

## 6. Temple University: Rationalism and Spiritualism

*Reason is the Sovereign of the world. . . Reason is the substance of the Universe; viz., that by which and in which all reality has its subsistence. On the other hand, it is the Infinite Energy of the Universe.*

G.W.F.Hegel, Philosophy of History

*"What? know ye not that your body is the temple of the Holy Ghost which is in you, which ye have of God, and ye are not your own? For ye are bought with a price: therefore glorify God in your body, and in your spirit, which are God's"*  
(1 Corinthians 6:19-20).

*"If we do not expect the unexpected, we will never find it."*  
Heraclitus

*The most beautiful emotion we can experience is the mystical. It is the power of all true art and science. He to whom this emotion is a stranger, who can no longer wonder and stand rapt in awe, is as good as dead. To know that what is impenetrable to us really exists, manifesting itself as the highest wisdom and the most radiant beauty, which our dull faculties can comprehend only in their most primitive forms-this knowledge, this feeling, is at the center of true religiousness. In this sense, and in this sense only, I belong to the rank of devoutly religious men.*

Albert Einstein<sup>i</sup>

Dr. Eve J. Li is Dean of the College of Arts and Sciences at Temple University. Born in China, at age five her parents had brought her to the United States where she had excelled in American schools, winning honors in high school and going to Princeton to graduate with high standing in history. She began doctoral work at Harvard University's Divinity School; while there she had become fascinated both by natural and by human history. These two departments of history are in totally different locations on

the Harvard campus, and so she had vowed, “Someday I will address this gap. There really is only *one* history.”

As a dean at UCLA Berkeley, she had subsequently shown great leadership. Indeed, within two years of her arrival, faculty members had begun a broad-ranging study of the core curriculum. When Temple University President Wolfgang Tiamant Jonah learned about her, he knew he wanted to hire her, no matter what it took. Several months before, he had begun to notice a swelling in his ankles and legs, that usually came on later in the day. He has to prop himself up with three pillows in order to fall asleep, and even then, he sometimes wakes up gasping in the middle of the night. Walking to the end of the block or to his car in the shopping center lot brings on ragged, uneven breathing, and he is easily fatigued. These symptoms are familiar to him. Years before, he had had heart bypass surgery, but since coming to Temple he has managed to keep his old ailment a secret. Now he is looking for a successor – in case he were unable to continue in his position.

As soon as President Jonah approached her, Dr. Li naturally went online to look into the university’s history. She discovered that Roy Cornwell -- a Christian adventurer, writer, and storyteller – had founded the institution in 1884 at the Berks and Mervine Streets Church in Philadelphia.

A young man came to him expressing a desire to prepare for the Christian ministry, and Cornwell offered to teach him one night a week. On the first night, the young man returned bringing seven others with him and that was the beginning of Temple College.

Roy Cornwell loved stories about the origins of the universe. He regaled students with adventurous tales from his early years in the Middle East, sailing down the Tigris River in 1870, hiring a guide at “Bagdad” to show him Persepolis, Nineveh and Babylon, and the ancient countries of Assyria. The guide recounted to him Babylonian stories about the origins of all things, one of which he was fond of repeating to friends.

The Almighty thrust his finger into a bank of fog and then began slowly to move it around, gradually increasing the speed until at last with his finger he whirled that bank of fog into a solid ball of fire. It went rolling through the universe, burning its way through other cosmic banks of fog, until that fiery ball condensed the moisture on the outside and fell in floods of rain upon the heated surface of the universe cooling its outward crust. Then the internal flames burst through this crust and threw up the mountains so that the hills and the valleys of this wonderful world of ours were made. If this internal melted mass burst out and cooled very quickly, it became granite; what cooled more slowly became silver; and more slowly yet, gold; and after gold, diamonds were formed.<sup>ii</sup>

“You have diamonds in their own backyard.” Roy Cornwell told his students, “A diamond is a congealed drop of sunlight . . . pure carbon. It is deposited sunlight, the last and highest of God's mineral creations.... We live in deeds, not years; in feeling, not in figures on a dial; in thoughts, not breaths; we should count time by heart throbs, in the cause of right.”<sup>iii</sup>

Nobody at Temple University talks like this anymore. Temple is a secular institution and does not have the same mission it had in the time of Roy Cornwell. Now students ask questions about how to find a big-salaried job, or how to get into a status profession. There is no talk of a “higher purpose.” President Jonah knows that Dr. Li will address that loss.

Temple University has 34,000 students, and still it is growing. Students do not know their teachers on a personal basis. But they love sports, which is how they identify with the school. If Temple’s football team wins a game, everybody is ecstatic; if they lose, they’re all in the dumps. Religion – where identities were found in Cornwell’s time – has disappeared. The professions, sciences, and specialized subjects have taken its place. Temple now offers degree programs in 130 bachelor's degree areas, 110 areas for master's degree, 50 for doctoral, and 5 professional degrees. Graduate students will finish with an identity: I am a lawyer. I am a doctor. A chemist, or an economist.

President Wolfgang Jonah’s parents had been among Temple’s most inventive alumni. They gave him a middle name from the Babylonian legend in which the goddess Tiamant was said to have started the universe from chaos. About their last name, they said with Jewish humor, that everyone in the family was entitled to have a whale of a time.<sup>iv</sup> The President wants

someone who could carry on his work – to find some purpose and mission for Temple. Jonah believes that Dr. Li might fulfill his hopes.

Dr. Li does what President Jonah would like all faculty members to do. She invites students to discuss their personal problems with her. Just as important to him, she thinks inventively across all subjects asking questions that nobody else would ask, “How does the subject matter in one department link with those in other departments?” This is essentially the question she had posed at Harvard: “How do the studies of natural and human history come together as one study, a single history?”

Eve Li suffers from her own ailments, migraine headaches and periodic depressions. President Jonah was aware of these problems when he hired her, but he also knew that, despite her suffering, she performs magnificently. Her record in administrative leadership is outstanding. But once she had arrived, when he heard her almost crying out one day in poetic, even biblical, terms he wondered at first whether she had made the book by the prophet Job a special area of study: "There is hope for a tree," she had begun, the acerbic edge in her voice undercutting the hope she invoked, “If a tree is cut down, it will sprout again, its shoots do not cease to be alive; the scent of water will cause it to bud and put forth branches like a plant. But when people die and are laid low, it is as if a river were wasting away,

drying up, again.<sup>v</sup> Our lives are so brief,” she sighs, softening. “And when we are young, we normally cannot comprehend the profound importance of that truth, of impermanence. I will try to convey something of the preciousness of life itself, despite its constant, wearing difficulties, as I converse with students.” So, despite her personal condition, Jonah is certain that she will improve life on the campus of Temple University. And indeed within a short time of her arrival, students have already begun confiding in her about any and everything that troubles them: a serious illness, major surgery, a death in the family, an overdose on drugs, an alcoholic roommate, a major fight with parents over money, the blues, the loss of a job, flunking an exam, failing grades, dropping out, or generally wanting to commit suicide. She meets weekly with troubled students to talk about meaning in the face of pain and suffering.

President Jonah, who loves philosophy, thinks that her thinness might be the effect of some fire wasting her from within, which has found a vent in her determination to search for truth. Could this ‘wasting fire’ be the unspent flames of some passion, consuming its own substance? He could not help being intrigued with her, noticing that the colors she wore seemed to reflect her dominant mood; when the fire was burning down, or even banked, for the moment, she tended to dress in Western style of fairly drab colors –

muddy grays, midnight blue, dour browns. On other days, the fire seemed to flame from her, forcing itself out, as it were, from every pore. On those days she almost invariably wore a modified Oriental style in green or red, her favorite color. When he remarks on the difference, she explains. “For the Chinese, red is the color of blood and, yes, of fire, symbolizing life and prosperity. My favorite Chinese director Zhang Yimou is famous for his preoccupation with this color in his early films – ‘Red Sorghum’ and ‘Raise the Red Lanterns’, to name just a couple. When I was a child still in China, I loved a mostly red paper dragon I got one year for my birthday; dragons are symbols of creativity. Today, the 100 Yuan note, for example, is red. And just think of all those Communist emblems and flags! This is my *rational* explanation, more or less,” she manages to laugh and look serious at the same time.

He could barely keep his eyes off her black hair and eager dark eyes, especially during her more buoyant moods, but he had long since observed one unusual aspect of her face, a scar, hardly visible. It was an old scar he might rather call a seam, for it was not discolored and had healed years ago. It had once cut through her mouth, downward towards the chin, but now was only evident to someone looking closely. It is the scar, however, that most

fascinates the President, because he thinks that it might indicate the cause of Dr. Li's migraines.<sup>vi</sup>

President Jonah wants to be near her as much as possible, but he has a world of things he must do: fundraising for the university, building a new stadium, balancing the budget, looking over faculty applications for hire, tenure committees, to name a handful. Sometimes he gets tired! He wants her to know about his plan to help realize his hopes for the university's future, so he confides in her about his health problems, and sketches the history of heart disease in his family.

When he gets tired, Wolfgang Jonah listens to Mozart. He loves Mozart's *Requiem* as well as the *Messa Da Requiem* by Giuseppe Verdi. "Verdi was a great man, never an atheist, in my opinion, just a very doubtful believer like me," he tells Dr. Li. "His *Requiem* has overwhelming emotion, focused, concentrated: the *Dies irae* 'exploding with force and rage'; the *Mors Stupebit* sung quietly, with the trumpets offstage. What terror! The whole thing beginning with such fire and fury, followed by the *Lacrimosa* . . . exquisite lament. The chorus and the soloists come together and finally that somber conclusion. Look how the instruments speak to one another," he continues. "There is something pure and primitive in this music."

Gradually, Dean Li is coming to see the two of them as on a common path, but with him forging ahead of her. Sometimes, she feels a spell in the presence of this man, and so she listens now respectfully. She knows that in contrast to Verdi's *Messa*, Mozart's *Requiem* affords him a sense of great calm.<sup>vii</sup>

"If we're ever going to understand what is happening with my heart," he concludes, "I must understand the 'networks' my doctor keeps telling me about; the immune system's 'networks of proteins' is his description. He says we need to understand how they coordinate and carry out their functions; and about the way blood pumping around the body carries food and oxygen to the cells."

Often as they stroll together on campus, as if in a private conference, they discuss the purpose and future of Temple. Both interested in ancient legends and enjoy considering different ways they could speak to student and faculty alike today.

Not only is the new dean familiar with Chinese culture, she is also an expert on Chinese history. She has read Lao-tzu and knows from the "Historical Records" (Shih-chi) that his surname was mythic; originally the family went by the name of Li, like her own. She has studied Chi (Qi), the fundamental life force, and understood how 3,000 years ago, the *Qigong*

masters in China discovered ways to balance and invigorate the human energy field. Ancient masters developed Tai Chi, Kung Fu, the martial arts, and created the first model for acupuncture using moxa, an herb they placed strategically on different parts of the body, then set on fire, allowing it to smolder briefly before snatching it off; they put magnets at acupuncture points to balance the yin and yang, the connection between opposing forces in this human energy field. Dean Li had studied not only the ancient stories of China, but also those of Egypt, Mesopotamia, and India. “Each world religion has a mystical tradition,” she says. “Islam has its Sufi, Judaism its Kabbalah. Christians have their Gnosticism. Medieval artists painted halos around Jesus and the same circular- or almond-shaped halos, or *mandorlas*, can be seen in statues and paintings of the Buddha. Artists portrayed this light in the gods of India as well.”<sup>viii</sup>

Dean Li wants to bring ancient insights into the study of history. Ancient Asian thinkers looked at the human body very differently from Western scientists. Western medicine develops categories of injury and disease and looks for causes to heal or destroy. The Chinese say that “causes” at the physical level are important, but in ancient medicine this cause-effect relationship is secondary. The logic of Chinese medicine is not “What X is causing Y?” Rather, it is “What is the relationship between X

and Y?” Chinese medicine looks at configurations of harmony and disharmony in the whole person and base medical treatment on that.

In Chinese logic, nothing is totally isolated. A part can be understood *only* in its relation to the whole. Ancient Chinese medicine is dialectical, based on a theory called *Ying-Yang*. Ying and Yang are *complementary opposites*, neither forces nor material entities exactly, but part of a logic that sees links among opposites. Opposites for the ancients are interdependent, and neither side is absolute. One cannot permanently dominate the other.<sup>ix</sup> In this ancient way of thinking, all things have two sides. Within each Yin and Yang category is yet another set of opposites, based on relative relationships. For example, temperature can be divided between hot (Yang) and cold (Yin), but cold can be divided further into icy cold (Yin) and moderately cold (Yang). Lao Tzu (or Lao Zi), the founder of Taoism, wrote of these complementary oppositions. Dean Li often recites one of her favorite poems of his to friends:

Being and non-being produce each other;  
Difficult and easy complete each other;  
Long and short contrast each other;  
High and low distinguish each other;  
Sound and voice harmonize each other;  
Front and back follow each other.

So the Western idea of “causation” is almost absent in ancient Chinese thought. It is not that the Chinese had no sense of cause-effect relationships; rather, they emphasized a different sort of relationship, the complementarity between opposites. Opposing things influence one another, they said, not so much by acts of mechanical causation but by an “inductance.” Inductance may be compared to an electric circuit in which a force is created by a change of current within it or in a circuit near it. So certain behaviors do not take place just because of prior actions, but because of their relative positions in this ever-moving universe endowed with this intrinsic nature. The body is a temple, Dean Li is fond of saying, only one part of a global organism.<sup>x</sup>

Dean Li had studied ancient Chinese literature partly because she was interested in her ancestry and partly because she wanted to understand her headaches and a nameless terror that accompanied them. Sleeping alone, she had nightmares and would suddenly rage out. She went to an American psychiatrist who suggested she create an object for her rage, "Rage against your parents," he first recommended; but in the night she could see only chaos. Then with no positive results, he had said: "Rage against God, for god's sake." Finally, he wrote her a prescription for Seroquel, a medication supposed to relieve her anxiety and agitation. She tried a few, and then threw

the rest away. The doctor's suggestions were well meaning but not what she needed.

In her diary, during one of those dark-soul nights, she had written, as if again possessed by a Job-like spirit

When shall I rise, and the night be gone? I am tired of tossing to and fro till dawning of the day. My flesh is clothed with worms and clods of dust; my skin is broken. I am become loathsome to myself. I look at the birds and see no beauty, only raw flesh, sharp tooth, and blood. By the breath of God, strong lions are wounded and perish.<sup>xi</sup>

When she showed some of these outpourings to two or three close friends, she got differing advice. One of them, hearing the biblical overtones in her rhythms and imagery, counseled her to believe in God: "God overturns the mountains by the roots, cuts out rivers among the rocks; His eye sees every precious thing. God binds the floods from overflowing; and the thing that is hid He brings forth to light." But when friends spoke, their words were like nothing to her, only a wind wafting. She had no word for her condition.

Ruth Landman, who teaches in the English Department, spoke about famous people she said were similar to Eve. Sylvia Plath, the poet, had ended her life at age 31 because of the visions she suffered from. Eve said she knew of such cases but Ruth's words turned to ashes. Unable to explain

her condition, Eve's eyes dim with grief. So she became more silent when counseled by others. Why speak?

She did continue talking however with President Jonah about ancient Chinese myths, which they thought, having by now become close friends, could profitably be compared with those in Mesopotamia. Around 1500 BC, great tyrants of the Shang dynasty had dominated the Yellow River basin. In the mythic history associated with this era, there reigned cloaked dragons and powerful war gods and Chaos -- just as had occurred in ancient Mesopotamia. A propos her nightmares, Jonah conjectures: "Could your lower brain still be carrying those ancient energies?"

In response to his question, she recounts a Chinese legend:

Pangu, born before anything, underwent great bodily changes when he was dying. His breath became the winds and clouds, his voice thunder; his left eye the moon, his arms and legs the four poles of the earth, and the five parts of his body, the five mountains. His blood formed the rivers and his veins the roads. His flesh and skin became the soil of the fields and his hair and moustache the stars. The fine hair on his skin turned into grasses and trees, his teeth and bones became metals and rocks. His marrow changed to pearls and jade and his sweat fell as rain that nourished all things. The insects on his body, caressed by the winds, took the shape of men and women.

"The sky and the earth were at first one blurred entity, like an egg," she continues. "Into this egg, Pangu was born."

The separation of the sky and the earth took eighteen thousand years; the Yang was light and pure and rose to become the sky, and the Yin

was heavy and murky and sank to form the earth. Between them was Pangu, who went through nine changes every day, his wisdom greater than that of the sky and his ability greater than that of the earth. Every day the sky rose ten feet higher, the earth became ten feet thicker, and Pangu grew ten feet taller.<sup>xii</sup>

Slowly as she speaks Dean Li begins to feel rage, not terror. With the dimmest eye, she sees confusedly that while she is now terror-less, she is being flooded with rage. At first, she is relieved, but then she's hit with the thought that perhaps Jonah had been right; perhaps the sudden disappearance of her fear reveals the residue of an ancient Shang *mogul* acting in her brain! During the Shang dynasty, a "mogul" would be called a psychopath, cold without fear. Was this a lower-brain activity generated long ago, as yet unresolved? At this thought, the rage subsides, and she quickly feels herself re-centering as she and the president part company.

As students become better acquainted with her and word about her got around on campus, they are attracted to her for reasons they could not exactly name, perhaps because of her faith, apparently unattached though it was, her compassion, and her breakthrough insights. They call her Professor Eve and find something about her mysterious, a faint scent of musk and Fall apples in her presence. Or did they imagine this?

Dean Li decides to teach a course on history and evolution, intrigued by ancient legends about "the origins." In anticipation of this course, she

begins probing the students who come to visit with questions that recall the title of the painting Gauguin completed at the end of his life on a Tahitian island: “How did we get here? Who are we? Where are we going?” How do we connect science with legends on the origin of things?

“We know that natural history -- from the Big Bang -- is one continuous story to civilization but we do not know how to tell it,” she says discussing the course with President Jonah. “When I was a student at Harvard, I asked professors: ‘How can we explain this whole course of history? It looks like an accident,’ they replied, “something close to the rolling of dice, but we do not know for sure.””

“Well,” President Jonah said, “Maybe you should explore this question with graduate students. Bring in some faculty with you. It could be a beginning for broad faculty discussions. I will sit in on it, not as much as I would like probably, but as much as possible.”

### The History of the Universe: One-Year Course

In addition to her administrative duties, Professor Eve writes a syllabus for the course she is proposing to teach. She plans to bring in scientists to lecture in her course and invite professors from the humanities and social sciences to join the discussion. For this, she will ask a poet, an economist, a sociologist, and a historian, to be present in the audience. This will be a

yearlong course, to start in the fall, with summer reading for students who sign up during the previous spring. She asks prospective students to read selections from subjects not taught at Temple University, selecting readings from Albert Rothenberg's The Emerging Goddess, R. C. Lewontin's Biology as Ideology, Steven Stanley's Extinction, Edward Harrison's Masks of the Universe, Timothy Ferris' The Mind's the Sky, Kahlil Gibran's The Prophet, Gurdjieff's Meetings With Remarkable Men, The Gospel of Sri Ramakrishna, articles on Edgar Cayce, Tao Te Ching, Emily Dickenson, Yogananda's Autobiography of a Yogi, Swedenborg, Gopi Krishna, Govinda's Foundation of Tibetan Mysticism, Ramacharaka, and some of the religious writings of William James. Tall order! "These readings are for your pleasure," she adds. "They will introduce you to what will be important in next year's course. You will learn about things not taught at Temple, such as chakras, *astral bodies* and the *akashic records*, which we will refer in the fall when we hear from the scientists."

At the opening of fall classes, she walks into the classroom wearing a shiny red, sleeveless Chinese dress with a mandarin collar, frog fastener instead of buttons, and side slits. She sits down at the front desk in silence for a moment. President Jonah sits in back in the chair closest to the door. Slowly her head lifts. As she speaks, a feeling of excitement builds.

“I believe,” she begins, “that an evolution is taking place. But the story of this evolution is complex, far more complex than scientists let on to us. As we shall see,” she says, “Although Nature is composed of matter and energy, there’s more to it than that. And evolution is not just linear; it does not just proceed in a straight line. Not everything is pure progress; a lot is also regress. Scientists will lecture here and show us how particles transform into atoms; atoms into molecules; molecules into cells; and cells into multi-cellular organisms and organisms -- like plants and animals – evolve as do anthropoids into higher consciousness. She diagrams the evolutionary stages on the blackboard as students take notes.

“Other faculty members in the humanities will join us and ask questions. We need a vocabulary to describe this history... such an incredible story!” she exclaims, “one that cuts across every subject in the university.”

Students are puzzled by what she is saying, but they are open to hear her.

She raises her arm suddenly, pointing her finger. All eyes turn to the door. But no one is there. Now she explains that this gesture is a “sign.”

“Animals make signs,” she says. “They howl a greeting or screech a warning

to others in a time of danger. Birds speak to one another. They are social. Anthropoids were social and learned to create symbols, or words, which are what made them human. Notice. Every word I speak in a sentence is a symbol and this entire “symbol making” began so many years ago.

“When I say ‘table’ you know what I mean but it took you a long time -- when you were a child -- to generalize in your mind this object with legs and a flat top. Now you have an interior image that carries those general attributes for you. It took a long time, too, for the early humans to create these words and sentences – to move from signs to symbols and then from symbols to complex languages. Now we live and talk in symbols. We have symbol systems at all levels of abstraction.”

President Jonah looks on, beaming. Watching closely as she speaks about abstraction, he feels the aura of calm that her every sentence evinces.

“Faculty members in this university construct their reality through symbolic systems. The history of the natural universe is told through the symbol systems of physics, chemistry, and biology, but what I would like to ask is why can’t this story be told equally through the symbols of art, poetry, and literature?”

She is ahead of the students, and pauses.

“Stay with me. The core courses in your curriculum teach you that the elements in the stones and stars – are outside you in a material world. This is true. But it is also not true, not the whole story. The elements of the stars and the stones are also in your body. They are now part of another nature there, or here, inside you, inside us. Scientists talk about external reality but they eliminate *feelings* from their perception of the data. Science as a symbolic system has eliminated emotion from its subject. Yet, remember: not even scientists can know the world fully. “Now I invite you to join me on a trip back to ancient thought in China.”

She tells the class about complementary opposites in Chinese thought, and about Yin and Yang, introducing her own perspective. “In this pursuit of knowledge in which we are all engaged,” she goes on, “our world has *two* sides, an Inner-and-Outer side. The sciences emphasize the outer side through empirical research but there is also an inner side where we are feeling and thinking. In reality, the two sides are not strictly separate; they are always interacting.

The students listen to her carefully.

“I’ll tell you what I believe. This long natural history is moving us toward a greater inner life. Ever since we learned as a race how to create symbols, we have been evolving a reality *within* that is real and powerful.

Observe how we are gaining control over the external world of nature, even as that world outside continues to affect us. There is a tension of opposites here: Inner and Outer like Yin and Yang, each linked and mirrored in the other.”

This is difficult for students to grasp, but they remain alert in their seats, waiting and wanting to hear more.

“An inner evolution is taking place. Your science professors see the evolution of this *outer world* occurring through changes in stars, plants, and animals, but professors in the humanities see the evolution of an *inner world*. Historians describe the story from primitive to imperial societies, and from feudal to more modern times. There is also a deeper inner life that they see evolving, revealed in the development of symbols in the fields of theater, poetry, art, sculpture, the novel, and more. These human studies deepen further our inner life and our understanding of who we are and are going to be.

“The members of the humanities departments at Temple University introduce us to people we have never met, places we have never been, and ideas that never have crossed our minds. They show us how other people have lived and thought; connect us with others inner lives. They convey

feelings about what is right or wrong in the life of families, communities, and the larger world.

“People in primitive societies did not know about the discoveries we moderns have made, such as the atom or the molecule. They could not appreciate the nuances and feel the power of a painting by a Dutch Master or a symphony of Beethoven, but they did have powerful inner capacities, one of which was the power of clairvoyance.

The ancient Hindu religious texts describe clairvoyance as one of the *siddhis*. A *siddhi* is a spiritual power for understanding one’s inner life through meditation and personal discipline. But since around the time of Charles Darwin, this understanding of inner development has not been part of any theory of evolution. Yet, Alfred Russell Wallace, the co-discoverer of evolution, studied clairvoyance. He saw the importance of this inner evolution as did philosophers, such as William James, who studied clairvoyance in his research on consciousness.<sup>xiii</sup>

Some students were looking a little dazed. Dean Li was definitely moving too fast now.

The boldest among them raised her hand tentatively. “In the summer readings, I learned about Yin and Yang. How do you connect that idea of complementary opposites with this Inner/Outer evolution?” the student

asked, breathing a sigh of relief at having bolted something out before this strong and mysterious new teacher.

The student, Dr. Li noticed, was wearing black jeans with a white knit shirt.

“The black of your jeans is opposite to the white of your blouse. That’s something we confirm with our eyes. But if we talk about *blackness* and *whiteness* as abstractions, we are at a higher level of thought where the principles of Yin-and-Yang, Inner-and-Outer are at play. “Our world of thought intertwines symbolic opposites. At the physical level, with our eyes, we see *black as the opposite of white, male as opposite to female and night as separate from day*. These opposites, as given to us by our senses, we might think of as incompatible. But at this higher level of thought, we can not only conceive of, but also perceive *Maleness and Femaleness* inter-influencing and intertwining with each other.

“Darwin’s theory of natural selection in biology assumes that everything is composed of Matter; Consciousness is simply not part of his order of scientific thought; it’s not in the picture. But terms like Yin-and-Yang, Inner-and-Outer are related. We can show this unifying sense by connecting the individual words with hyphens.” She jots them on the board.

The girl in black-and-white looks mystified again.

“Don’t worry,” Dr. Li reassures her and elaborates. “My concept of a joined Inner-and-Outer may sound big, but it is an important one. The words that make up this phrase, taken individually, do point us in different directions: *Inner* points to what we think and feel inside and *Outer* points to what we sense by seeing, hearing, and touching. But we are constantly linking our inner with our outer world, by the interpretations we make of that outer world with our consciousness. So we are *participant observers*. We make assumptions about reality without actually knowing what it is.”

There are quizzical looks and looks of outright incomprehension. The girl in black-and-white has sunk back in her seat.

“I understand this is difficult but I am leading you into a new field of study. We begin our inner understanding through denotative words, which refer to outer objects, like stars and stones, and then develop them through connotative words at higher levels of abstraction, like *justice* and *wisdom*.

“Let me demonstrate to you how words evolve their complexity over time.

“Look at the verb 'run'.” (Dr. Li stands up and starts running in place.)  
“In the simplest *sense* we know what ‘run’ means. But this word ‘run’ has evolved over time and now offers us more potential for understanding the word in terms of inner as well as outer space. It entered language by

explaining how humans and animals run, in ways that are visible to the eye. But now we also apply it metaphorically to rivers. Rivers ‘run’, we say.

“So this term began with a sensible meaning for us and it probably sounded strange when someone first talked about rivers *running*. People knew that rivers couldn’t run with *legs*.

“Now this phrase, *rivers running*, is what we call a ‘dead metaphor.’ We have forgotten its origin. Now not only rivers but also taps and fences *run*. We have taken this word from one further stage of its meaning and generalized it to include many more things in our minds. We are developing, that is, evolving an inner space.

“When we speak of fences ‘running’ around a boundary, for example, there is no suggestion of any physical motion like what you saw when I ran in place. The “running metaphor” has taken on a different meaning; it refers to *following a path*. Today it emphasizes one feature of the original idea of running, that is, rapid movement through space, and suppresses others, such as the visibility of this movement. Running is an activity that originally involved putting one leg in front of the other in a regular fashion, but it has many other features. By abstracting certain elements of the running activity, over time, we have generalized the idea in ways that go beyond the physical

act of movement. This builds our inner space. Notice: is there anything *running through your mind* at the moment?” She smiles.

Everyone in the classroom, including President Jonah, smiles back.

“So this verbal metaphor can be seen as a mechanism for our inner evolution just as natural selection is viewed as a mechanism of our outer evolution. The concept of the metaphor explains our social evolution just as natural selection explains our biological evolution. And we can say that metaphors develop greater inner space not unlike the way atoms developed more outer space for us.

“We have, in fact, produced a large stock of symbols that allows us to evolve inside ourselves. We mix ideas, feelings, and contexts together and develop inner life-space. This inner space helps us understand the evolution of outer space. The phrase ‘natural selection’, for example, was not in our language until Darwin invented it as a metaphor to explain evolution.<sup>xiv</sup>

“The inner development of the mind is ‘natural’ metaphorically speaking, but other ‘mechanisms’ that we will investigate also affect the process. The study of these factors is what this course will be about. The whole of history can be explained by linking words in the humanities and the sciences. The vocabularies of each represent higher forms of thought that explain the history of this Outer-and-Inner world.

“So let’s begin to look at this long history and the terms that explain it.

“Natural selection refers to the history of organic life but does not explain the history of stars. Nor does it explain the history of culture. We are working on a new language here. The whole story from the Big Bang on has the character both of myth and of history, and so it should become easier to comprehend by a discussion among members of all departments -- the sciences, the arts, and the humanities.

“I appreciate your wanting to *simplify* things for us,” interrupts the first student, regaining her aplomb but also chagrined. “But from what I’ve heard so far, the discussion is going to get more difficult before it gets easier.”

Dr. Li nods approval. Looking out the window at light flickering on a sugar maple tree outside, she adjusts her mandarin collar thoughtfully.

“Here is my metaphor for you: Look at the sunlight outside. Now, imagine that we have a great sun inside us that mirrors what we see outside. Imagine that since it is inside, it exists at a higher level. It is a power that we are coming to know as we evolve a higher level of consciousness.

“We are also like that maple tree outside with its roots in the Earth, its branches and leaves receiving nourishment from the sun. The Earth in which

the tree is rooted has its own ‘sun’ right at its own inner core. The Earth’s core is composed of fiery liquid iron at a temperature close to that on the surface of the sun, about 5000 degrees centigrade. So all things are evolving – the Earth, the tree, and we ourselves – evolving from the power of a great light that mirrors itself inside and outside, again on the same principle as Yin and Yang.”

Suddenly her voice shifts register. She speaks almost under her breath, so that only the front row can hear: “The ancients used to say ‘as above, so below.’ This phrase holds the key to our mission and all mysteries.<sup>xv</sup>”

“Let me put it this way,” more loudly. “The story of our inner history represents a higher stage of our development, but it reflects those earlier stages of natural history explained by science. The evolution of our inner space keeps synthesizing those elements that are evolving in outer space, but at a higher level of composition. And the aspects or elements of what I am calling Inner-and-Outer are in constant reciprocity. Through or by means of this reciprocity, we learn about the subject of history.”

Another student raises his hand. “I’m just not getting it, frankly.”

Professor Li suppresses a smile: “An Inner-Outer perspective is essential, because one side is found through the other. I reject the view of some scientists who claim that ‘reality’ is only outside. This claim I call

‘scientism.’ But, there is equally a danger in overemphasizing the inner life. An extreme overemphasis of that sort leads to ‘spiritualism.’ I am dedicated to finding the relationship between these apparently competing worlds. Does this make more sense to you?”

A student named Jack in a baseball cap, seated near the president in the last row, has been thinking about Bobby Abreu clubbing a grand slam to lead the Philadelphia Phillies in a win over the Chicago Cubs, 6-4, the finale of a three-game series. At her question, he snaps to, half-raising his hand. “I don’t get it, either. How does this Inner...uh, Outer world develop simultaneously? How can you find one side *inside* the other?”

“Our inner world is developed through memory and our encounters with the arts, poetry, drama, music and literature. It depends on the outer world and develops through it. You’ve seemed a bit distracted today. My guess is that what was running through your mind while I was speaking depended on what you had seen in the outer world, but it was not the same as the external experience, something was added.”

“Mmmm” – Jack looks a bit rueful “I was thinking about the Phillies beating the Cubs. The game was running through my mind.”

“Right. So, you could recall the game, but now, as you are thinking back on it, you can integrate it as a memory upon which you can build a

higher understanding of what happened. At Temple University our study of the outer world is developed through the sciences, but our sense perceptions and mental processes, acting in relation to one another, are always linking between these outer-and-inner worlds. We learn through their interaction. Both you and the scientists are *participant observers* in this world. You experience something, and then reflect back on it as a memory, thinking about what happened.”

“Yeah,” he said. “I get it ... sort of.”

“This Inner-Outer polarity is an abstraction like Yin-Yang but it has its own reality. You study the outer world in science and reflect upon it. You study the inner world in literature and reflect on it. The sciences emphasize the outer world and the humanities emphasize the inner world but their symbols are similar. As we shall see each side is hidden inside the other. Artists work intuitively with paints, their texture, tones, colors, but they also work with them physically, their material qualities, relative viscosity, how they adhere to different surfaces. And artists physically stretch canvases. Then, at Temple you have even more obviously in-between subjects such as the social sciences, generated between the physical sciences and the humanities.”

The minds of most students are beginning to feel like stretched canvases! “What does she mean?” a few ask themselves. Eyelids are lowering, heads have started to nod. Dr. Li picks up a pointer and slams it hard against the desk. A hundred students jump in their seats. All heads lift. For a second, chaos reigns.

“Listen. The sound you just heard was a column of air vibrating between us. It was physical, a signal to you, not the Big Bang exactly, but it should open up a space for you to hear. Noise has its place in space,” she half-grins, all ears and eyes on her again.

“In ancient times, people told stories about a great Noise and Chaos that occurred at the beginning of the universe. Mesopotamian people said that the goddess Tiamat lived in Chaos. Ancient Chinese people thought that Pangu -- whose breath was so powerful that it became the winds and clouds -- had a voice deeper than thunder; his left eye was the moon, his arms and legs the four poles of the earth, and the five parts of his body, five mountains, his blood was transformed into rivers. These stories tell how people saw the origins of all things in *felt* images. Today scientists try to explain the universe without any reference to feeling. We tend to see the universe as impersonal. The universe is void of feeling in this view, based

entirely on chance. Albert Einstein was concerned about this scientific view and asked: “Is the universe friendly?”

“We call those early stories ‘anthropomorphic,’ as if people merely projected their feelings onto the universe to explain what happens “out there.” But I am here to tell you that we still live in myth just as much as we live in the scientific version of how the world has come about: neither the ancients in their day nor our contemporary scientists have possessed the whole story.

The scientific story of this universal history is part fiction and part fact. We are learning slowly through our studies of interactions between the Inner and the Outer about how one side is found through its opposite.”

A young woman dressed in smart, black denim pants and croc-print shoes raises her hand. “I cannot understand how one side, the Inner, can be understood through the opposite Outer side. How can one side be *inside* its opposite?”

“I’m glad you asked this question. There are higher and lower symbols of abstraction. A lower symbol that we call “denotative” is like the physical table here in front of me. You cannot put two tables in the same place at the same time. But we can think of two tables coinciding, and an

abstract artist, symbolizing two tables, could at a higher level show them together.”

Drawing the Yin-and-Yang symbol on the board, she shows how each side is depicted within the other. This drawing is a denotative symbol. The Yin symbol is linked with the Yang, one inside the other if you look closely. Now consider other opposites or polarities in their abstracted form, such as Conscious and Unconscious. What is conscious is different from what is unconscious, but one side acts upon, interacts with, and coexists with the other. You are both conscious and unconscious at the same time.

She looks at the fashionably dressed student.

“Let’s take your crocodile-print shoes as an example. As you speak to me, you are unconscious of them, even though at other times you are more or less conscious that you are wearing them. When I mention them specifically, your conscious awareness becomes focused on them as shoes on your feet. Both consciousness and unconsciousness are present, though one may be more focused on, emphasized, or more visible than the other. They are co-present and the more you learn about consciousness, the more you will be able to be conscious of more things simultaneously without losing focus.”

The class is mesmerized even though they have trouble following her.

“We will talk about this more later.”

“In the same way, scientists are conscious and unconscious concurrently as they work, ” she continues. “Their conscious and unconscious sides are operating at the same time; each feeds information to the other and generates a solution to whatever problem they are addressing. Some scientists focus too much conscious attention on a problem to be able to solve it in that way. So at night, their unconscious minds, offer them dream solutions to a daytime problem. In that case, day and night are working together. There is a co-present, co-acting complementarity, simultaneity, and reciprocity about polarities.

“I know what you mean,” a philosophy major, Jack, speaks up, somewhat pretentiously. “You keep going back and forth between opposites to find something new. If you do it right, you evolve. Scientists solve problems in their sleep, which they can’t solve when they’re awake. That’s brilliant. It’s what makes somebody a genius!”

His friends sitting next to him frown because he sounds so pompous, as if *he* knows what she is talking about. Jack slinks down in his chair.

“Thanks! Yes, a ‘genius’ is someone whose intelligence matches contrary symbols. Leonardo da Vinci said that ideas develop by restructuring them from different angles; he worked by moving from one perspective to

another, and then another. Einstein's theory of relativity draws from contrary perspectives; Freud's methods of analysis compared different perspectives. There is this constant interaction between differences and opposites, like inner and outer.

“The Renaissance was born by a back-and-forth encounter with inner-and-outer. The inner space I talked about leaped forward during the Renaissance. Knowledge was translated into a visible, outer world, in a language of drawings, graphs, and diagrams like those of Da Vinci and Galileo. Galileo made his thought visible with figures, maps, and drawings, not just through the abstract symbols of conventional mathematics.”

“ Dr. Albert Rothenberg -- on your reading list as the author of The Emerging Goddess -- is a researcher of genius. In the mathematician Einstein, the composer Mozart, the inventor Edison, the medical researcher Pasteur, the writer Conrad, and the artist Picasso, he saw a common ability to move between opposites. But he is not alone in this inquiry.

“The great physicist David Bohm believed geniuses could tolerate ambivalence between two incompatible subjects. Another great physicist Niels Bohr believed that if you hold opposites together, you suspend old thought, and your mind moves to a new level. Bohr's ability to think of light as simultaneously both particle and wave led to his principle of

*complementarity*. The Chinese already knew about this principle thousands of years ago, but it was the genius of Niels Bohr to discover it in terms of physics.”<sup>xvi</sup>

So with this complex thought, Dr. Li ends her first class. Next, she will start introducing scientists to deliver class lectures, with other professors from the humanities sitting in. She wants an interdisciplinary study to begin so that they can create a new vocabulary to link the symbol systems at Temple University. She hopes that with this vocabulary students will come to better understand “who we are” and “where we are going.” Her intention is to practice the art of self-development and advance the principles of evolution.

Into the very next class she brings an astrophysicist to lecture on the Big Bang and the origin of the universe. Professor Alfred Boor is a member of Temple’s Physics Department. “Why do you she want me to speak?” he asks bluntly. She answers, “We all want to learn from you. Your subject is very complex. My class may not understand all the terminology, so please make it as simple as you can.”

She said everyone is interested in the “general principles of evolution” but Professor Bohr says he does not understand exactly what she means by “general principles.” Nonetheless, he accepts the offer.

His lecture begins with a discussion of standard physics.

“The scientific view on the origins of our universe begins with the theory of the Big Bang. Our estimate is that the Big Bang occurred about 13 billion years ago when everything was in a state of extremely high-density radiation. The Universe was then in *chaos*. The majority of this energy was in photons and virtually mass-less particles, like neutrinos, which move close to the speed of light. As the force of this Big Bang continues, the temperature drops and there is a decrease in the velocity of particles, so that they are now moving at less than the speed of light. Now we see a *transformation* from photons, or "particles" of light, and neutrons, to Electrons and their antiparticles, positrons and Neutrinos and their antiparticles, antineutrinos. They are all trying to *annihilate* each other.

“At 1/100 of a second after the Big Bang the temperature is about 100 billion Kelvin and the density is more than a billion times that of water. Now the Universe, expanding rapidly, is like an undifferentiated *soup* of matter, and radiation exists in thermal equilibrium. The temperature continues to drop toward 10 billion Kelvin (K), the density is a little over 10 million

times that of water, and still this Universe continues to *expand*. At one second after the Big Bang the temperature has dropped to about 10 billion K and the Universe goes on expanding; the density decreasing to about 400,000 times that of water. After about 700,000 years, the temperature has fallen to several thousand K, which is so low that electrons and protons can hold together and begin *synthesizing* into hydrogen atoms.” Professor Li raises her hand and asks whether Professor Boor thinks this idea of “synthesizing” could be a principle – a concept -- in the subject of all disciplines. “This idea of ‘synthesis,’ “integrating differences,” it seems to me, explains aspects of such subjects as poetry, philosophy, sociology, literature, and more.”

Suddenly, Temple’s poet, Jim Rilke, sitting up front, breaks in. “I’d say that ‘synthesis’ is the key to my poetry, he says. “Poetry is all about synthesis. As Carl Sandburg said, ‘Poetry is the synthesis of hyacinths and biscuits,’ and Samuel Johnson that ‘poetry is the art of uniting pleasure with truth’.<sup>xvii</sup>

Other professors enjoy his remarks and want to contribute to the discussion. A philosopher who has come to the class out of curiosity says that “synthesis” has been a part of his subject for a long time. It is notable in German idealism, central to the work of Kant and Hegel. A sociologist who

happened to stop by stands up and says that “synthesis” is central to the work of Lester Ward, the first president of the American Sociological Association.

Dean Li says, “So, this concept of synthesis applies to poetry, philosophy, and sociology. I know the concept has a very different context and application from one subject to another but there must be something common to them all in the word itself.”

“Interesting,” Professor Boor responds, “but I was talking casually. It was a metaphor.”

Dean Li says: “We will keep that in mind, thank you.”

Other faculty observers raise their hands to speak about other words he has introduced like “transformation” and “chaos.” An anthropologist says: “We talk about ‘transformation’ in the rise of civilizations.” A religious scholar says, “This term ‘transformation’ applies to studies of the ‘self,’ which has this capacity to change.” “According to the Dalai Lama,” he adds, “The whole point of life is to transform our heart and mind. ‘We all have the wish to overcome suffering,’ he says. It is the personal starting-point to explain life.”

Dean Li, “Students, make notes of these, what we might call, crossover words. This story of the origin of the Universe may be built on them. History is a puzzle with many pieces.<sup>xviii</sup> Then to Professor Boor, “Please continue.”

“In every direction,” Professor Boor obligingly complies, “there is a very low energy and very uniform radiation that we see filling the Universe. It is called the ‘Cosmic Background Radiation,’ or the ‘Microwave Background,’ or the ‘Black Body.’ This radiation is like a black body with temperature slightly less than 3 degrees Kelvin; it peaks in the microwave portion of the spectrum. The ‘dark matter’ cannot be seen by standard astronomical methods, but its presence can be inferred because it influences the Universe gravitationally. Indeed, you might say, speaking poetically,” he smirks, “that we are made of star-stuff. Many of the atoms in our bodies were forged in the furnaces of supernovae or novae in the distant past, and we may owe our present existence to star and element production that trace back to exploding or colliding galaxies in earlier epochs of the Universe.”

Professor Li asks students to think about these particles and atoms. “They are all inside the human body! Think about that. Our own temple. They are in the heart and in the brain. Could they also be in our consciousness?”

“The original production of atoms,” she says, “is at the foundation of our physical being. This atomic and molecular structure is connected down deep inside of what we are talking about right now.

“Would you agree with that view, Professor?”

“Possibly,” Professor Boor replies.

Turning to the class, Professor Li says, “In your summer assignment you read about clairvoyants. Clairvoyants see what most people cannot see.”

“Very interesting,” says Professor Boor, taken back. “Well, I confess, a few of my colleagues are into this subject of ‘consciousness.’”

“Please proceed,” she says.

“Those regions of the Universe with sufficient mass density created enough gravitational attraction to stop the expansion locally and pull the matter back into clumps. As that mixture of mostly Hydrogen and Helium was compressed by gravity, it warmed. The larger clumps, with a mass greater than 0.1 that of the Sun, warmed enough to become what astronomers classify as the ‘main sequence stars.’ About 90% of the stars in the sky are sequence stars. The star we call our Sun is such a star.

“Now you were speaking of this concept of ‘synthesis.’ The synthesis of larger atoms requires significantly higher temperatures than occurs in main sequence stars. This is because the nuclei of Helium atoms contain two positively charged protons and experience double the electrical repulsion of Hydrogen atoms. So at maximum temperature in main sequence stars, Helium atoms collide too slowly to get close enough to fuse. The evidence leads us to conclude that Hydrogen and some of the Helium of the Universe was *synthesized*. The pressure created by the Hydrogen fusion occurring in the core of a main sequence star balances the gravity attracting the matter more tightly together. This balance often lasts billions of years, depending on the mass of the star. Astronomers have calculated that our sun has been a

main sequence star for about 5 billion years and is about halfway through that process.<sup>xix</sup>

So, eventually much of the Hydrogen in the core of a main sequence star will be fused to Helium, resulting in less pressure, which in turn will allow gravity to resume compressing the core of the star. As the core is further compressed and heated, eventually new types of fusion can occur creating elements larger than Helium. These processes can synthesize elements up to the consistency of Iron ( $^{56}_{26}\text{Fe}$ ), while also releasing energy. But the syntheses of elements larger than Iron are endothermic and absorb rather than release energy. As a result only small amounts of heavy elements are produced in red giant stars.<sup>xx</sup>

Professor Boor continues this story about the expansion of the universe, at the end of which all the students applaud. President Jonah, sitting quietly in the back, thought it was an impressive story.

Professor Li knows how to keep excitement up her class. When Prof. Boor has left she ends with a saying from Lao-tsu:

Words are straw in the wind.  
The more one talks, the less one says.

The space between heaven and Earth is like a bellows.  
The shape changes but not the form;  
The more it moves, the more it yields.  
More words count less.  
Hold fast to the center . . .

"Love is of all passions the strongest, for it attacks simultaneously the head, the heart and the senses

"Keep focused on Infinity.  
Remain centered in the oneness of all."

"I will see you all on Monday. Have a nice weekend."

## A Chemist

Dean Li has asked a chemist at Temple to talk about “energies.” She intends for the students to learn about what cannot be seen with eyes or heard with ears, nor even experienced with scientific instruments. “Scientists have only begun to explore this world, like the electromagnetic spectrum,” she says, in a preparatory session with her class for his lecture.

“Our physicist, Professor Boor, told us that radiation is energy that spreads out in the universe. Two types of this radiation are, first, visible light – like the rays from a lamp in your house – and, second, the radio waves coming from a radio station. You cannot hear the radio waves that are in this room at this moment. I bet a sonata is being broadcast right now from radio station WGBH, but we do not have the power to hear it.

“We can ‘sense’ only a tiny part of this energy spectrum. Visible radiation comes from everything, from fireflies to light bulbs to stars; the hotter, more energetic things create higher radiation than cool things do. Things that are hot move at great velocities with really high-energy radiation, such as X-rays and gamma rays, but we cannot see or touch them. Science can tell us only about what can be verified by our senses: hearing, tasting, seeing, and touching.

“You certainly know about x-rays because your doctor uses them to look at your bones. Hot gases in the Universe are x-rays. Gamma rays are radioactive, and we produce some of these, for example, in our nuclear power plants. Big particle accelerators generate gamma rays. But the biggest gamma-ray generator of all is our Universe.

“How can I best explain it to you? Electromagnetic radiation is a stream of photons. The chemist coming to lecture has told me about mass-

less particles. Photons are everywhere. Each one contains a bundle of energy and travels in a wave-like pattern at the speed of light, The photons in radio waves have relatively low energies; microwave photons have more energy than radio waves, infrared ones have still more, and so on: ultraviolet rays, X-rays, and finally, most energetic of all, gamma-rays. But I must tell you why I am interested in all of this,” she pauses.

“Physicists say that all things in the universe are vibrating.” And here is where she goes to the edge of life, as we know it. Looking at Jack, she says, “You have an aura.”

Everybody turns around. “Nobody here can see it, I bet.” Jack’s eyebrows move up and down uncertainly a couple of times, as if to say – “This teacher is nuts! . . . Isn’t she?”

“An ‘aura’ is a vibration like everything else,” she goes on, undeterred. “Clairvoyants – I know some personally – can see them. According to shamans and religious prophets, the size of an aura varies from a few inches to many feet, radiating out in all directions. Early people thought that auras were linked with our bodies and health. All bodily organs are linked through the aura and the body’s chakras, they said. The colors of auras change according to our emotional and physical state. When you die, it is said, your aura goes with you.

“My studies suggest to me that auras are real. I interview mediums regularly, working objectively like a scientist in studying them. I do this by checking “levels of verification” around messages from those who have died. For example, in order to check these levels, a medium might say that I am “imaginative and intelligent.” To such a statement, she gets “zero” on her level of verification: everybody is imaginative and intelligent to some extent. But when the medium says that my mother – who died many years

ago – is telling me something that only my mother and I had previously known, the medium gets a high level of verification. I find consistencies at high levels of verification among some mediums. Something is happening in those instances that need to be studied.

Some students wonder whether she is a little crazy. Others have some familiarity with what she is talking about.

“William James studied mediums in the nineteenth century,”<sup>xxi</sup> she says. Then she tells them about recent studies by neuroscientists on “sustained meditation,” especially in Buddhist monks and other long-time practitioners of meditation. “The results of these studies demonstrate that meditation causes neural changes in patterns of thinking; these may explain how the meditative mind sustains higher levels of compassion and calmness. That’s enough for now; maybe more than enough,” she smiles, knowing that she has moved into complex territory for them.

At the next class period, the chemist will speak. Dr. Li introduces him.

“Dear friends, Professor James Pauling teaches our core course in chemistry on campus. He will talk about the electromagnetic spectrum. He invites us to interrupt him with our questions at any time.” I will be learning along with you.”

The class is eager to hear him.

“Good afternoon, I’d like to begin by moving straight to the science. The electromagnetic spectrum (EM) can be expressed in terms of *energy*, *wavelength*, or *frequency*. Each term for thinking about the EM spectrum is related to the others in a mathematical way. Each has a different set of physical units by which it is measured. Frequency, for example, is measured in cycles per second (which is called a Hertz), wavelength is measured in meters, and energy is measured in electron volts. The light we see is just a little fraction of all the EM radiation around us! By the time you get to the ultraviolet, X-ray, and gamma-ray regions of the EM spectrum, lengths have become too tiny to think about any more.”<sup>xxii</sup>

*“Too tiny to think about anymore!” Dr. Li hesitates to interrupt the professor so soon, but her mind is already active.*

“Scientists refer to the photons streaming in the EM spectrum by their energies which, as I said, are measured in electron volts. Ultraviolet radiation falls in the range from a few electron volts (eV) to about 100 eV. X-ray photons have energies in the range 100 eV to 100,000 eV (or 100 keV). Gamma rays are then all the photons with energies greater than 100 keV. Invisible matter makes up 90% of the mass of the galaxy; the visible mass just 10%. In the universe as a whole, the ratio is closer to 95% invisible to 5% visible mass.

*Dean Li thinks, “ If 95% is invisible, how can we assume that the universe is physical? What is physical?” Aware that Prof. Pauling is talking strictly about outer space, she wonders, “But this spectrum is also part of our inner space. What about the level of vibration at which clairvoyant mediums exchange information from this, the “earth side,” to the “other side,” after death.*

This time she interrupts: “Tell us about the gamma rays and cosmic rays. What is the highest wavelength that can be considered by science?”

“All particles with frequencies greater than about 10<sup>19</sup> Hertz (or about 50,000 electron Volts [5x10<sup>4</sup> eV], where a typical optical photon carries 2-3 eV), are called gamma rays. There is no hard limit to the energy that a gamma ray can have.”

“Fascinating,” says Dr. Li.

“The highest energy measurements of gamma rays are found by using ground-based instrumentation, which also measure cosmic rays. The truth is we may never actually know to what heights energy can go that Nature

produces as gamma rays. When a gamma ray makes its way to our telescopes, it has to traverse space, where there are photons and particles all around, the microwave background, for example. From the highest energies, these photons will scatter down to lower energies before they reach Earth. There could be many surprises for us. We should be able to detect gamma rays with energies higher than those I have just described.<sup>xxiii</sup>

Dean Li is curious to know how her clairvoyant friends communicate at silent, subtle levels. She ponders whether flocks of birds and schools of fish are silently sending messages when they move in unison. How do things happen spontaneously? These are mysteries that she is unwilling to broach to Professor Pauling.

Professor Pauling continues, the class listening attentively to his descriptions of invisible energy. All the while the class is making mental notes of how this invisible energy may be related to what Dr. Li is discussing as linked with human consciousness, clairvoyance, and auras.

At the conclusion of the lecture the class offers big applause, fascinated by how the scientist's view of a "vibratory universe" might be connected with human consciousness, clairvoyance, and the auras that Dr. Li has described as part of the non-material and invisible world.

#### The Evolutionary Biologist

Dean Li asked a biologist to lecture the following week, because she knows that the evolution of stars and the electromagnetic spectrum cannot be explained by natural selection. There is a big gap between physics and chemistry and biological studies on the "laws" of natural history. She has a sense that bridging these gaps may mean increasing the specialization at the

interstices of different fields, such as biochemistry and socio-biology, and just maybe, the theology of physics grounded in sensible experience.

Her students have been eager for her to invite a biologist to talk about creationism. There is a widening gap between the fields of science and religion, which has resulted in struggles now being fought in the nation's courts, and so she tries to think how this gap might relate to her questions on the interrelationship and continuity of all of these histories. She plans to have the next lecture focus on the discontinuity between science and religious studies. She had tried to get Dr. Michael Behe, a nationally known biochemist, to give this lecture, because he had challenged Darwinian theory, Professor Behe has argued that science made a mistake by trying to explain the world exclusively in physical and material terms. The origin of the universe and the development of life are "bedrock events" that may have to be explained independently of Darwin's theory of the evolution of organisms. Scientists, he says, should follow the evidence wherever it leads, even to "intelligent design."<sup>xxiv</sup> But Professor Behe, much in demand, was not available.

So Dr. Li asks a biologist at Temple University to offer a lecture on this topic instead. Professor Daniel Margolis will talk about the evolution of

plants and animals, basing his remarks on studies by Dr. Kenneth Miller, a biologist at Brown University, with whom he is essentially in agreement. :

“Dr. Michael Behe is a fine biochemist, but I disagree with him. In his book (Darwin’s Black Box), Behe describes quite accurately the most intricate of the microscopic machinery of life - the cilia and flagella that generate cell movement, the cascade of blood-clotting proteins, the systems that target proteins to specific sites within the cell, the production of antibodies by the immune system, and the intricacies of biosynthetic pathways.

“Now, why do these systems rule out Darwin’s theory? Because, Dr. Behe says, they are ‘irreducibly complex.’ This means that if they are missing just one of their many parts, they cannot function. Natural selection works on small mutations in just one component at a time. If dozens or even hundreds of distinct proteins, precisely fashioned, are required to make a functional cilium, how could natural selection slowly and patiently craft them, one at a time, while waiting for the complex function of ciliary movement to emerge? It couldn’t, says Behe, so the hypothesis that the cilium was produced by evolution is disproved. If evolution did not make the cilium, then ‘intelligent design’ must have. He argues that life on earth in its most critical components is the product of intelligent activity. But this is not “Creationism,” as literalist theologians define it. Dr. Behe accepts most of the Darwinian argument.<sup>xxv</sup>

“Ah,” Dr. Li interrupts him. “So, you question Behe’s argument?”

“Yes,” replies Dr. Margolis.

“Well, let’s come back to this point later. We are attempting to explain the larger process of history, searching for the right vocabulary. It is interesting to me that many words you used have had their own evolution. Descriptive words you used in your introduction to this story – such as *intricate, machinery, cascade, generate, production, pathways* – were to my

knowledge introduced into the English language somewhere between the fifteenth and sixteenth centuries. I wonder whether you are anthropomorphizing here. Are you trying to make a reality out of words that were formed in an entirely different context?"

Dr. Margolis: "I had not really thought about it. But now that we have the words, science has discovered a lot about the complexity of this history."

Dr. Li: "But you claim external validity for your story. Those words were created *internally* long before science came along."

Dr. Margolis: "Correct. But our work is based on reality."

Dr. Li, turning to the students: "Now look at how each of the sciences explains this history with different word-principles. The *evolution of the stars* in astrophysics is not explained by the same word-principles as the *evolution of animals*, not explained, that is, by natural selection. The evolution of the stars pertains to a different level of history with different principles. Neither is the study of the *evolution of society* based on the same word-principles as astrophysics and biology. We need words that allow us to see how natural history connects with human history at all these levels. Granted, these different stages of evolution show principles that are very complex but the whole story must include the humanities.

Dr. Margolis: “Hey! I don’t think anybody has tackled that question. It certainly doesn’t fit my specialization. But I will tell you the part that is my story.”

“Tell us more, if you will, about how life began on Earth.”

Prof. Margolis begins: “The first beings on Earth appeared sometime around 3.5 billion years ago in a bacterial cell, the Ur-ancestor of all life to come.”

Professor Li breaks in after his first sentence. “Excuse me for a second. You said ‘being.’ “Scientists do not normally use the word ‘being’ to explain their subject. *Atoms* and *molecules* and *cells* are not referred to as beings’ in scientific textbooks. The concept of being’ is not in the language of science.

“Right,” he said, “but I use the term occasionally referring to creatures.”

“Well, it suggests an ontology that is not in science. Please proceed,” she says.

*(Jack thumbs his pocket dictionary for the meaning of “ontology.”)*

“Okay. I want to pick up on my discussion of the earliest microbes.”

“For all our elegance as a human species, and for all our massive frontal lobes, for all our music and inventions, we have not progressed all that far from our microbial forebears. They are still part of us, working with us. Or, let us say, we are part of them. When we look at the earth, we think

that we human beings are the supreme species but with all the advances in biology – of super microscopes, fossil discoveries, the decoding of DNA – we now realize that all those microorganisms that we thought had preceded us -- are now embedded in us. Protozoans, bacteria, germs, and the like, depending on the context, are not just the building blocks of life. *They literally occupy us*. This fact shows that we can have a false conceit about ‘bugs’ being lower than we are and us being higher on the evolutionary ladder.

“My biological view of evolution emphasizes *cooperation* as much as it does *competition*. Evolution is not based on *conflict* alone, not raw tooth, hot blood and claw alone. Animals are tender to one another and they cooperate a lot.

“In the first two billion years on earth, working together prokaryotes *transformed* the earth’s surface and the atmosphere. They invented all of life’s essential chemical systems – an achievement that, so far, humanity has not even approached. This high *ancient biotechnology* led to fermentation, photosynthesis, breathing by oxygen, and the removal of nitrogen gas from the air, and can be linked as well to worldwide crises, such as starvation, pollution, and extinction – all long before the larger forms of life appeared.

“The descendants of the bacteria that swam in primeval seas three billion years ago exist in our bodies now as mitochondria. Ancient bacteria combined with other microorganisms and took up residence inside us, providing waste disposal and oxygen-derived energy in trade for goods and shelter. This was an evolutionary mechanism more sudden and powerful than mutation: a symbiotic alliance that became permanent. Symbiosis -- the merging of organisms into new collectives -- proves to be a major basis for those transformations and power changes taking place on Earth.<sup>xxvi</sup>

As he speaks, Dean Li continues to focus on his choice of words, in particular the human metaphors occupy, *alliance*, *collectives*, *residence*, *bodies*. “He is describing early forms of life in terms of our own human life,” she thinks. “His terms are an anthropomorphic projection of these terms onto the world of microorganisms.”

Suddenly there is an abrupt “harummph.” Professor Margolis looks up. The sound has come from an economist. One side of his face is twitching; his eyebrows are frowning.

“Speak!” Dr. Li encourages him.

“You used the word *trade*. So, what about the idea of *exchange* in such circumstance? These are the words we also use in our economic explanations. The human economy is based on *competition* and *cooperation* and *symbiosis*. Do you think these microbes have anything to do with how or why we act as we do in society?”

Dr. Li: “These words may be reflections of a common process in Nature. And now the terms have developed a more complex meaning at a higher level of order. These terms could help explain the nature of this whole process of history. The definition of the word *exchange* would be different depending on its context, whether in reference to economics, sociology, or biology, but it would also have an element common to all its usages, an overlapping meaning.”

“I never thought about it like that,” the economist and biologist say, in unison more or less.

Dr. Li is pleased at this. But Professor Margolis does not want his statements to be misinterpreted. “Biological evolution is not that simple; it is

not just based on *symbiosis* and *exchange*. It is more like *creative destruction*.”

“That’s interesting,” says the economist. The distinguished economist Joseph Schumpeter used the same phrase, describing the capitalist market as a process of “creative destruction.”

“But allow me tell you what I mean by *complexity*,” the biologist intervenes. “Much in biology depends on the observer’s perspective. When a female spider consumes her mate, is this *destruction* on the part of the female or *cooperation* on the part of the male? When a mother beetle like *Micromalthus debilis* has given birth to her offspring, the offspring begins clinging helplessly to the mother’s body, but when it becomes stronger, still in larval form, it devours the mother. What is the meaning of this type of behavior? Actions that seem murderous or violent to us -- are everywhere. But they may in fact represent a high level of cooperation within and between species. Such acts are simply a fact, part of animal and plant life.

“Or consider the climbing vines that begin life in utter dependency on their host tree, but when they grow stronger, they choke all life out of their host. And it is out of this violence – even in some mating cycles and some processes of nurturance – that this stunning evolution takes place.”

A Jungian psychologist, Carla Kunkel, sitting to his right breaks in breathlessly, “YES, YES” ..... “Speak up,” Dr. Li tells her.

“I study the emotions that occur in acts of murder, rape, and suicide. These are ‘primordial,’” she says. “They cannot be explained in language. These emotions are hidden and symbolized in dreams that show these types of behavior. And I have clients who we call ‘clinging vines’; they would choke the life out of you, if you would let them, others like spiders that would circle you with their web and eat you alive, symbolically, if they could. Could these human conditions be more than likeness or metaphor? Could they signal the influence of our animal ancestry? Could these emotional energies be present deep in the brain? Infanticide, in some cases, is a custom of primitive tribes, still with us.”

She speaks about Sigmund Freud and the Oedipus complex based on the ancient Greek legend, and tells the story of Medusa. “Medusa is an archetype of creative destruction. She is actually called ‘Creator and Destroyer.’ She stands between the realms of Heaven, Earth and the Underworld. As a destructive crone, she consumes all on the earth plane. As a flourishing goddess, she appears in a young and beautiful guise and represents fertility and life. So for the archaic mind, she is one manifestation of ultimate synthesis, the union of Heaven and Earth, beyond duality.”<sup>xxvii</sup>

Dean Li: “Let’s keep these ideas in mind and work with them later.

Go ahead, if you will please, Professor Margolis.”

“Well, this may be something to think about,” Temple’s most famous biologist concedes, before he continues.

And, in fact, the detailed structure of our cells does tell us about the creative side of our ancestors. Electron microscopic images of nerve cells from all animals, for example, reveal many ‘microtubules’ –which we know as the waving cilia in the lining of our throats and the whipping tail of the human sperm cell. They have the same “telephone dial” arrangement of microtubules as the cilia of ciliates that were successful microbes, including those of more than eight thousand different species. The microtubules are in all plants, animals, and fungi each time the cells divide. *The proteins are identical to those found in our brains.* This may tell you something about the connection of behavior and the brain.

We are very dependent on these small creatures. Certain families of plants cannot live in nitrogen-poor soil without the nitrogen-fixing bacteria in their root nodules, and we cannot live without the *nitrogen* that comes from such plants.

An anthropologist who had happened to come to the lecture today raises her hand. “May I speak? What you say about the necessity or nitrogen for us and for plants reminds me of a mystery I have never solved about ancient Egyptian gods.”

“What is that?” asks Dr. Li.

“The Egyptian Scarab or dung beetle was sacred, a god, not like a bug we might step on. This beetle rolls balls of dung along the ground and deposits them in burrows. The female lays her eggs in this ball of dung --

which would be the lowest element in just about any other set of values, but in ancient Egypt, this lowly critter was elevated to the level of the highest god.”

“How could that be?” asks Dr. Li.

“When the dung was consumed, young beetles emerged, and the Egyptians worshipped them as ‘Khepera’, or ‘he who came forth.’ The beetle became a part of their creation story of the universe, with, Atum as its creator. The ray-like antennae on the beetle's head and its dung rolling suggested to them that Khepera had pushed the sun along the sky toward its setting, similar to the way the beetle rolls its ball of dung. But in the process, the dung beetles put nitrogen into the soil and so saved their lives. The ancient Egyptians reversed our hierarchy that places human beings at the top.”

“Good,” says Dean Li. “Hang on to that idea. Let’s proceed.”

Professor Margolis talks about the early sea pens and flat worms that lived six hundred million years ago at the divide of the Proterozoic and Phanerozoic eras. He discusses biological and geographical creations of each of the prehistoric periods, the Paleozoic, from 570 to 245 million years ago; the Mesozoic, from 245 to 67 millions years ago; and the Cenozoic, from 67

million years ago to the present. New organisms with their own self-governing systems evolved during each epoch, he concludes.

The Margolis lecture ends with general applause. Margolis has opened up for students a new sense of “the magnitude of time” especially in these final, vast evolutionary vistas. What he has said reminds them of their own past and ancestors, where they came from.

These three lectures so far have confirmed what Professor Li has thought for some time: First, it may be possible to develop a common vocabulary to explain the long period of human and natural history. “Linking the vocabularies of the humanities and science could be the most significant thing that happens in the university in the 21st century,” she informs her students. “Scientific studies should be carried out with a special attention to building a language with common terms – like *energy* and *frequency* – that bridge departmental vocabularies. The law of complementary opposites – *Yin-and-Yang*, *Inner- and-Outer*, *Matter-and-Spirit* – will be vital to this effort.”

Second, the human body is like a temple that carries the seeds of the whole universe, created long ago and conserved; it is not just a multi-celled organism. At some point, Dr. Li will tell her students about this hypothesis. ““There is more to this universe than meets the eye,”” she says for now,

repeating the words of Henry David Thoreau written in his cabin beside Walden Pond.

### Beyond Death

President Jonah tells Dr. Li how much he is enjoying her class. “These *bridging* concepts keep *running* through my mind,” he says. She joins him in a laugh. “You are right. Looking at the etymology of words and comparing university disciplines is instructive and fun. This will be an important area of exploration in the future.

“I see some common words-that-become-principles in our disciplines. They tell me a lot. There is a propensity for *self-direction* in all things in the universe, at all levels of organization. And there is constantly a new *synthesis* of things throughout this history. I remember Carl Sagan – you know, the astrophysicist – describing evolution as *self-organizing*, starting from within and moving out through the Big Bang. We are in an Inside-Out enterprise. It goes back and forth, just like sex.” They both laugh again, harder this time.

“Damn,” Jonah goes on. “Sagan’s principle of self-development really does become apparent in all things, when you start to look closely, from bugs and fish to human organizations – such as universities, churches and governments. Yes, we are all in this game together. You know, our very own

Temple University was seeded inside one man long ago, Cornwell. Then his idea expanded. And it kept expanding from college to university, differentiating, as they say, all these departments that we have today, each department having developed in its own direction.”

The President has gotten so excited by his litany of recollections that he starts to cough.

President Jonah talks with the chairs of each department about how an interdisciplinary program, an all-university study, perhaps, could be instituted. He is highly respected on campus and leading professors listen. He wants the study to replicate what Dr. Li has begun in her class. Top graduate students and interested professors would be invited to attend. Jonah wants Temple College, as he puts it, “to come out of the whale.” Jonah has once again visited his doctor to check on the condition of his heart. The prognosis is good. According to the doctor, he does not have long to live.

Finally, he agrees to relinquish some of his everyday tasks at the university. To relax, he listens to music and thinks about Dr. Li’s ideas. Listening one day, to another of his favorite pieces of classical music -- Beethoven’s Sonata No. 1 in D Major, Op. 12, No. 1 – he hears it differently than he ever had before, as a “conversation” between piano and violin, an

exuberant and joyful exchange. Beethoven had written it in a dark mood, as he faced the prospect of going deaf. Wolfgang Jonah is himself in a dark mood, pensive, half-alert. The conversation between these instruments is a social exchange, he thinks.

“A *social exchange!* That’s not how I would usually put it; that’s more like Eve Li’s way of thinking!” he exclaims.

His new thoughts forge ahead: “Beethoven could not have written that music without having first experienced a human conversation. Could this sonata represent a social world that is rooted in the natural order? Could the primitive, unconscious feeling that happens when people talk to one another be there also? In this particular sonata? Could the unconscious rhythms of the body be written into it?”<sup>xxviii</sup> He’s exhilarated now, “Is there music in a human conversation? Has this type of exchange evolved into some transcendent expression, this social universe? Could this piece of music represent a sociality in the universe -- *interaction, exchange, and interdependence?* Is Beethoven listening to something in our nature that our ears cannot hear?”<sup>xxix</sup> Finally muttering to himself: “I’ll have to present this conundrum to Dr. Li.”

Now he is wholeheartedly behind Dr. Li's exploration of this new territory, this going to the moon and back. Very exciting. She has told him that she plans to have professors consider the body's endocrine glands. The glands secrete hormones into the bloodstream to keep the body running (*running!*), she says, and she wants to compare their functions with the spiritual centers, the *chakras*, that affect consciousness. He is thinking... about "bridging concepts" ... when everything stops.

Dr. Li learns that her beloved friend and the university's president Wolfgang T. Jonah, has died, suddenly, in the night. Everyone is shocked, grief-stricken. He had been the guiding star on campus. It seems that no one has failed to benefit from his counsel. Many of the students pay him their ultimate tribute, saying: "He had 'the force' within him." Although most on campus had not been aware of the gravity of his illness, he had known that he would not finish out his term and had planned in his last months for Dean Li to assume a position of leadership when he was gone.

Dr. Li and colleagues worked on a memorial that would be in keeping with his spirit. She recommended an all-university gathering for this event. An orchestra would play a *requiem* and the campus choir sing in the outdoor

auditorium he had built for the theater department. It was large with a stage and an open lawn, to accommodate fifteen thousand people.

Students had loved “Prez Jonah,” but now they express doubts to Dr. Li about her choice of a *requiem* to celebrate the event of his death. They think it would make the occasion too somber. The president had celebrated *life*. Something should be done to honor “the force” they so admired in him. Instead of a requiem, they want “The Revels,” which they had learned in the theater department. She hears them out, then replies: “Maybe both events could be part of the memorial.”

Dr. Li has an idea to prolong the celebration by having professors and students convene in taverns and restaurants off-campus after the memorial. Students could read favorite books of the late president in preparation. Faculty members would be present informally to discuss anything students wanted to about these works, or simply their personal recollections of the man and his years of work for Temple University. Some faculty members agree to participate.

Mozart’s *Requiem* is chosen and the Chair of the Philosophy Department, James Hieronymous, is asked to say a few words. Hieronymous had fought against Dr. Li’s program, was even rude to the president about it.

He has behaved like an archbishop in Jonah's administration, but now he is honored to speak. His eulogy initiates the proceedings:

Mozart invites us to share his personal world, takes us by the hand, leading us wherever he goes. His joys are our joys, his sorrows our sorrows. This hauntingly beautiful music with the sun's rays slanting sharply toward sunset is a fitting tribute to our president, who will always be here in spirit, guiding us forward.<sup>xxx</sup>

Dean Li speaks of the president's life as being a great force for all.

The audience read in the program that before composing the *Requiem* Mozart had had clairvoyant forebodings of his death. Confined to bed in November of 1791, he had worked on the piece, calling on visitors to sight-read the newest pages. Dean Li knows that the president had had his share of clairvoyance, as he had quietly persevered against pain.

While the orchestra and choir take their places for Mozart's *Requiem*, three hundred people carrying lighted candles — faculty, students, and administrators whose lives had been touched by the president — circle the field area in tribute.

The orchestra's playing of the *Requiem* is a *tour de force*; no sermon could have matched its power. At the end, there is silence at first, then sporadic applause mounting to thunder. Afterward, from the distance comes the sound of drums, more thunder from approaching students, the players in "The Revels" — tales, songs and dances drawn from folklore and "time

immemorial.” Students are arriving to celebrate life as it had been lived through the ages. The theater department was about to make history at Temple by recreating it with this revelry tradition.<sup>xxxii</sup>

Performers process forth singing "Villagers All!" -- a carol familiar to folklorists, in which the field mice in Kenneth Grahame's *The Wind in the Willows* sing to Mole and Water Rat at Mole End. The next performers offer versions of "The Pied Piper" and "Echo Carol," an eighteenth-century German song, with special words written expressly for the occasion. Other performers in costumes come after them almost immediately with "A Joyous Welcome," a twentieth-century carol by Martin Shaw, new words by students, followed by a Morris dance from the village of Eynsham, in the Cotswolds of Gloucestershire, England.

The audience is ecstatic. The performers are at their peak now with "Saint George and the Dragon" -- taking a few liberties with the original story, of course, and celebrating the rites of fertility, death, and rebirth with sword-dance figures. The finale of this complete extravaganza arrives with "The Lord of the Dance," lyrics substituted for those of the Shaker song "Simple Gifts." Students have put together easy dance steps for everyone to follow. Dressed in village costume, they lead the audience onto the stage and

around the field, the entire entourage of thousands of people dancing and singing:

Dance, then, wherever you may be,  
I am the Lord of the Dance, said he,  
And I'll lead you all, wherever you may be,  
And I'll lead you all in the Dance, said he.

After the close of the performance, it is some time before the excitement begins to subside. Hundreds of students have been told to move into small groups for discussion sessions in sites chosen around the fringes of the campus. Students join the professors ostensibly to talk about the president, his many interests, and the ceremony in his honor. In fact, they are told when they arrive at most of these meetings, they can talk about whatever they want to – music, sex, the “The Revels,” birth, life-and-death, anything that comes to mind. Faculty members are prepared to fill in the gaps, and where it seemed right, lead the discussion. Someone says, “It looks like Chaos”; somebody else, “It is the Beginning.”

The chair of the philosophy department, Professor Hieronymous, has consented to meet in the back of an off-campus restaurant, popular to students. Those in his group are composed largely of philosophy majors. He opens the meeting quite formally, as was his manner, speaking of Friedrich Schiller's belief that education should be based on aesthetics.

“My God,” the students groan, not here, not now.”

“Schiller,” he says, “argued that people had to ‘transcend themselves,’ pass from ‘a physical being’ through an ‘aesthetic condition,’ to become a ‘moral and rational being.’ Transcendence, according to Schiller, is the story of life. He had thoughts about a universal ethic, even a world order.”

Students listen doggedly in the backroom of their favorite restaurant.

Professor Hieronymous asks what students think about Schiller’s assertions.

There is silence.<sup>xxxii</sup>

“Transcendence!” Jack, the baseball enthusiast, who had sat in the back of Dr. Li’s class looks as if he has been struck by lightning. “I bet that’s what this is all about!”

The stiff chair of philosophy, Professor James Hieronymous, winces at first and then smiles, slowly.

He goes on to talk about a debate between Herbert Marcuse and Norman Brown on "What is holy?" His eye sparkle a little, and for the first time, his students sit up: “Marcuse was a philosopher who argued against poetic philosophy. Norman Brown, on the other hand, was a literary man and a target for Marcuse’s anger. Brown, in his turn, responded by calling Marcuse’s world of politics ‘an illusion,’ a ‘kingdom of shadows.’”

“‘Heaven is within us,’ Brown said, ‘and so is the greater reality. Reality is inside, not outside. All life is an illusion and awakening to real life occurs at the end of our life: with death and resurrection, happening simultaneously, in a single moment. The way out of the womb, out of the ‘dream cave,’ is to die and be reborn. Liberation is a resurrection of the body raised to a spiritual form.’”

Professor Hieronymous is warmed up now: “On the other hand, Marcuse's 'real' world' was solid, material politics. Marcuse argued that the Earth might be mere 'shadows' in relation to Brown's ideal world, but, he concluded, “I live in reality” It was Marcuse’s belief that Brown had skipped the ‘mediations’ that ‘transform . . . the subrational into the rational.’”

“Whoa,” says Jack.

The professor’s words have meaning for philosophy students but not everyone present is majoring in philosophy. They had all just come from the memorial and some were not a little drunk with the power of the performances and wine. They were in that intermediate realm between “illusion and reality.”

Professor Hieronymous, who had been critical of President Jonah and Dr. Li’s ideas for bridging departmental gaps, is learning too. “We are all

between the real and the ideal, the rational and irrational,” he says, unexpectedly, sipping his wine.

“Really!” say the students, surprised, leaning heavily on the table.

The next day, the students majoring in philosophy confessed that they had learned more about life in that memorial service and the late night class than in all their classes in philosophy.<sup>xxxiii</sup>

Meanwhile, Dean J. Li holding her after-memorial class in the backroom of a local tavern. The University had rented the room and the tavern owner is pleased, though a little uneasy. He has agreed that students may only drink according to their age limit and is carefully trying to check IDs as more students are crowding in.

Students say that this ceremony has made them "high." "It was not simply a fantastical, *Arabian Nights*-type experience, one young woman elaborates, but collectively they had been overcome by a towering feeling rising up from all that music. "The Revels" last dance was stupendous! They are clamoring for Dr. Li to explain that last event, "The Lord of the Dance."

Dean Li says that the Dance has had different interpretations. The one chosen as a basis for the ceremonial dance they all had participated in came

from the Scriptures in the apocryphal Acts of John. Their ceremony was patterned on events recorded there, which had taken place before Jesus was crucified. She read aloud from a book by the mythologist Joseph Campbell:

This was one of the most moving passages in Christian literature. In the Matthew, Mark, Luke and John gospels, it is simply mentioned that, at the conclusion of the celebration of the Last Supper, Jesus and his disciples sang a hymn before he went forth. But in the Acts of John, we have a word-for-word account of the whole singing of the hymn. Just before going out into the garden at the end of the Last Supper, Jesus says to the company, "Let us dance!" And they all held hands in a circle, and as they circle around him, Jesus sings.<sup>xxxiv</sup>

"What did they sing?" asks a student.

"I'll read what I have. The style of the song is a call-and-response, with Jesus singing in the middle and the circling company of dancing disciples answering each time with 'Amen.' It goes like this:

Glory be to thee, Word! Amen.  
 I would eat and I would be eaten! Amen.  
 Thou that dancest, see what I do, for thine is this passion of  
 which I am about to suffer! Amen.  
 I would flee and I would stay! Amen.  
 A door am I to thee that knocketh at me; A way am I to thee,  
 a wayfarer. Amen!

"This song is repeated again and again," Dr. Li says, "and then as the dance ends, Jesus walks out into the garden to be taken and crucified."

Students look taken aback, awed. One student is frankly puzzled.

"How could he 'eat and be eaten'? It's one or the other, isn't it? You eat -- or you are eaten. How could he 'flee and stay,' at the same time?" It doesn't make sense. These are opposites."

"That's the mystery," Dr. Li replies, whispering to him, "You have to think symbolically."

Silence.

Someone says brightly: "Shall we dance?"

Laughter.

Dean Li tells the students about Joseph Campbell's researches into this subject. "Campbell wrote, 'The 'Lord of the Dance' is similar to 'The Lord of Sex.'" Students are startled but eager to hear more. "He says you find these gods in many ancient societies, gods who are at the same time 'of death and of generation.' In the Haitian voodoo tradition, for example, the death god Ghede, is also a sex god. The Egyptian god Osiris was both lord over the dead and lord over 'the regeneration of life.' According to Campbell, this theme is widespread around the world: 'That which dies is born. You have to experience death in order to be reborn into new life.'<sup>xxxv</sup> I think that sexual energies are the beginning of a higher dance that transcends all differences."

Her assertion opens up a passionate discussion. This occasion at a local tavern becomes a transforming moment. The ceremony and the late-night discussions have liberated all those involved into a sense of greater freedom. There is buoyancy in the air, and as Eve Li walks home, her feet bounce. All of a sudden, she feels her scar tingle, the old scar that had once cut through her mouth, down towards the chin. *Something* is happening. What is it? She feels a magnificent force starting to well inside. It towers up more and more,.. as though a sacred terror and rage were expanding upward and out, toward some explosive resolution. And more deeply, faintly, a voice is speaking in a profoundly quiet place. For *this* moment, Eve Li senses peace eternal.

She still does not know what is happening, but in a little while, her thoughts return to her work at the university. The program she has initiated with President Jonah's sanction must continue. "I need to learn more. This program could bring a revolutionary adventure to this campus."

All those "bridging ideas" will be important, she says to herself, but they will be the intellectual side of this academic study. The ideas of sociality, self-direction, self-organization, exchange, symbiosis, synthesis, and transformation should be studied in multiple contexts. We must explore them across disciplines and help explain what this long period of history is

all about. But these studies should also evoke feelings and emotions that lead our best thinkers into the heart of the matter at hand. Then, thinking about the evening's performance, some faculty members should ask whether the production of symphonies has a connection with our universe, including the body and the brain. Some scholars should ask whether there is a Choreographer working with us, along with Chance.

Suddenly a fragment of Verdi's *Messa Da Requiem* is sounding in her ears. "President Jonah is here," she murmurs. "Our work at Temple will honor him."

She walks with a light swing, as though she were in his presence. "This man is in a Great Dance where all differences vanish, and yet, somehow, are preserved forever.

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<sup>i</sup> "...devoutly religious men." Albert Einstein (1879-1955), Quoted in: Philipp Frank, Einstein: His Life and Times, chap. 12, sect. 5 (1947).

<sup>ii</sup> "...diamonds were formed." Cornwell (the story name) said that there were "diamonds" right in his own community in Philadelphia. This tale is based on the true story of Russell H. Conwell whose class of students grew in numbers so much that, within a short time, the services of other teachers

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were enlisted until it was necessary to rent first a room, then a building, then two buildings. Within a few years, the studious group had grown from seven to several hundred students, and a charter for "The Temple College" was issued in 1888. Conwell was elected its president, a position he held for the next 38 years. See Temple University and its founder:

[http://www.temple.edu/about/temple\\_founder.html](http://www.temple.edu/about/temple_founder.html); and "Acres of Diamonds," [http://www.temple.edu/about/temple\\_founder/acres\\_text.html](http://www.temple.edu/about/temple_founder/acres_text.html).

iii "the cause of right." See Temple University online:

<http://www.temple.edu/about>.

iv "...whale of a time." The Jonah story interprets God as "loving, merciful, always patient, always kind; ready to help you change your life." According to the Old Testament account, Jonah was three days and three nights in the whale's belly: "Now the LORD had prepared a great fish to swallow up Jonah. And Jonah was in the belly of the fish three days and three nights" (Jonah 1:17). In the Gospel of Matthew, The writer makes an analogy between Jonah and Christ: "so shall the Son of man be three days and three nights in the heart of the earth" (Matthew 12:40),

v "...never to live again." Bible, Job, 14.7.

vi "...Dr. Li's migraines." This scar image is drawn from passages in Charles Dickens, David Copperfield. (Harmondsworth: Penguin, (1984) [First published 1850].

vii "...a great sense of calm." Phillip Huscher also felt this "calm" in commenting on Daniel Barenboim's performance of Verdi's Requiem.

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viii “...of India as well.” There are references to the phenomenon of the human energy field (HEF) or the aura of the body, in different cultures around the world. John White and Stanley Krippner, Future Science: Life energies and the physics of paranormal phenomena, (NY: Anchor Books, 1977)

ix “...dominate the other.” The ancient meaning of Yang referred to the sunny side of a mountain slope, implying brightness, an extension of the sun. It was associated with heat, stimulation, movement, activity, excitement, vigor, light, exteriority, and as the ancient Chinese said, “upwardness, outwardness, and increase.” In contrast, the earliest meaning of Yin meant the shady side of a slope, associated with such qualities as cold, rest, responsiveness, passivity, darkness, interiority, and “downwardness, inwardness, and decrease.” The ancient Chinese also thought about a great spirit moving through the body and the universe. The interlinked concepts of Yin and Yang may have started with a denotative symbol (mountain slope) but it has gone through a series of comparative observations that led to generalizing about the nature of things.

x “...part of a global organism.” For more, see Ted J. Kaptchuk, The Web Has No Weaver: Understanding Chinese Medicine, (NY: Congdon & Weed, 1983). J. Needham, Science and Civilization in China, Vol. 2, pp. 280-281.

xi “...wounded and perish.” This passage is written in the spirit of Job’s complaint: “When I lie down, I say, ‘When shall I arise, and the night be gone?’ I toss and turn until the dawning of the day. Bible, Job, 7:4.

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<sup>xii</sup> “...ten feet taller.” See Chinese Legends --

<http://beifan.com/026topic/26legends.html>

<sup>xiii</sup> “...on consciousness.” Alfred Russel Wallace, Miracles and Modern Spiritualism (Arno Press, New York, NY, 1975). [First Published: 1896.]

Wallace studied both natural history and the paranormal. His published works -- The Malay Archipelago, 1869; Contributions to Theory of Natural Selection, 1871; and Geographical Distribution of Animals, 1876 -- clearly indicate his grounding in science, but he believed evolution to be the result of some non-biological agency. Alfred Russel Wallace (Nature, v. 431, 7 Oct. 2004, p. 630). Wallace had a "flash of insight" about natural selection as the "mechanism" by which "organisms must have evolved from earlier forms" while he was ill with a fever. Evolution had been on his mind for 13 years, and three years before this fever in 1858, he had published his argument for evolution. Wallace, a spiritualist, maintained that natural selection could not account for mathematical, artistic, and musical genius, nor metaphysics and humor.

<sup>xiv</sup> “...explain evolution.” The discussion on how the words of scientists are metaphors, like Darwin’s use of “natural selection” and “affinity,” has been discussed in the literature. See Robert Maxwell Young, *Darwin’s Metaphor: Nature’s Place in Victorian Culture* (Cambridge University Press, 1985; reprinted 1988, 1994. Darwin saw how sheep were modified by domestication, differently from the way they were in nature. See “Selection” and “Natural Selection” in the Oxford English Dictionary.

<sup>xv</sup> “...all mysteries.” The phrase “As above, so below,” comes from The Emerald Tablet inscribed in cryptic wording by Hermes Trismegistus. The

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Emerald Tablet is part of the Hermetica, a revered document in Western occult thought. Hermes Trismegistus is portrayed in art as holding an emerald, upon which he inscribed Egyptian philosophy.

<sup>xvi</sup> “...in terms of physics.” Bohr saw a characteristic feature of quantum physics in the principle of *complementarity*. This principle points to the “impossibility” of any sharp separation between atomic objects. He argued that only the “totality of the phenomena exhausts the possible information about objects.” For more enigmas, see Albert Rothenberg, The Emerging Goddess: The Creative Process in Art, Science and Other Fields. (Chicago: University of Chicago Press, 1979).

<sup>xvii</sup> “...with truth.” And Jean Cocteau said, “The poet is a liar who always speaks the truth.” “Welcome to the Quote Garden!”

<http://www.quotegarden.com/poetry.html>

<sup>xviii</sup> “...a puzzle with many pieces.” The puzzle includes the Buddhist view of the wheel of cyclic existence, i.e. different levels of karmic existence. See The Dalai Lama, Jeffrey Hopkins, Tenzin Gyatso, The Meaning of Life (Wisdom publications, 2000). See excerpts from the Dali Lama’s book of transformation. <http://www.perryland.com/Noteworthy8.shtml>

<sup>xix</sup> “...that process.” R. Cowen, “Modern echoes of the early universe,” Science News, 167, Jan. 15, 2005.

<sup>xx</sup> “...red giant stars.” James Schombert, Department of Physics, University of Oregon, “Contemporary Physics Education Project, Plasma Physics and Fusion,” [www.CPEPweb.org](http://www.CPEPweb.org)

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<sup>xxi</sup> “...in the nineteenth century.” William James was interested in yoga and Buddhist meditation. After the World's Parliament of Religions, held in Chicago in 1893, he looked at religion more as spirituality than as orthodoxy. Religion in this spiritual sense is not competing with science, but is an inward terrain of experience. See Leigh E. Schmidt, Restless Souls: The Making of American Spirituality (HarperSanFrancisco, 2005). Leigh Schmidt is a professor of religion at Princeton University.

<sup>xxii</sup> “...about any more.” Scientists use units that are easiest for their work. In radio astronomy, they use wavelengths or frequencies. Infrared astronomers use wavelength to describe their part of the EM spectrum. They use microns (or millionths of meters) for wavelengths, so that they can say their part of the EM spectrum falls in the range 1 to 100 microns.

<sup>xxiii</sup> “...I have just described.” Detections of high-energy gamma ray radiation from active galaxies and from the Crab Nebula, have extended up to about  $10^{27}$  Hz ( $5 \times 10^{12}$  eV). There is also a diffuse emission of gamma rays that accompany the isotropic flux of cosmic rays. There have been reports of measurements of diffuse gamma ray emission above  $10^{29}$  Hz. This measurement is difficult since cosmic rays can outnumber gamma rays at these energies by a factor of 10,000 to 1 or more. To sift through a lot of cosmic rays to try to find the gamma ray signal is very difficult. Gamma rays are the shortest waves that can be detected with instruments. They are very intense, penetrating and dangerous to biological life, and thus handled with care. Goddards Space Flight Center, NASA's “Imagining the Universe!” [http://imagine.gsfc.nasa.gov/docs/ask\\_astro/answers/970412e.html](http://imagine.gsfc.nasa.gov/docs/ask_astro/answers/970412e.html).

<sup>xxiv</sup> “... ‘intelligent design’.” Michael J. Behe, Darwin's Black Box, (NY: The Free Press, 1996).

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<sup>xxv</sup> “...Darwinian argument.” Kenneth Miller argues that Richard Dawkins is persuasive in The Blind Watchmaker when he claims that natural selection can act on these evolving systems at every step of their transformation. As examples, Miller says, the three smallest bones in the human body, the malleus, incus, and stapes, carry sound vibrations across the middle ear, from the membrane-like tympanum (the eardrum) to the oval window. This five-component system fits Behe's test of irreducible complexity: if any one of its parts would be taken away or modified, hearing would be lost. This is the kind of system that supposedly evolution cannot produce. Unfortunately for his "intelligent design" theory, Miller says, the fossil record documents exactly how this system formed. During the evolution of mammals, bones that originally formed the rear portion of the reptilian lower jaw were gradually pushed backwards and reduced in size until they migrated into the middle ear, forming the bony connections that carry vibrations into the inner ears of present-day mammals. A system of perfectly-formed, interlocking components, specified by multiple genes, was gradually refashioned and adapted for another purpose altogether -- something that Behe's book claims to be impossible. See a review by Kenneth R. Miller, Creation/Evolution Volume 16: pp. 36-40 ( 1996), also online at <http://biomed.brown.edu/Faculty/M/Miller/Behe.html>.

<sup>xxvi</sup> “...on Earth.” Lynn Margolis and Dorion Sagan, Micro-Cosmos: Four Billion Years of Microbial Evolution (NY: Simon and Schuster, 1986.) p. 16-18.

<sup>xxvii</sup> “...beyond duality.” For more on this subject, see Marija Gimbutas, The Civilization of the Goddess (HarperSanFrancisco, 1991). Barbara Walker,

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The Woman's Encyclopedia of Myths and Secrets, (HarperSanFrancisco, 1983).

<sup>xxviii</sup> “...written into it?” Beethoven’s Sonata opens with a piano and a violin playing the same notes in unison, like two people in a mode of consensus. The instruments divide into a song that starts with the violin and is followed by the piano. This joint sound soon builds into a lively interchange. Tenser harmonies come in sequence, as the two instruments build in exhilaration together. Beethoven halts this forward motion, and the piano then pursues a calmer melody that leads into a set of majestic chords. And so it continues as a “discourse” between musical instruments. In this musical mode of conversation, Jonah is asking, “Could Beethoven be expressing a universal experience: the unreported side of sociality, the miming of bodies responding to each other?” The second movement of the sonata carries the conversation further, with the piano accompanied by the violin and the instruments reversing roles. The piano carries completely the first variation, accompanied by the violin. In the second variation, the leadership role is exchanged, with the violin playing the melody line over the piano. Could this expression represent the sociality Beethoven had learned, whether consciously or unconsciously, in the rhythm of a conversation? For the most part, people talk with one another without even thinking about how their conversation takes on a rhythm of exchange and emotion.

<sup>xxix</sup> “...ears cannot hear.” The sonata is a movement away from, and back to, an original (principal) key, a drama setting up a conflict between two keys and then working out the conflict in its development, and finally reaching a resolution at a point of “recapitulation.” The recapitulation sums up what has

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happened previously. Jonah, whose biblical name describes how a man could be inside a whale, would wonder: “Could that movement be compared to an embryo that goes through successive stages of its life, duplicating the evolutionary stages that it had experienced as a species? Could the sonata be capturing the subjective, musical side of human development, as it resonates in the body and becomes revealed to the mind? W. Cole The Form of Music (London: The Associated Board of the Royal Schools of Music, 1986). C. Rosen, The Classical Style (London: Faber & Faber, 1976).

<sup>xxx</sup>. “...guiding us forward.” The Chair had read H. C. Robbins Landon, Mozart's Last Year (New York: Schirmer Books, 1988), in which the story of the *Requiem* is told. Landon argues that Haydn dealt with his problems by a brilliant intellectual tour de force—his symphonies and religious music appear like a pageant, which does not require all of our emotional involvement, as is required by the music of Mozart.

<sup>xxx</sup><sup>i</sup>. “...revelry tradition.” “The Revels” has been celebrated twice a year (winter and spring) in Sanders Theater at Harvard University. John Langstaff began this celebration over twenty years ago, drawing from all sorts of folk traditions. The performance is a masque of traditional and ritual dances, processions, carols, and drama. See Hugh M. Flick, “The Revels and Folklore” and other articles in literature that can be obtained from John Langstaff, Revels, Inc., Box 290, Cambridge, MA 02238.

<sup>xxx</sup><sup>ii</sup>. “...is silence.” The professor refers to a series of letters by Friedrich Schiller, On The Aesthetic Education of Man (New Haven: Yale University Press, 1954).

<sup>xxx</sup><sup>iii</sup>. “...in philosophy.” On this class discussion see Herbert Marcuse, Negations (Boston: Beacon Press, 1968), pp. 227-247; Norman O. Brown,

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Love's Body (New York: Vintage Books, 1966). Roy Bhakshar, Scientific Realism and Human Emancipation (London: Verso, 1986), p. 85.

<sup>xxxiv</sup> . "...Jesus sings." This quotation is from Joseph Campbell (with Bill Moyers), The Power of Myth (New York: Doubleday, 1988), p. 109.

<sup>xxxv</sup> "...into new life." All four Gospels recount the same story of The Cleansing of the Temple (Matthew 21:12–13; Mark 11:15–17; Luke 19:45–46; John 2:13–17). The story of an inner temple begins when Christ overturns the tables of the moneychangers and merchants, proclaiming, "My house shall be a house of prayer, but you have made it a den of thieves." When asked for a "sign" he could offer for doing this, Jesus replies, "Destroy this temple and in three days I will raise it up" (John 2:19). St. Paul asks in 1 Corinthians: "Don't you know that you are a temple of God, and that the Spirit of God dwells in you?" and "Don't you know that your body is a temple of the Holy Spirit which is in you, which you have from God?" In 2 Corinthians, he says: "We are a temple of the living God; even as God said, 'I will dwell in them, and walk in them; and I will be their God, and they shall be my people.'" The disciple John hints at this when he recounts in his gospel an event when Jesus was in the great temple in Jerusalem and was asked to show the people a sign. "Jesus answered them, 'Destroy this temple, and in three days I will raise it up.' The people at the temple said, 'Forty-six years was this temple in building, and will you raise it up in three days?' But he spoke of the temple of his body."