsion of the Muslims from Spain, as well as overthrow the rule of non-Muslims from countries where the faithful once held sway. These include India, Bosnia and Chechnya. And of course, Jews must be thrown out of Israel. They also want to see the removal of all kings, generals and sundry rulers currently running Muslim countries. It goes without saying that all other Muslim sects with the exception of a Salafi interpretation of the faith have to be destroyed. In the long term, the whole world must be converted to Islam, and Sharia must be the law governing everybody.”

But they are not the only people who are speaking of a religious utopia as a cure for the ills of modern society. Mechanisation and family breakdown is also causing native

## **Recursionism and Reality**

Europeans and Americans to join other utopian religious communities some of which speak of an impending end of the world.

## 23 Pie in the Sky

**23.0** In personal life and in society, some things that looked very important and meaningful once appear ridiculous in hindsight, providing amusement in novels and history. But if in personal life one has the excuse of the passions of youth for one's follies, in social practices high-sounding ideology makes monkeys of men.

**23.1** Foot binding in China lasted over a thousand years, even though it left women hobbled and crippled for life. The “reconstruction” of the proto-Indo-European (PIE) language was to find the nearest descendents of the master race destined to rule the world; this idea provided rationale for the brutality and inequity of colonial rule in Asia and Africa.

**23.2** In the 19<sup>th</sup> century, Arthur de Gobineau, along with other philologists, argued that the languages of Europe were closest to the PIE, giving the Europeans special strength of character and spirituality. From there the special role ordained for the Anglo-Saxons in maintaining their colonies was not a big jump. British historians saw the British Empire as a historic fulfillment. The “white man's burden” was to civilize the world.

**23.3** Gobineau's influential “Essay on the Inequality of Human Races” suggested that the decline of the contemporary period was a consequence of racial corruption. He classified the races into black, yellow, and white. Only the white race, in his opinion, was capable of freedom, and conduct based on honor. He complained that the white race was failing to stay pure, and this was behind the decline in artistic and material conditions.

Trying to outdo the English and the French who had shut them out of the closed markets of their colonies, the Nazis in Germany declared that they were the master race, inhabiting a region not far from the homeland of the PIE. The intellectual underpinnings of the program to find PIE generated poisons that led to the major

conflagrations of the past two centuries. If the Chinese bound the feet of women with silk bands, the Europeans bound their mind with the gobbledygook of PIE.

### 23.4 Foot binding

Feet were bound in China to make them into “golden lotuses” about three inches long. We hear of it first in texts over a thousand years ago in accounts of the emperor Li Yu, who ordered his favorite concubine, Fragrant Girl, to bind her feet and dance on a bejeweled, golden lotus platform. Once it became the standard for feminine beauty in the imperial court, it was copied by the lower classes.

In this process, the feet of a three or four year old were wrapped so as to bend the toes under, break the bones and force the back of the foot together. There were many different styles to foot binding. In its extreme form, the feet were bound so tightly that the woman hobbled about with difficulty, leaning on a wall or another person for support.

Although women were more or less confined to their homes (these were generally upper class women, since farmer women still had to work in the fields); it was believed that bound feet promoted health and fertility. Chinese men came to consider women with bound feet to be more desirable -- modest and wanton at the same time.

But it wasn't just housewives or ignorant men who were responsible for the continuation of this custom. The famed 12<sup>th</sup> century scholar Zhu Xi, whose works constitute the texts of Neo-Confucianism that was to dominate Chinese thought for six centuries, was a strong advocate of foot binding.

Mothers made sure that the custom continued, because without it a girl had only limited prospects of marriage. Foot binding conferred status on the girl's natal family and the family into which she was chosen by her prospective mother-in-law for

marriage. Foot binding joined the memories of mothers and daughters in shared pain that was their fate for the greater good of society.

The custom was outlawed in 1911. My Chinese colleague who grew up in the 50s remembers that his grandmother had had her feet bound. Foot binding must not be seen as a unique aberration. Even now high heels and cosmetic surgery (such as breast enhancement) cause equally serious injury. Other customs that have been followed for centuries without questioning include male and female circumcision. In the West, piercing of body parts and self-mutilation has lately become popular in certain groups.

**23.5** In the Paduang hill-tribe in Thailand, women wear brass rings (in a continuous coil that can weigh up to twenty kilograms) to elongate the neck, earning the name of “giraffe women”. Paduang girls start wearing rings from the age of six, adding one or two more coil-turns yearly, until the age of sixteen.

Once fastened, the rings are to be worn for life, since their removal could cause the collapse or fracture of the neck. In the past, the ring removal was a punishment for adultery. Such a woman was condemned to spend the rest of her life holding her head with both hands or lying down.

### **23.6 Proto-Indo-European (PIE)**

Foot binding was the consequence of a certain aesthetic sense, but it mutilated the feet. In a similar manner, the idea of the Proto-Indo-European language was born of another standard of beauty, and it has caused injury to the minds of those who embraced it. But whereas foot binding lasted just over a millennium, PIE’s heyday has been a mere 150 years, from 1800 to about 1950.

**23.7** I am not suggesting that the idea of language families is not sound. But the idea that one can construct an *original* language out of which historically attested

languages sprang, although attractive, is not practical, given the paucity of evidence. Even more importantly, the certitude with which the reconstruction was presented had the most unfortunate consequences for racist and colonial impulses.

**23.8** Science at the first level consists of classification of things as they exist; but at a deeper level it deals with their evolution with time. At this latter level, philology provides no reliable clues. PIE is based on analogies and models from the hard sciences that do not apply to language. Its appeal to genetics in that languages evolved from single parents is plain wrong. Scientific study of genetics (a field that arose after the naïve genetic notions of philology had become frozen) tells us that diversity arises out of the complex relationship between the genes of a large host population and not from a family of uniform characteristics.

**23.9** The Biblical notion of an original language of the Garden of Eden was behind the search for the parent language. The assumption was that just a few thousand years ago there were very few languages spoken and out of these few emerged the multiplicity of the languages of the historical period.

**23.10** In reality, the diversity of the languages around 4000 or 5000 BC, the period when the PIE speakers are supposed to have lived in their homeland, is likely to have been much greater than the subsequent period, just as was seen in America when the Europeans arrived there. The extinction of languages occurred due to the advent of technology in the Neolithic age and thereafter, and to increasing political integration.

**23.11** Selective use of words of the supposed common vocabulary of the Indo-European languages is another problem with the method used to find the homeland of PIE. It has been suggested that since there are common words for many blood-relatives, and not the same number for in-laws, therefore in the original society the relationship with the in-laws was not close. Going by this method, the people in the homeland knew butter but not milk, snow and feet but not rain and hands.

**23.12** The distinguished linguist Karl Uitti had this to say of the scientific pretensions of philology: “The biological and medical metaphors employed by historical grammarians are legion and have come to sound ludicrous. Gilliéron, for one, spoke of *verbal pathology* and *therapeutics*; others, we noted, saw relationships between languages in terms of *family trees*, and so on. More or less regular phonetic change over time (e.g., stressed Vulgar Latin -A-> French -e-, as in *PATREM*>*père*) was labeled *sound law* by the neogrammarians, who claimed that *phonetic laws* are *exceptionless laws of nature*. Race also entered the picture. An English-language grammar of Swahili published during the 1880s speaks of the correlation between *negroid* mouth configurations and the sounds of that language.”

**23.13** This is not all. A certain chronology was assigned to the oral texts (as in the case of Sanskrit), and then certain changes were postulated that agreed with the assumed model. These changes were now taken as the proof that the model was correct. This reasoning is circular, somewhat like a fisherman using a net of a certain cross-wire size and then arriving at the inference that the lake has no fish below that size.

**23.14** In the PIE system meanings are assigned to old words to fit in with the theory. For example it is claimed that “birch” and “beech” were known and therefore the original homeland had a certain climate. But we do not know the original meaning of these terms. In fact, in Greek cognate of “birch” means the oak! Likewise, we do not know whether *ashva* meant horse in the earliest Sanskrit hymns.

In a recent paper, Nicholas Kazanas has opened many questions regarding the assumptions underlying PIE. For example, he argues that the three-grade ablaut (=vowel gradation) in Sanskrit is more convincing than the five-grade one proposed for PIE. He also argues that the retroflex/cerebral consonants in Sanskrit may have been a part of other languages in the family as well.

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The leaders of the academy voted against PIE years ago by withdrawing support for research in it, and informed students are aware of the sordid history of the discipline. Comparative study of language is useful, but it is time to move on past the race-inspired notions of PIE founded on circular reasoning.



## 24 Non-Western Cosmology

### 24.0

Cosmology, as the examination of the universe in its totality, variously uses the lenses of physics, religious mythology, and esoteric science. In general, it deals with homologous correspondences, expressed either numerically or structurally, among various realms of the cosmos, such as the physical universe, the human body, and the political order.

Religious cosmology directly deals with questions of creation (cosmogony) and destruction (eschatology); esoteric cosmology, on the other hand, uses logical argument to model the experiential and psychological reality of the individual.

Pre-modern cosmology is scientific to the extent that it is correlative, since it concerns itself with the correspondences between the inner and the outer worlds. Correlative thinking may take diverse forms, such as totemism, allegory, and analogical inference. It includes simple homologies, such as that between the organs of the human body, the seasons of the year, and the number of elements in nature, to systems of much numerical and structural complexity. Biological creation is one of the primary models in the development of the correlations and, therefore, most cosmologies include binary opposites, birth and decay, transgression and punishment.

In the last few decades it has become generally accepted that the geography of the myth is not only terrestrial, it is also celestial. Many myths have a basis related to planetary movements or the precession of the seasons. Some cosmological myths may even have a common origin since the old world had trade links, and the Vedic Mitannis ruled in West Asia for centuries in the second millennium BC. The Polynesians must have been aware of the cosmological ideas in Southeast Asia from where they set forth, and it has been suggested that they may even have carried ideas to the New World centuries before Columbus.

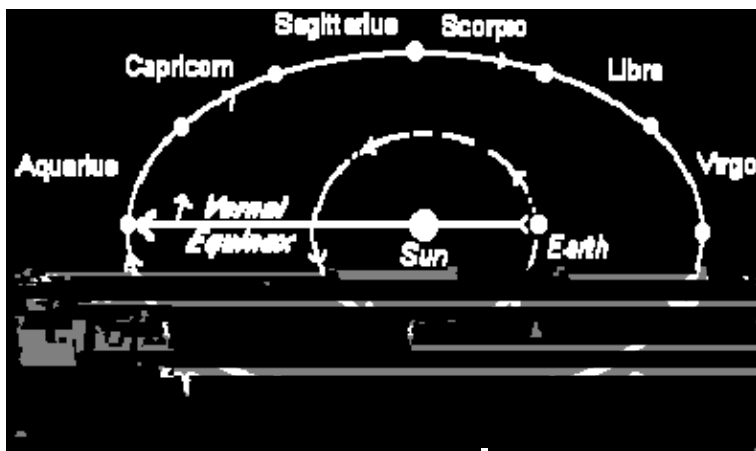
## Recursionism and Reality

Change and decay in the outer is correlated with parallel processes within by postulating linkages between the outer and the inner worlds. The frame of time changing owing to precession is seen as a consequence of an ongoing struggle between the gods and the titans.

Although the Sun and the Moon are the two great luminaries in the sky, the ancient mythologies gave much more prominence the planets, apparently because of their slower motions which could be discovered only by a careful study of the night sky. Jupiter, bright in the sky, was the great god of the cosmos, because of its sufficiently slow period of 12 years, whereas Saturn with its cycle of 30 years could only be the previous great god, who had now been deposed. Mars and Venus were taken in opposition to be the gods of war and love, and Mercury, whose circuit is often hidden behind the Sun, was the god of wisdom.

### 24.1 Precession of the seasons

The earth precesses with respect to the zodiacal constellations. The vernal equinox was in Taurus (Bull) 6,000 years ago, Aries (Ram) 4,000 years ago, and Pisces 2,000 years ago; it has now entered Aquarius. It is significant that the Vedic god Indra is called Bull in some hymns of the Rig Veda and Ram in others, indicating that the antiquity of the hymns may be correlated with these early epochs. The change of the frame of time is also connected to different world ages.



Vernal equinox in 2000

### 24.2 Structure in ancient cosmology

Although the general structure of the cosmologies may be similar, there are important differences of detail that make it interesting and rewarding to look at specific non-Western cosmologies. In part, this is due to the difference in the source material that is available to us. We have ancient texts only from the Mesopotamian, Egyptian, India, Chinese, and Mayan civilizations; for others, such as Polynesian or Australian, we have to reconstruct the cosmology from other kinds of data, such as remembered epics, sacred architecture, folk stories, and ethnographic evidence.

To understand pre-modern narratives, it is essential to go beyond surface stories; since native informants may be projecting their own esoteric knowledge into the categories of what they assume is the cosmological system of the ethnographer. But even in the case of texts, such as the Indian *Vedas*, the Egyptian *Book of the Dead* or the Mesopotamian epic *Gilgamesh*, there are two ways to read them: as surface story related to terrestrial events or as narrative that codes cosmological knowledge. Beyond the idea of correspondences between terrestrial and cosmic processes is the more subtle and esoteric linkages of these two with the individual's inner world.

The general structure is tripartite, represented by divinities belonging to the realms of sky, air, and earth, together with the goddess that symbolizes the power of regeneration in nature. In addition, there is a pair of gods, seen variously as one representing the moral law (a sky god) and another representing earthly power, or one ruling over life and another over the underworld.

The cosmology is represented by stories populated with a profusion of gods and goddesses with complicated relationship amongst them. The complexity is enhanced by the fact that the god assigned a particular function may have different names in different localities. But the ancients themselves were generally aware that the difference in names did not imply true difference. For example, Herodotus in his *Histories* (c. 450 BC) argues

for a correspondence between most Greek and Egyptian deities; he also sees the principal Arabian divinities Oront and Alilat correspond to the Greek Dionysus and Aphrodite. Likewise, historians accompanying Alexander in his campaign to India concluded that the Indian Shiva and Krishna (an avatar of Vishnu) were identical respectively to their own Dionysus and Apollo.

To the extent that esoteric cosmology, mirroring mutually the sacred and the secular realms, was a part of many ancient cultures, wars between cities or pestilence and disease were seen to parallel conflict between divinities in the heaven and within one's heart. This prompted observation of the motions of the stars and the planets; it also led to the development of astrology. Sacred buildings that included altars and temples represented general elements of the cosmology, with further details expressed in iconography and the ritual.

Each culture has its own cosmology and, therefore, the sweep of non-Western cosmology is enormous. The cosmos is viewed in some as finite and in others as infinite. Within a culture itself, the understanding is not uniform. But when we speak of the cosmology of a culture, we mean the understanding of those who have inside knowledge of the tradition. Sometimes this inside knowledge is found to be different from the reconstructions done by literary scholars, historians of science, and anthropologists. We will describe non-Western cosmologies from Asia (Mesopotamia, India, and China), Africa (Egypt), Americas (Maya), and Oceania (Polynesia).

### 24.3 Mesopotamian Cosmology

In Mesopotamia, the cosmos was viewed as a hollow space. Each city had its own deity, together with a temple, built on a high platform, which was the centre of the commercial and cultural life of the surrounding area. The main temples to different gods and goddesses were located in different cities, thus describing the whole region in a sacred geography. There were different gods for the earth, atmosphere, and the heavens, and for the Sumerians, the gods were called the Anunaki (*Anu* = skygod, *na* = and, *ki* = earth).

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The Earth was seen as a flat disk surrounded by a hollow space, which was enclosed by a covering made of tin. The atmosphere, between earth and heaven, was made of air, which was called *lil*. The moon, sun, stars, and planets were also made of *lil*, but they were also luminescent. Surrounding the universe was the primeval sea.

The four most important deities were Anu (skygod, heavens), Enlil (wind), Enki (water), and Ninhursag (earth). Anu, the god of the heaven, gave rise to Enlil who became “king of the gods.” His plans were further carried out by Enki, and Ninhursag was the mother of all living beings. Another list of major gods counted seven, which added Nanna (Moon), Utu (Sun), and Inanna (Venus) to the previous four. There was a longer list of 50 gods. The Akkadian equivalents for Utu and Inanna were Shamash and Ishtar.

The netherworld was the abode of the dead, and it was ruled by Nergal, the god of war and pestilence, and his wife Ereshkigal (*eresh* = under, *ki* = earth, *gal* = great), the goddess of the land of the dead. Originally, Nergal was called Gugalanna, the great Bull of Heaven, (from *gu* = bull, *gal* = great, *anu* = heaven). In late Babylonian literature, he is equated to the planet Mars.

Mesopotamian cosmology was a system of binary opposites of male and female. The universe first appeared out of Nammu, the primeval sea, which separated Tiamat, the mother goddess, and Apsu, the underground freshwater ocean. In turn arose Lahamu, the “the hairy ones,” who gave birth to Anshar (sky pivot or axle) and Kishar (earth pivot or axle), the celestial poles, who became the parents to Anu and Ki.

Babylonians believed in a six-level universe with three heavens and three earths: two heavens above the sky, the heaven of the stars, the earth, the underground of the Apsu, and the underworld of the dead. The Earth was created by the god Marduk (Jupiter) as a raft floating on the Apsu. The gods were divided into two pantheons, one occupying the heavens and the other in the underworld.

## Recursionism and Reality

*The Epic of Gilgamesh*, whose story dates to about 2000 BC although the clay tablets in which the fullest story is given date to the 7<sup>th</sup> century BC, presents many essential elements of the Mesopotamian cosmology. The story is about the adventures of Gilgamesh, the king of Uruk who is two-thirds god and one-third human, and his friend, Enkidu.

Enkidu, a wild man roaming with the beasts, is a menace to the herders. When Gilgamesh first hears of the troubles caused by him, he recommends that he be seduced by the harlot, Shamhat, of the temple of Ishtar. The animals now avoid Enkidu and he is forced to become a watchman, and the herders can lie in piece.

Soon Enkidu tires of his life and he challenges Gilgamesh. The fight for a long time, but eventually Gilgamesh gains the upper hand. Enkidu now praises Gilgamesh, and both swear to eternal friendship. As friends they set out to fight Humbaba, the guardian of the Cedar Forest, and kill him with help from Shamash, the sun.

Gilgamesh rejects the sexual advances of Anu's daughter, the goddess Ishtar, who asks her father to send the Bull of Heaven in revenge. But Gilgamesh and Enkidu kill the bull. The gods, wanting to punish one of the two for this act, pick Enkidu who becomes ill and dies. Gilgamesh laments for his dead friend and builds monuments in his name.

Gilgamesh, in grief, loses interest in his kingdom and, seeking eternal life, he sets out to find Utnapishtim and his wife, who had survived the Flood and been granted eternal life. After a long and dangerous journey, he meets Utnapishtim, who gives him two tasks, which when completed would make him immortal. Gilgamesh just misses completing the tasks, and returns to Uruk, sorrowing, knowing that he will have to die.

The slaying of the bull by the hero Gilgamesh was the mark of the shifting of the vernal equinox away from Taurus that had occurred before Gilgamesh's time but assigned to him for his glory; his own death was prefigured in the soon to occur passage of the equinox to Aries.

### 24.4 Egyptian Cosmology

Egyptian cosmology is often seen as reflecting a variety of forces, each represented by a different god. But there is another view that underlying this variety is a single reality of which the gods are a projection. In the creation myth, the first god, Ra-Atum, appeared from the water of primeval chaos and he created the Shu (air) and Tefnut (moisture) who, in turn, gave birth to sky (Nut) and the earth (Geb).

The gods were conceived when Geb and Nut copulated. Shu was angry at this and decreed that the pregnant Nut should not give birth any day of the year. Upon Nut's pleadings, five more days were added to the 360-day year, and on each of these days Nut had a child, Osiris, Isis, Set, Nephthys, and Horus-the-Elder, which highlights the astronomical basis of the story. The timing and position of the solstices was central to the mythological basis of Egyptian cosmology.

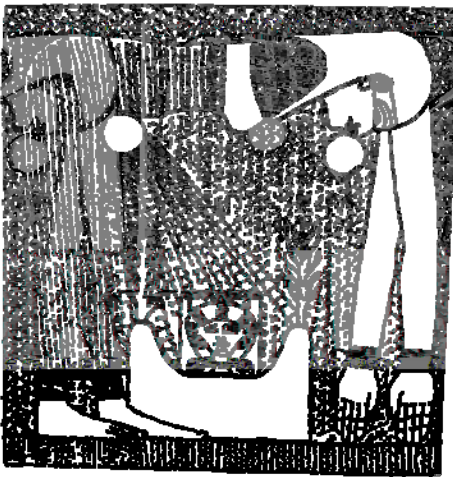
Osiris became king of Egypt. But he was killed by his brother Set, who tore his body into pieces, but Isis rescued most of the pieces for burial beneath the temple. Set declared himself king but was challenged by Horus, the son of the union of Osiris and Isis. Set lost and was sent to the desert, whereupon he became the god of terrible storms. Anubis, the ruler of the underworld, made Osiris the king of the dead. Horus became the king and from him descended the pharaohs. Scholars believe that Osiris is the prototype for Jesus.

Ra-Atum is symbolized by the Phoenix, the Benu bird, who was said to travel from the east every five hundred years, defining a world age. The bird became identified with the soul of Osiris and with the planet Venus, the morning star, which was said to be the sun's guide.

Temples to Horus were associated with the falcon, which became a symbol of majesty and power, and the model for the pharaohs. The primeval temple was seen as a shelter for the falcon's perch and this portion remained the most sacred place in the temple. Another

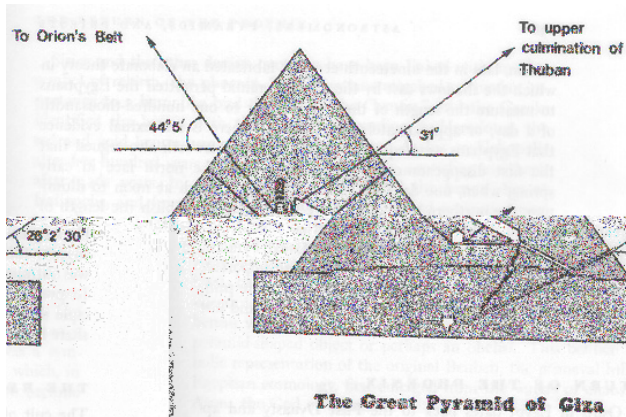
type of the temple was the sanctuary to the sun god, which began as a rectangular structure.

Although bulls were sacrificed in temples, cows were not, because they were sacred to Isis. Herodotus says: “The statue of this goddess has the form of a woman but with horns like a cow, resembling thus the Greek representations of Io; and the Egyptians, one and all, venerate cows much more highly than any other animal.” An important source of cosmological ideas is the *Egyptian Book of the Dead*, chapters from which began to appear in Egyptian tombs around 1600 BC. It can be thought of as the deceased's guidebook to the Underworld, where he would be judged against Ma'at, or *Truth*, by Anubis.



The sky-goddess Nut is shown as a naked female, adorned by nothing but stars, stretched across the sky. The sun (Ra) enters her mouth, passes through her body and emerges from her birth canal nine months later (from the spring equinox to the winter solstice).





The massive pyramids at Giza, near Cairo, are stone pathways to the gods and they are oriented to reach the immortal ones residing in the northern circumpolar stars.

### 24.5 Indian Cosmology

Indian literature provides us with considerable information on her science and cosmology. The chronological time frame for this history is provided by the archaeological record which has been traced in an unbroken tradition to about 8000 BC. Prior to this we have records of rock paintings that are believed to be considerably older. The earliest textual source is the Rig Veda which is a compilation of very early material.

There are astronomical references in this and the other Vedic books which recall events of the third or the fourth millennium BC. The discovery that Sarasvati, the preeminent river of the Rig Vedic times, went dry around 1900 BC due to tectonic upheavals is important evidence in the dating of the Rig Veda. According to traditional history, Rig Veda is prior to 3100 BC. The astronomical evidence related to winter solstices shows a layered chronology of early Indian texts from the third to the first millennia BC.

Briefly, the Vedic texts present a tripartite and recursive world view. The universe is viewed as three regions of earth, space, and sky which in the human being are mirrored in the physical body, the breath, and mind. The processes in the sky, on earth, and within

the mind are taken to be connected, leading to the idea that introspection can yield knowledge. The universe goes through cycles of life and death.

The three notions that underlie Indian cosmology are that of binding, paradox, and transformation. Binding is the connection between the outer and the inner that makes it possible to know, and this is the basis of the pervasive spirituality in India; paradox is the recognition that the binding must lie outside of rational system, leading to the distinction between the “higher” science of consciousness and the “lower,” rational objective science; transformation is transformation that the individual undergoes by participating in Vedic “ritual” or any other creative process. The cosmology related to this framework is that of infinity and recursion across scale and time.

### 24.6 Recursive cosmology in design



Sri Yantra

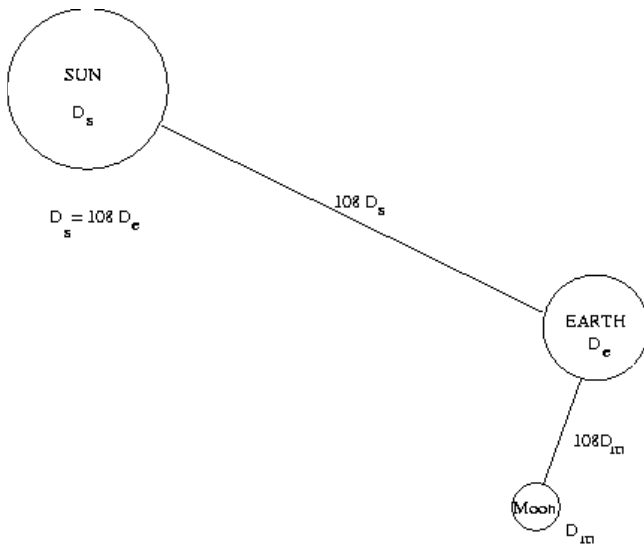
The iconic representation of the universe as the Sri Yantra, a design used in Vedic practice, shows recursion most clearly. First, the tripartite division into earth, atmosphere, and the sun, which is mirrored in the individual by the body, the breath, and the inner lamp of consciousness, is represented by three triangles. Second, within each triangle are lower hierarchical levels of two other triangles, of alternating opposing polarity that

represents male and female principles. All together, this adds up to 9 triangles, which through their overlaps constitute a total of 43 small triangles. Right through the middle of this is the dot that is Shiva, the Witness, or Consciousness. Nature evolves according to law (*rita* in Sanskrit), but it has a paradoxical relationship with the consciousness principle.

The façade of Indian temples shows recursion, in the repetition of the tower form to different scales. Within the temple, the manifestations of the Supreme Being are as the One and its many forms. There exists in them, for example, a hierarchical order of cardinal and peripheral images in relation to the centre, a balancing or pairing of polarities, and representation of the temple as World Axis, and the body of the deity. The polarities represented iconographically relate to female and male, demon and deity, left and right, body and mind, and so on.

### 24.7 Inner-Outer Correspondence and the number 108

The number 108 is central to Indian cosmology. It represents the approximate distance from the earth to the sun and the moon in sun and moon diameters, respectively. (The diameter of the sun is also approximately 108 times the diameter of the earth, but that fact is not likely to have been known to the Vedic astronomers.) It is likely to have emerged from the discovery that a pole removed 108 times its height has the same angular size as the Sun and the Moon.



The Earth-Sun-Moon system with the characteristic number 108

This number of dance poses given in the *Natya Shastra*, the 3<sup>rd</sup> century BC Indian classic on drama, dance, and music, is 108. The number of beads in a rosary is also 108, suggesting that the round of beads make a symbolic journey from the body to the inner sun, for the “distance” between the two is also taken to be 108. The number of joinings in the body should be 107, and not surprisingly, this is the number of vulnerable points in the body according to Ayurveda, the Indian system of medicine. The total number of syllables in the Rigveda is taken to be 432,000, a number related to 108. The number 360 is taken in the Ayurvedic texts to be the number of bones in the developing fetus, a number that fuses later into the 206 bones of the adult.

### 24.8 Ritual and cosmos

The Vedic altars had an astronomical basis related to the reconciliation of the lunar and solar years, which mirrors the reconciliation of the female and male currents within the body and mind of the individual. The fire altars symbolized the universe and there were three types of altars, representing the earth, the space and the sky. The altar for the earth was drawn as circular, whereas the sky (or heaven) altar was drawn as square.

The temple is considered in the image of the Cosmic Man, on whose body is displayed all creation in its materiality and movement. The outer cosmos is expressed in terms of various connections between the temple structure and the motions of the Sun, the Moon, and the planets; the inner cosmos is represented in terms of the divinity (universal consciousness) in the womb of the temple and various levels of the superstructure that correspond to the states of consciousness.

The Vedic sages were aware that all descriptions of the universe lead to logical paradox. Vedic ritual was a symbolic retelling of this conception. The transcendent basis of reality implied that it could be described in several complementary sciences, each of which suffered from its own paradoxes. Knowledge was classified in two ways: the lower or dual; and the higher or unified. The seemingly irreconcilable worlds of the material and the conscious were taken as projections of the same transcendental reality. The four most notable features of Indian cosmology are:

1. **An Extremely Old and Large Cyclic Universe:** The Vedas speak of an infinite universe, and the later texts mention very large world-ages. The recursive world-view requires that the universe itself go through cycles of creation and destruction. This view became a part of the astronomical framework and ultimately very long cycles of billions of years were assumed. The Puranic encyclopaedias speak of the universe going through cycles of creation and destruction of 8.64 billion years, although there are longer cycles as well.
2. **An Atomic World and the Subject/Object Dichotomy:** According to the Indian atomic doctrine, there are nine classes of substances: ether, space, and time that are continuous; four elementary substances (or particles) called earth, air, water, and fire that are atomic; and two kinds of mind, one omnipresent and another which is the individual. A subject/object dichotomy is postulated. The conscious subject is separate from the material reality but he is, nevertheless, able to direct its evolution. The material world goes through evolution.

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3. A Science of Mind, Yoga: Inner science, described in the Vedic books and systematized by Patanjali in his *Yoga-sutras* (150 BC) is a very sophisticated description of the nature of the human mind and its capacity. It makes a distinction between memory, states of awareness, and the fundamental entity of consciousness.
4. A Complete Grammar, Limitation of Language: The grammar of the Sanskrit language by Panini (450 BC), describes the entire language in 4,000 algebraic rules. The structure of this grammar contains a meta-language, meta-rules, and other technical devices that make this system effectively equivalent to the most powerful computing machine. The other side to the discovery of this grammar is the idea that language (as a formal system) cannot describe reality completely. This limitation of language is why reality can only be experienced and never described fully.

The cosmology is represented in terms of a list of divinities belonging to the realms of the earth, the atmosphere and the sky in the outer reality, which also correspond to the body, the breaths, and consciousness of the inner reality. In the Rig Veda, these divinities are:

*Terrestrial:* Agni, Prithivi, Brihaspati, Soma, Sarasvati (Goddess of Learning)

*Atmospheric:* Indra, Rudra-Shiva, Vayu, Maruts, Devi (Goddesses Uma, Durga, Kali)

*Celestial:* Vishnu, Varuna, Mitra, Aditya, Ashvins, Surya, Goddess Lakshmi

Each male god had a female consort. Lakshmi, Parvati, and Sarasvati are the consorts of Vishnu, Shiva, and Brahma (personification of the generative aspect of creator); Vishnu represents the moral order and Shiva represents the axis that holds the experiences of the individual together in the inner space. The deities are the projections of the transcendent Brahman and they may also be shown fused together: Shiva and the Goddess as Ardhanarishvara, and Vishnu and Shiva as Harihara.

Like the Mesopotamian epic of Gilgamesh, the Indian epic *Mahabharata* and the Puranas present the Indian cosmological ideas in detail. The stories not only use correlative correspondences, they also build upon etymological roots and word play. For example, the Sanskrit word *gauh* means both the Earth and the animal cow. *Gopala* (the protector of the Earth), one of the names of Krishna, can thus be employed for the image of the cowherd.

### 24.9 Chinese cosmology

The ancient Chinese cosmology may be seen in script, art, and architecture. A round heaven atop a square earth is symbolized in the form of the turtle and situates China, the Middle Kingdom, as the center of the world. Where the turtle's legs appear are the sources of winds from the northeast, northwest, southwest, and southeast. These five landmasses constituted the Chinese world and echoed the five elements of Chinese philosophy which are wood, fire, water, earth and metal..

Chinese texts speak of two ancient dynasties, the Xia and the Shang, in a binary opposition representing the underworld and the earth. The Xia was populated with dragons and aquatic beasts and spirits; the Shang, with humans and animals. The sun rose in the east from a Mulberry Tree near the sacred mountain Taishan and set in the Ruo Tree in the west near Huashan, circling nightly via the Yellow Stream back to the east. Some scholars feel that these two dynasties, the Xia and the Shang, with their antagonistic opposites gave rise to the yin/yang philosophy central to Taoism.

The Chinese viewed creation to arise out of the union of the cosmic pair of opposites, heaven and earth. The creative energy in its dynamic form is called *qi*. It is dual-natured with the opposites of *yang* (light) and *yin* (darkness). The elements *yin* and *yang* are interrelated and interdependent, and they explain the complementarity underlying worldly phenomena.

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Attention to *qi* is fundamental to the Dao tradition which has deeply influenced the classical arts and sciences of China. The creative artist projects *qi* in poetry, painting, calligraphy, architecture and design, martial arts, medicine, and so on, facilitating spontaneous experience of oneself within Nature, and the harmony of human energies between Heaven and Earth.

Chinese emperors claimed to rule at the pleasure of a supreme deity called *Tian* or Heaven, who signaled displeasure with omens and catastrophic events. Correspondences were seen between the macrocosm, particularly the astronomical heavens, and the political (and moral) microcosm of the imperial state. Scholars believe that correlative cosmology was perhaps not even systematized before the third century BC, with the *Lüshi chunqiu* (Master Lü's *Spring and Autumn Annals*) being the first text that describes the system in any detail. Correlative cosmology reached its high point of development during the Han era.

It appears that this formalized system of correspondences emerged in the last three centuries BC under the influence of Indian missionaries. The *Bohu tongyi* of the Han era combined two originally unrelated series, the yin-yang and five agents (*wuxing*), by pairing fire with the greater yang, water with the greater yin, wood with the lesser yang, metal with the lesser yin, and earth with the state in which the yin and yang are balanced. The more complex *najia* system, also devised in the Han era, correlated the lines of the hexagrams of the *Yijing* (= I Ching) with the five agents from the “Great Plan” chapter of the *Shujing* (Documents Classic), the ten heavenly stems and the twelve earthly branches, the phases of the moon, and so on.

Correlative cosmology was employed in the emperor's ritual. Han records mention that the emperor was to move in a circular movement around the center to parallel the course of one year. This was done variously on a circular passage around a square plan, and marking the four cardinal directions by means of smaller structures extending out of the circular path.



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The Chinese believe that time shows variability in its character, which can be read as texture or pattern, what they call *li*. Chinese Destiny at the individual or cosmic level is called *ming*. The *ming* of the individual and the *li* of time are beyond the scope of human influence.

*Feng-shui* is the study of *qi* in spatial form, flow, and orientation to select a favorable site for dwelling since ancient time, both for the living and the dead. Literally, *feng-shui* is *feng*, wind, and *shui*, water, with the suggestive meaning “wind is what cannot be seen, and water is what cannot be grasped,” or the controlling of wind and water. The *qi* of a site or house is considered together with the *ming* of its occupants, and its intended uses. The purpose of *feng-shui* is to establish a harmony between the cosmos, the physical environment, and the house. In general, it is taken that a balanced, symmetrical and south-facing space is best for the purpose of maintaining the harmonious relationship with the environment.

### 24.10 Maya cosmology

The Maya viewed the earth as flat and the universe as a multi-tiered square surrounded by the body of a crocodile. Within this cosmic square are three levels: the sky, the earth, and the underworld. From the center of the earth emerges the *yaxche*, the sacred tree of Heaven, whose branches support the sky, the trunk rests on the earth, and the roots reach down to the underworld.

The four corners and center of the square are considered five cardinal points, each with its own color. The center point of the cosmic square is green and from it grows the *yaxche*; north is white, south is yellow, west is black and east is red. The cardinal points are supported with upraised arms by the Bacab, four brother gods, who also see to it that the stars and the celestial planets remain in their places.

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The sky represents light and goodness, and its masculine force joining with the feminine earth brings forth life into the world. Upon death, it is towards the sky that humans ascend, climbing the great *yaxche* tree.

The sky is divided into thirteen levels, represented graphically by a pyramid with six steps located in the east, six in the west and a seventh step acting as a pinnacle in the center of the cosmos. Inhabiting the seventh level is Hunab Ku, the creator of the Maya, who is called “god of the gods.” Hunab Ku rebuilt the world after three deluges, which poured from the mouth of a sky serpent. Itzam Na, Hunab Ku's son, presides over the gods; he is the god of medicine, earth, rains and fire, as well as the inventor of writing and books. He has four manifestations, each with its own color and orientation, closely resembling the cardinal points.

Sharing the skies with Itzam Na are the lesser gods who rule over other aspects of nature. Kinich Ahau, the sun god is the father or perhaps merely another form of Itzam Na, and he shows many similarities with the Aztec god Quetzalcoatl. He is represented simultaneously as a good-looking youth and as a bent old man with a prominent nose. The youthful form represents his daily trip through the thirteen levels of the sky, whereas his decrepit form is his travel through the various regions of the underworld. He watches over health, music, poetry and writing.

Ixchel, Moon goddess, rules over fertility, songs and childbirth. She watches over bodies of water, such as lakes, lagoons, wells, rivers and the ocean. She wears a snake on her forehead to signify that she is the goddess of medicine and to symbolize intuitive knowledge. She is supposed to have invented weaving. She watches over the baby in the mother's womb and decides if a child will be male or female. In one story, she is married to Kinich Ahau, and when they quarrel, eclipses occur. She is the mother of the Bacabs by Itzam Na. Chaac, the god of rain and thunder, is associated with the creation of life and agriculture.

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Noh Ek, the god of planet Venus, is responsible for good hunting while Xaman Ek, god of the Polestar, is another deity on whom ancient navigators relied on when sailing at night. The orbital movements of Venus across the sky were carefully mapped by the Maya. They seem to have had another name for Venus: Xux Ek, for the wasp star. In the Dresden Codex, one of the very few books that escaped destruction at the hands of the Spanish, the beginning of the Great Cycle on the 11th of August 3114 BC is referred to as the birth of Venus. They had determined the duration of the so called synodic revolution of Venus, which is the time between two conjunctions between Venus and the sun, with an accuracy of two decimals. The Maya calculated the synodic revolution of Venus to be 584 days whereas the modern figure is 583.92 days.

Gukumatz, also known as Kukulcan, is the Maya name of the Aztec Quetzalcoatl “quetzal-feathered serpent.” He was the hero who taught agriculture, fishing, and medicine to the Maya, and gave them their laws. He came from the ocean, and eventually returned to it. He will return to the earth at the end of time. He is represented variously as a plumed serpent, an eagle, a jaguar, a pool of blood, a conch shell or snail, and as a bone-flute. Gukumatz is the god of the four elements of water, earth, air, and fire, which were associated with fish, maize, vulture, and lizard, respectively. He is a dual god representing both the earth's striving to ascend to the sky, and the sky's descent to the earth.

According to the Popol Vuh, a sacred book written in the 12th century, the gods used maize to create man, after attempts with clay and wood had failed. The Tzultacah group of deities combines the features of earth and rain gods. They are protective gods; they watch over harvests and cattle, and they provide game animals to assure men of good hunting. In return, humans worship and offer gifts to the mountains where the gods dwell, including the blood of small sacrificial animals.

The Maya believed that human action was meant to please the gods and maintain the natural balance of the world. The reward for goodness, loyalty, care of children and the

## **Recursionism and Reality**

cornfields was the thirteen levels of the sky, where one enjoyed peace and rest. Those who broke the law were destined for a prolonged stay in the underworld, and punishment.

Xibalba, the underworld, is made up of nine levels of darkness and shaped like an inverted pyramid. Each level has a step: four descending from the West, four ascending to the East and a fifth step sitting over the center. It is populated by creatures that bear malice to humans. All humans must make a dangerous passage through Xibalba on their way up to the sky. To prepare them for this journey, the dead are buried with a new pair of shoes, wood to fend off wild animals and food, usually corn. The god of death, residing at the deepest level of Xibalba, is Yum Cimil, also called Ah Buch, who is represented skeletally with bells. Helping him is the Jaguar God, the animal most revered and feared by the Maya.

The Popol Vuh speaks of the struggles of the legendary hero twins Hunahpu and Ixbalanque, the sun and the moon, against the lords of Xibalba, in which they perish and then are miraculously reborn. This myth provides a metaphor for the setting and rising of the Sun and the Moon, the agricultural cycle and the annual rebirth of the crops.

The Jaguar helps the sun complete its nightly journey through the darkness; its spotted fur symbolizes the starry skies. The worldly phenomena are a consequence of the eternal confrontation between the forces of good and evil. Offerings and sacrifices were made to appease the malignant gods and to ensure that the benevolent deities maintained the cosmic order.

Quetzalcoatl (Gukumatz in the Aztec Nahuatl language) is paired with Xolotl, the evening star, who guarded the sun when it went through the underworld at night. He also brought forth humankind and fire from the underworld. This fusing of the morning and evening symbols of Venus reveals not only knowledge of the orbit of Venus, which is to be expected in the astronomically advanced culture, but also a systematic spanning of the realms of the living and dead in a comprehensive cosmology.

The intervals and conjunctions in the orbit of Venus represented specific events in the life of Quetzalcoatl. The eight day disappearance period was his death. He would first lie in the underworld for four days, and then be bones for four days, and then reappear as the morning star on the heliacal rising, when he would ascend the throne again as living god.

### 24.11 Polynesian cosmology

Polynesian legends speak of the love the god Rangi (sky) felt for the goddess Papa (Earth) that gave birth to the world. Rangi embraced Papa and they had many children, but he wouldn't release her from the embrace, which stopped the growth of plants and trees and plunged the world into darkness. Their children, like Tangaroa the god of the sea and Tane the god of the forests, could not escape from their grasp.

The trapped gods tried in vain to separate their parents until it was the turn of the god of forest, Tane. Pushing at his father with his head and his mother with his feet, he finally succeeded, and light filled the sky. He then set the sun and the moon in motion, and decorated the sky with stars. He also created the first woman, Hina, whom he married. Their children were the first people. One of Tane's brothers, the god of winds Tawhiri, did not want his parents to be separated and he expresses his wrath by hurling storms against Tane's forests.

Māui is the son born premature to Makeatutara, the lord of the underworld, and his wife on earth, Taranga. She throws the newborn baby into the sea, wrapped in a tress of hair from her top-knot (tikitiki), which explains his full name, Māui-tikitiki-a-Taranga.

The spirits in the ocean protect and nourish Māui until he grows up. He now returns to his mother's house, where he finds he has four brothers and a sister, Hina. At first Taranga does not recognize him but when he recounts the circumstances of his birth she is convinced that he is her son. He impresses his siblings with his supernatural feats.

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At home, he finds that his mother disappears every morning. He follows her in the shape of a pigeon and finds her descend to the underground to be with her husband. He announces himself to his father, who celebrates his return with a ceremony. But Makeatutara makes a mistake in the chant and this means that unlike his father, he will die someday.

Returning to the earth, Māui goes on several epic expeditions. He takes the jaw-bone of an ancestress to snare the sun, who now promises to go slower to make the days longer so that people can get their work done. Next, he hauls up a great fish from the depth of the ocean, using the jaw-bone as a fish-hook. Asking his brothers to watch over the fish, he goes looking for a priest to perform ceremonies before he can cut it up. The brothers are impatient, however, and they begin to carve the fish, which begins to writhe in pain, causing it to break up into cliffs, mountains, and valleys of the North Island, known now as Te Ika-a-Māui (The Fish of Māui).

Next he goes in search of Mahuika, the fire goddess, to learn the secret of making fire. He learns the secret, but his behavior makes the goddess furious. She chases him, and when he transforms himself into a hawk, she sets both land and sea on fire. Māui now prays to his great ancestors, who extinguish the fire with pouring rain.

Māui soon after goes out fishing with Irawaru, the husband of Hina, his sister. They quarrel and Māui turns Irawaru into a dog. Hina is distraught, and throws herself into the sea, but she does not die.

Māui now wishes to win immortality for mankind. The Polynesian goddess of night, darkness, and death, the queen of the underworld is Hine-nui-te-Po, “Great Lady of the Night,” who the daughter of Tane and Hina. When she learns that Tane, who took her as his wife, was also her father, she flees to the underworld where she rules ever since. Māui tries to gain immortality for mankind by crawling through Hina's sleeping body, and he but warns the birds, his companions, that they must keep quiet, or the lady will wake up and kill him. The little birds stay quiet but just as Māui is about to emerge, the fantail

(tiwakawaka) cannot contain itself and bursts into laughter. The old lady wakes, and crushes Māui to death, who becomes the first man to die, and humans have remained mortal.

Rohe, sister to the sun, was beautiful and her face shone. She married Māui, but they quarreled when she remarked that Māui's face was ugly, which made Māui angry. He now wished to exchange faces, and when she was sleeping he used magic to kill her. After her death Rohe became the ruler of the spirit world.

In Hawaii, Kumulipo is an epic creation chant that describes the coming of gods in the context of astronomical events.

### 24.12 Connections between cosmologies

We spoke of many connections that Herodotus showed between the deities in Greece and Egypt, and we also know of the correspondences between the Indian, the Greek, and the Arab deities. Since the names in use in different areas were different, it means that the people knew the structure of the cosmological model and had concluded that there was structural identity.

A fundamental element in many of the cosmologies is the duality between moral and natural law, represented astronomically in terms of the sun and the moon. In Greece, this is seen in terms of the gods Apollo and Dionysus: Apollo is the sun-god, Dionysus is associated with the moon. Apollo is the patron defender of herds and flocks, and he represents harmony and order, which contrasts from Dionysus, who represents ecstasy and creativity. The Greeks thought of the two qualities as complementary.

Dionysus has an ambiguous relationship with the gods and he was seated on Olympus grudgingly. He marries the moon goddess Ariadne, and together they have several children. He is one of the few Greek gods who are faithful to their wives.

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We noted earlier that Greek historians accepted the identity of Arab Orotalt, Greek Dionysus, and Indian Shiva. Like Dionysus, Shiva is the god of the margins, his domain is inner to the individual, and he is faithful to his wife. Scholars believe that Orotalt was identical to, or became, Allah. The abolition of the solar calendar by Muhammad as represented by his destruction of the 360 idols in Mecca, and his adoption of the lunar calendar, confirms the intimate connection that the deity had with the moon.

Cultures have used the dialectic of myth uniquely when correlating the celestial to the terrestrial. This explains the fact that the non-Western cosmologies have much variety amongst them -- such as the universe is finite or infinite, cyclic or eternal. The way a culture used duality, which expresses itself across many levels from the realms of matter and spirit to different psychical entities, affects the way we experience reality.

Osiris became the model for Jesus. The past lives on amongst us.



## 25 Three Kinds of Reality

### 25.0

Reflecting on moments past, one is often surprised at one's thoughts and actions, even if the circumstances in which they occurred were different. In justifications of one's own history to oneself, it is common to ascribe those thoughts and actions to the severity of the situation, in acceptance of the view that we are not free agents and merely respond to forces around us.

On the other hand, we know that often our suffering is generated by the play within our inner world, and mental pain can be as severe as physical pain. If one has thought of ending one's life in response to inner suffering, then it is clear that there is at least one self within who, at the time of that dark thought, did not consider life worth living. But this is inherently paradoxical, because why should the self, if it is emergent on the body, wish for the body to cease to be; and if it independent of the body, feel despair at the condition of the person and his history?

It feels that one is not a single self, although there is some common thread holding these disparate incarnations. This commonality is more than our personal history; it is the "self" with its unique attitude, "the inner being" at its core, who is distinct from others. At other times it appears that there are several selves within, which interpose almost simultaneously in such a disjointed manner that one feels that there may be processes in our brain that are quite outside of one's control.

I was motivated to gather together my thoughts on these questions over ten years ago, when the neuroscientist Karl Pribram asked me to write up my general philosophical ideas about brain function for a book he was editing. This became *The Three Languages of the Brain: Quantum, Reorganizational, and Associative*. I wrote about a hierarchy of brain functions, arguing that first of all the brain has a holistic character, reflected in processes that are related to the conscious and the unconscious selves; second, it changes

its very organization by adjusting to its sensory environment as if it has the capacity to *understand* what is happening outside; and, finally, it has other processes that are associative, which are amenable to straight-forward mathematical and logical analysis.

The philosophy behind my essay on the brain was that form and process carry across recursive levels. I showed that there were other processes in nature that have similar modes of expression, and this was enough reason to suspect that they existed in the brain. I summarized the physiological evidence in favor of these three languages. In particular, I spoke about how the very models we construct of reality are mediated by the mind.

The reason why I classified brain behavior into three modes and not more was because these three are qualitatively different categories. The quantum considers the system as one whole and inherent in that is the potential for the variety of its evolutionary paths; the reorganizational implies a blind agency within the components of the system that lies beyond the reductionist paradigm; and the associative is in accord with reductionism.

The logics that are involved in each are different: superpositional in the case of quantum, active and goal-seeking in the case of reorganizational, and classical, machine-like in the case of associative. It is obvious that to assume that they unfold serially is only a simplifying assumption. In reality, the three logics are at play simultaneously, and if ordinary science considers mainly the classical, it captures only one aspect of reality. The three are untangled by the agency of the subject, and to this extent *understanding* is an artifact of the consciousness of the subject.

The three logics are the bases of our three lives. It is of course quite possible to see further divisions in each of these modes. In particular, the term “quantum” in the context of personal experience could mean different things to different people – the holistic experience could relate to the spirit or the body.

### 25.1 The brain and the individual

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I didn't get a chance in my brain essay to speak of how modes of human and social expression parallel the languages of the brain. These parallels are of greater interest to the layperson than the technical problem of brain behavior. These other languages manifest themselves in different kinds of speech, and also in social and economic organization. Let's talk here only of speech in as much as it constitutes the currency in which our inner dialogue takes place. I will describe them in an order reverse to the one that I had used in my essay on the brain. I shall speak of three social languages thus:

1. The language related to tradition, rules, and ritual. It provides satisfaction and security and connection to past and one's community. This represents the most basic animal part of our being. Most of these rules relate to social expression, although some others may relate to abstract entities. Principally, this language relates to the world of things, sensations, experience, ownership and power. It is also a part of religious ritual and secular ceremony. Its experience is communicated by ritual and patterns.

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artist, the scientist, and the philosopher, and the epiphany at the sight of a sunrise or sunset. It is also the happiness found in friendship, love, or sacrifice. By its very nature it cannot be part of the normal linguistic discourse, therefore, this communication is by means of hints, allusion and suggestion, by poetry and art.

These three modes of expression – let's call them Language A, B, and C, respectively -- are connected together by entities that straddle the boundaries between them. Language A is associated with power and pleasure, and in its limits it reveals paradox; Language B is associated with connections and concern, and it gives rise to compassion; and Language C is associated with insight and awareness, and it leads to wisdom.

We see the three languages at work in stage during the different phases of a child's education. Whereas words are sufficient to describe Languages A and B, the nature of Language C is ambiguous and it is not easy to communicate its experience directly.

From another perspective, Language A concerns ritual, Language B is about evolution, and Language C is about self-awareness. For those who have been taught that the world is about tradition, it is inconceivable that evolution could be true. For those who have learnt to see evolution as a function emergent on material ground, it is inconceivable that their awareness could be anything more than an epiphenomenon.

### **25.2 Ritual and meaning**

Rules and ritual, whether related to social behavior, bureaucratic structures, law, or organized religion, provide comfort. But often they become the end rather than the means to the exploration of the spirit, thus creating profound alienation and emptiness. Having learnt these rules, one wishes to change them, and to go beyond them to change oneself -- become a "better person" -- do something for community, for country, for mankind, for all of nature by being its steward. But this change comes with the fear of impending loss,

of recognition that it all is a mere twinkling of an eye of something that will all end before long.

It brings the insight that anything finite and bound by rules could not be the explanation of the mystery of one's own being, and it awakens a yearning for a sense that is beyond pain and suffering. But in order to reach this experience one is prepared to abandon all, go beyond the worlds of the first two languages, and put up with any suffering and pain. So powerful is the promise of the infinite, the breath of the eternal.

**25.3** These languages have several layers within them. Language A, for example, can address rules at different levels. Even when one is operating within the domain of Language A, one can go from the state of submission to that of power. Each has rules, but the nature of the rules and the degree of control may be different. This explains how a system that is fundamentally oppressive would be embraced by someone who thinks that it opens doors to a mode of behavior which is like that of a tiger, when earlier the person had lived like a sheep. Since the systems of rules have much variety, one can find immense aesthetic pleasure in living life through the prism of Language A. This constitutes life in most societies, where there are very few individuals openly challenging the rules, seeking a revolution, or speaking of the misery of life that is completely ordered.

Language B communicates combinatorial insight and it provides new ways of looking at tradition and the creation of new tradition and style. It is, therefore, associated with normal creativity and leadership in business, religion, and politics.

Language C, perhaps the anti-language, is about the experiencing self, the subject. It is most elusive. It is mostly remembered in terms of the changes that it brings about in the self, in one's character. This may be viewed as the discourse of the spirit, and the language behind true creativity. But others take it to imply sensuality alone, and this identification can have significant implications for a society.

All vital cultures have elements of the three languages in them, making it possible to live creative lives for those who seek it. Most organized religions are primarily about rules and the perpetuation of the power of its bureaucracy and priesthood. Some religious traditions have evolved so that limited reinterpretation is permitted, so as to remain consistent with self-evident truths. Only very few religious traditions emphasize spiritual quest. Most religions, therefore, remain retrogressive and project racial or ethnic pride.

### **25.4 Growth and change**

Just as Languages B and C emerge out of Language A, there is a similar emergence within the individual's development and a society's history. Therefore, a culture or political system that forces absolute obedience to its rules does not have room in it for people to grow beyond the oppressive Language A. Such a culture would not support creativity, and one measure of the vitality of the culture is a continuing stream of creative work.

It is imperative that education be devised to facilitate the natural development of the three languages within the individual's life. Education cannot just be about teaching of rules and systems, but also of the freedom and creativity that makes it possible to go beyond the existing rules and systems.

In the age of globalization, and of powerful world-ranging machines and organizations, the potential for oppression by bureaucracies, whether of society or State, is greater than ever before. This ought to have been the age of science and liberty, but the rejection of freedom is turning this for many people into an age of fanatic certitude in rules and literalism.

Faith becomes the prison that institutions of organized religion employ to keep people bound to them. But even in such a circumstance, people preserve their autonomy by devising their personal interpretations of the official religious myth, which is more in accord with natural law.

### 25.5 Selfhood and Pain

The potential for suffering is inherent in the scheme of the languages. Perhaps the real source of this suffering is the awareness that there is a fundamental lie at the basis of the rules, which suggest a permanence that simply does not exist. Language A concerns things, real or abstract, and since things can only be acquired and possessed, acquisition is a primary consequence of this perspective on reality. Since things decay, man has created higher entities that are taken to be permanent. These entities are associated with measure which mitigates the relentless count of days. A count of victories and money and statistics seem, in the rules of Language A, to negate the power of time.

Language B shows that the definition of entities itself is a result of evolution and past histories of the component systems, denying uniqueness to identity, which is a cause of pain. Language C peels away individual history, and although this should bring in even more pain and despair, subjects claim that it leads to calm and a strange understanding. By so doing, it preserves its counterintuitive, non-rational nature.

For those who don't have access to the intuitions of Language C, the rationality of Languages A and B is all that can be used to find meaning. Stories about athletes, actors, politicians, businesspeople, writers, wealth, power and investments provide the context in which the individual can measure his or her own match with time. What makes life bearable is an inner count that mitigates the fearfulness of the outer count. But there are also deliberate transgressions of law in the secret sphere of each individual's life. It is as if surviving such transgressions implies transcendence and a victory over fate.

Such transgressions are the modern analog of the ritual sacrifice of the ancient religion. But whereas the ancient performance was out in the open, with participation by everyone, the modern performance is furtive and haphazard. Religious ritual has been replaced by coming-of-age drug parties and promiscuous sex.

## 26 The Fourth Way

**26.1** Materialism, prophetic religion, and rational spirituality are three common approaches to perplexing questions about life. They provide their own answers to who we are and what our life means. Since ideas are the means to power, the followers of these approaches are often in violent conflict with each other. People may see events through a blurry theological lens, yet in states of heightened passion differences can turn to anger and war.

Each of these approaches is fundamentally antithetical to self rule by the people. Materialism is most consonant with the rule of the wealthy elite; prophetic religion to the rule of the clergy or their surrogates; and rational spirituality to the rule of the intellectual elite.

There can be no basis for true democracy until one trusts not only oneself to have access to knowledge but also all others. This requires faith that each person has infinite potential and he does not need an intermediary to apprehend it, something that neither of the above three approaches acknowledges.

Fortunately, there is a fourth way to representing and negotiating reality. But first, let us go over the three one more time.

### **26.2 Body, sensations, and power**

Materialism considers mind as an emergent phenomenon that is subsidiary to the body. Ownership of things and sense gratification are two central drives within this paradigm. This view provides great energy to people to work hard to obtain wealth, yet it also leads to alienation and emptiness, and we see this in destructive behavior, and a culture of drugs, greed, cruelty, and selfishness.



## **Recursionism and Reality**

Materialism is the mainstream view of science, although it does not explain many scientific problems. In particular, it cannot reconcile the freedom of the individual to its own program of causal order. Neither can it explain how awareness arises in the brain machine when it is absent in the computer machine. It cannot explain the reality of the self in the individual.

The classical materialistic position, as contained in pre-modern physics, was superseded by the advent of relativity theory and quantum mechanics. In particular, quantum theory makes a distinction between the process and the observer, and the privileged position of the observer appears to be irreconcilable to the idea of the primacy of matter.

Mind is relegated to a secondary position, but this makes it seek attention in different ways. Modern medicine responds to these cries of the mind by drugs that harm the person. There is an estimate that 40 to 50 percent of people in the rich countries are on psychiatric drugs that sedate them and prevent them from being in touch with their own selves.

Life in the materialistic, machine paradigm values combinatorial intelligence. Science and scholarship are the search for associations to reveal patterns in the physical world, including that of the body. But such associations can never capture the self.

It is not that the materialist does not acknowledge the spirit; only that it is made secondary. The spirit is taken for granted, and fuzzy words like values, tradition, professional or national cause are employed to ensure that the individual works hard and faithfully for the success of the larger societal machine in which he is a cog.

Without self-knowledge, individuals do not know how to emerge successfully out of the maze of emotions. The template of the jigsaw puzzle, taught to them at school and home, is not a deep enough lesson to experience true transformation and change in their lives.

Materialism has been the great impetus for colonization and conquest. For a long time, this was the colonization of unknown countries and subjugation of alien cultures. Now that such colonization is complete, man has entered the phase of colonization of body and mind, which is being done by the drug companies, colleges and universities, and the entertainment and information media.

The stars of the materialistic approach are celebrities and entertainers. At work in the machine system, a person must conform to their rhythms; at home, one witnesses disrobing of the performers. Since human contact at workplace has become minimized, one lives on ersatz emotion and in virtual reality.

### 26.3 Visions and prophecy

It might sound logical to say that we are just our bodies, but, deep within, the individual is certain that this view does not capture all. This is why people pay heed when someone comes along and speaks of visions.

Although the individual is a part of a controlled world, there is the desire within to subvert this constructed reality: hence submission to far-fetched notions, and acceptance of impossible stories.

Tertullian expressed this attitude in the sublime confession: *Credo quia absurdum est* (I believe because it is absurd). In reality he said: “And the Son of God died, which is immediately credible because it is absurd. And buried he rose again, which is certain because it is impossible.”

Prophetic religion demands a suspension of logic. Based on a myth and a promise, it appeals to the fundamental human urge to control and conquer. Since there are several prophetic religions, each claiming to be the true one, war between prophetic religions is inevitable.

## **Recursionism and Reality**

The simple core of a prophetic religion can be very attractive to someone who finds the rationality of materialism to be soul-less. The promise of everlasting afterlife can sound much more attractive than a life, which may appear pointless in retrospect. An increasing number of people are choosing to abandon the cosmology of materialism for religious belief, although they haven't abandoned materialism in the marketplace.

The prophetic path is the path of emotion whereas materialism is the path of cold reason applied to things outside of oneself.

### **26.4 Mindful emptiness**

If rationality is applied also to the problems of mind, then one has the third way of rational spirituality. But it is open to the criticism that ultimately it sees the core as evanescence and emptiness, which is troubling experientially as well as logically. From experience we know that there is an inner core to our selves that doesn't change; and if everything is transitory, then so should this statement be, giving lie to itself in the process.

It must use institutions to perpetuate this prof5 Tw 8.s3us thend, .3 T9hDaot9.f5 Tw 8.s3us theT-0.000 0men

### 26.5 The fourth way

The fourth way is the direct apprehension of reality. It takes on the world most directly, grants rational explanations for objective phenomena, yet acknowledging that the mind, by its very nature, has the capacity to comprehend the world.

It applies reason to the mind, just as the approach of mindful emptiness does, yet it doesn't stop at the logical argument since it knows that there is an unchanging substratum to experience. It acknowledges the axis of the experience as the axis also of reality.

Beyond ordinary rationality, therefore, there is a mystery that cannot be measured by objective science. This mystery relates not only the individual's cognitive capacity to know but also his capacity to change and transform both himself and his environment.

The fourth way embraces reductionist logic for objects, it depends on faith in the possibility that deep experience can lead one to understanding, and it maintains that logic must be applied to the extent it can – including on the instruments of cognition – until one has reached a point beyond which lies paradox.

Materialism is about being, prophetic visions are about transportation of being to rapture upon death, mindful emptiness is enlargement of being to mind, whereas the fourth way is about becoming and creativity and joyful life.

## 27 Freedom and Harmony

**27.0** The individual parts of the living system are whole and intelligent since the chain of self-organization is recursive. Not surprisingly, each component has within it the wisdom of the whole, and they unfold together, reorganizing along the way.

**27.1** Living in an unyielding machine-system, the individual is forced to become like a machine, and he is alienated from nature. It is not merely objects that people crave, but also inner life and meaning. In the absence of this inner life, a fog settles over the mind. Any strong voice then becomes a magnet that pulls the individual to it. Who speaks loudest doesn't necessarily speak the truth.

**27.2** Modernity glorifies individualism, but it atomizes the self, creating emptiness and despondency. The zone of harmony that lies between freedom and responsibility is a very thin line.

**27.3** As the individual becomes isolated, he forges links with images and reflections. It becomes easier to live in an artificial world that is a simulation of reality. It is easy to indulge in make-believe and fantasy in the mimic world. It is difficult there to distinguish truth from falsehood, and to realize that there is no soul behind the mechanical motion.

**27.4** Alienation's obverse is narcissism with strong and alternating drives of self-love and self-hate.

**27.5** As the world system becomes more organized there would arise many oppositions to it: some based on visions of paradise, others on the cult of death, yet others on the urge to dominate.

**26.6** The challenge is to balance the exploration of the outer with a corresponding exploration of the inner, to balance ownership with compassion, to balance the body with the spirit.