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# *Lem's Master's Voice*

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## *Decoding Science*

*Science Leads, Man Follows!*

—General Motors exhibit motto at the 1933

Chicago World's Fair

*“Nature has neither core nor skin: she’s both at once outside  
and in.” --Goethe*

In his novel, *His Master's Voice*, Polish writer Stanislaw Lem poses perplexing questions about the nature of science, communication, and cosmology, and most especially, about the strange and perverse creatures we humans are. Written in 1967, the book is set in America in the form of a memoir of a mathematician, Peter E. Hogarth, and concerns his work on the “His Master’s Voice” project.

Through some contingent and crazy beginnings, it becomes known to scientists that a particular band of neutrino radiation from distant space is a non-random, repeating code. A group of scientists are secretly

gathered together at an abandoned nuclear bomb test site in Nevada to decode the message. Because this event represents the first known communication with extraterrestrial life it is of momentous significance to science and the human race; and since there might be great powers to be tapped, it is of equal importance to the powers that be: hence the secrecy.

As I understand it, the original Polish title, *Głos pana*, means “master’s voice,” and can be interpreted as ambiguously referring to the voice of God or to the voice of one’s personal master or lord. And Lem clearly wants to keep this ambiguity in the title to play on the tension between the message of one civilization so mature that it has entered into the process of universal creation itself--it is discovered that the code has ever so slight life-enhancing physical properties which over the eons would help create the planetary conditions for life to emerge--and another civilization so full of itself and its obsession with power, that its potentially greatest discovery is placed under the authority of military secrecy. Science is shown to be the servant of two masters, with the

expected tragic results. I am not sure whether Lem or his translator introduced “His Master’s Voice”--the RCA logo--into the English translation, but the image of the dog listening to a device beyond its comprehension, yet seemingly understanding, is apt for a wide range of contemporary research and debate--artificial intelligence, genome decoders, Darwinians and “intelligent design” evolutionists, and the philosophy of science.



Lem is saying that we, like the RCA dog, are listeners of

something far beyond our comprehension. We hypothesize elaborate and complex theories, with the same chances of success as the RCA dog.

Hogarth, the mathematician, conveys through his autobiography a portrait of the self-projecting nature of science, showing us how our most advanced understandings and speculative hypotheses are simply a kind of complex Rorschach test response. He shows scientists who collectively embody the delusions of human hubris, seldom doubting the “objectivity” of their projections. In Hogarth’s words, “The myth of our cognitive universality, of our readiness to receive and comprehend information absolutely new--absolutely, since extraterrestrial--continues unimpaired, even though, receiving the message from the stars, we did it with no more than a savage who, warming himself by a fire of burning books, the writings of the wisest men, believes that he has drawn tremendous benefit from his find!”

The Kantian dilemma informs a central question raised by this book. Is humanity limited, as Immanuel Kant claimed, to knowing only its own faculties of mind which give form to sensory experience? Or

can it go beyond these faculties to the thing-in-itself: the cosmic code? Or, as Lem suggests, do we possess in our faculties “similarities” to objective phenomena which give us the hope of truly knowing those phenomena. In Hogarth’s words:

“To such questions philosophy and religion are traditionally supposed to supply answers, not the natural scientist, who severs himself from the temptation of trying to divine the motives behind Creation. But here it was just the opposite: the approach of the guesser of motives, so discredited in the historical development of the empirical sciences, became the last hope offered for victory. Granted, the attributing of anthropomorphic motives to the Causer of the properties of the atoms remained methodologically prohibited; but some similarity--even the most remote--between Those Who Sent the code and the code’s recipients was more than a fantasy to comfort the mind; it was a hypothesis on whose cutting edge hung the entire Project. And I was certain of this from the first, from the moment I set foot on the H<sub>M</sub>V compound--certain

that a lack of any similarity would render futile all efforts to understand the stellar message.”

Hogarth put no stock in the myriads of conjectures about the signal proposed by his colleagues, saying “all this was borrowed from the poverty stricken repertoire of ideas which civilization, in its current technological form, had at its disposal. These ideas were a reflection--much like the themes of science fiction novels--of society, and of society primarily in its American version...” Yet he was convinced that only through a “similarity” to the Senders would it be possible to project something objective out of our anthropomorphism. This is Lem’s “Peircean turn,” a view of science similar to that proposed by Charles Sanders Peirce, which appears as an alternative to Kant’s inward faculty theory of knowledge, or at least confronts the Kantian view. It is by no means an “outward” as opposed to an “inward” view, but rather literally a theory of *Insight*.

If we are fashioned from the same stuff as the cosmos then we may be endowed with the capacity for true Insight into the nature of the

cosmos. Narcissus looked outward to the water and could only see a mirage of the other, his own reflection, tragically. But Insight means that we may be able to use our inward, tempered capacities and experiences to hypothesize and genuinely perceive nature.

Anthropomorphism, in this sense, is not only inescapable, but may also be our surest touchstone to reality, seeing the world through human filters—but only if we understand anthropomorphism as inclusive of “mammalism,” and of the earlier strata of life actively encoded in our brains.

In Lem’s view hypothesis making is essential to science, and is neither simply a linguistic phenomenon nor even a primarily rational process. Following a brief but devastating criticism of positivism, Hogarth launches into an attack on language analysis, and on the underlying rationalism which framed so many philosophical accounts of science in the twentieth century:

“I had to laugh, for instance, at the assurance of those who determined that all thought was linguistic. Those philosophers did

not know that they were creating a subset of the species, i.e., the group of those not gifted mathematically. How many times in my life, after the revelation of a new discovery, having formulated it so solidly that it was quite indelible, unforgettable, was I obliged to wrestle for hours to find for it some verbal suit of clothes, because the thing had been born, in me, beyond the pale of all language, natural or formal?

I call this phenomenon surfacing. It defies description, because what emerges from the unconscious with difficulty, slowly, finds nests of words for itself; it exists as an entity before it settles inside those nests; yet I can give no indication, no hint, to explain in precisely what form that non- and pre-verbalness appears; it is heralded only by a keen presentiment that the expectation of it will not be in vain.”

One is again struck with the similarity of Lem’s account of “surfacing” and Peirce’s theory of “abduction” or hypothesis formation. Peirce articulated a logical theory of abduction as an irreducible mode of

inference in addition to deduction and induction. Both Lem and Peirce describe a process which is logical--because it leads to valid results--yet irrational. Peirce's later description of the process in 1907 sounds very much like Hogarth's: "The whole series of mental performances between the notice of the wonderful phenomenon and the acceptance of the hypothesis, during which the usually docile understanding seems to hold the bit between its teeth and to have us at its mercy, the search for pertinent circumstances and the laying hold to them, sometimes without our cognizance, the scrutiny of them, the dark laboring, the bursting out of the startling conjecture, the remarking of its smooth fitting to the anomaly, as it is turned back and forth like a key in the lock, and the final estimation of its Plausibility, I reckon as composing the First Stage of Inquiry."<sup>1</sup> Lem/Hogarth and Peirce quite plainly reject the rationalist view of science as limited to conceptual knowledge, and show why *preconceptions*, in the literal sense, are essential to inquiry, however much "the dark laboring" might be denigrated by the clear light of conceptual, verbal rationality.

The entire HVM project, and, to a great extent, the structure of this novel, come about through “surfacing.” Two young astrophysicists recorded approximately two years worth of neutrino emissions at Mount Palomar in what turned out to be a worthless experiment. The tapes were then sold to a “physicist manqué,” by the name of Swanson, who is a sort of scientific confidence man, and who markets the tapes as random number tables. One copy of these tables is purchased by a lunatic by the name of Dr. Sam Laserowitz--the “Dr.” standing for the name Drummond but serving to give him the air of scientific respectability. One also thinks Stanislaw Lem for Sam Laserowitz: a man of laser wit!

Laserowitz quickly makes the headlines with the false claim that the spaces between signals represents “morse code,” while independently a statistician charges Swanson with falsifying the tables, because a significant portion of volume two is found to be a perfect duplication of volume one. These stories happened to be published near one another in a newspaper, which happened to be read by a scientist at

the Institute for Advanced Study, Dr. Saul Rappaport, and as he put down the newspaper, “a thought came to him, a thought so queer that it was comical: Laserowitz, taking the sections of silence on the tapes for signals, was without question raving. And yet it was conceivable that at the same time the man could be right, seeing in the tapes a ‘communication’--if that communication was the very noise!....An insane idea, but Rappaport could not rid himself of it.”

Rappaport’s “insane idea” proves, through his further testing, to be a well-founded hypothesis, and the “Master’s Voice” project comes into being. Hence the project itself is an act of “surfacing”: from the perception of the senses, that is, the astronomical observations recorded on tapes, through the intervention of the “dark ones,” the con man and the crazy, who, together with Rappaport, make the surfacing possible, to the institution of the project itself. As Hogarth says, “We really have no idea what a multitude of con men and crackpots inhabit the domain that lies halfway between contemporary science and the insane asylum.”

Now it is said that art imitates life, but often it seems the other way

around, and not only does life seem to imitate art on occasion, but here is an instance where science imitates art. Consider this excerpt from an article in the New York Times, April 8, 2001, which reads as though it was taken right out of *His Master's Voice*:

“Dr. Dembski said his rather vague doubts about Darwinism did not take scientific shape until he attended an academic conference in 1988, just after finishing his doctoral thesis. The conference explored the difficulty of preparing perfectly random strings of numbers, which are important in cryptography, in computer science and in statistics. One problem is that seemingly random strings often contain patterns discernible only with mathematical tests. Dr. Dembski wondered whether he could devise a way to find evidence of related patterns in the randomness of nature. Dr. Dembski eventually developed what he called a mathematical “explanatory filter” that he asserted can distinguish randomness from complexity designed by an intelligent agent. He explained this idea in “The Design Inference” (Cambridge

University Press, 1998). Dr. Dembski has applied his explanatory filter to the biochemical structures in cells--and concluded that blind natural selection could not have created them."

Lem's lunacy not only finds its echoes decades later in ongoing evolutionary debates concerning whether evolution involves "intelligent design," but is also an accurate insight into pure science. For Lem's lunatic beginnings of the project amount to nothing less than abduction, as it really often functions, dark, ominous, "crazy," unwanted, unbidden even, shattering conventional expectations. Conventional science, like conventional religion, will always prefer to put to death the mercurial voice of abduction, if it could. But the real scientific impulse, like the real religious impulse, will always be desirous of learning, of even undergoing a "conversion experience" to a new way of thinking or being. It will echo what physicist Niels Bohr once said to Wolfgang Pauli: "We all agree that your theory is crazy, but is it crazy enough?"

Darwin's theory of natural selection seemed crazy to many when he published *Origin of the Species* in 1859. But was it crazy enough? It

eventually became normalized in the sciences, to the point that skeptics today--not just religious fundamentalists, who are too crazy--are often regarded as crazy simply for questioning it.

Peirce, a practicing mathematician, physicist, and philosopher, and a political conservative, shared with Karl Marx, the political radical, a deep admiration for Darwin's observational abilities as a naturalist, and a sharply critical assessment of his theoretical abilities as leading him to project English political economy falsely onto nature. Marx and Peirce both pre-echoed, in the 19<sup>th</sup> century, Pyotr Kropotkin's claim that Darwin's theory ignored "mutual aid" as a real and irreducible factor in evolution. Kropotkin is more known as a political anarchist, but also spent 5 years as a geographer in Siberia, observing nature. He claimed that there is "Mutual Aid" in nature, genuine sociality, as well as Darwinian competition. This possibility of non-competitive sociality was later dismissed by Darwinians, when R. L. Trivers found a means to reduce it to a by-product of rationalized maximization, which he termed "reciprocal altruism." All that derives from the philosophy of Greed is

Real, all that is not is reducible to the Greed Matrix.

Peirce claimed that when it came to Darwinism and Aristotleanism, the lion would eventually eat and incorporate the lamb into itself--only in the long run, it would be the re-acknowledgement of generality as real in the physical sciences after the age of nominalism exhausted itself that would make of a modified Aristotleanism the lion and of Darwinism the lamb to be devoured. Hence he viewed Darwin's as a partial view which ignored other real modalities of evolution. He proposed in his 1891 essay "The Architecture of Theories," that there are three modalities of evolution, that Darwin's corresponded to the modality of *Chance*, but that there was also *Catastrophe* and *Habit*.

As a physicist, mathematician, and founder of semiotics, Peirce argued that there is real general relation in nature--namely sign-mediation or what he termed "Thirdness"--not reducible to underlying mechanical principles. Consider in this context the Gaia hypothesis, associated with James Lovelock and Lynn Margulies, the idea that the earth itself is a living organism, that all life is an interdependent whole.

Lovelock accepted Darwin's theory of evolution, saying that Darwin would like Gaia, and that Gaia extends natural selection.

In my opinion the concept of Gaia does extend natural selection, but more than Darwin--or maybe even Lovelock--would allow. Darwin allows that competition is real, but not cooperation. Neo-Darwinists reduce cooperation to sublimated competition, to "reciprocal altruism." But cooperation, Kropotkin's "mutual aid," is a real fact of nature as well. Darwinism seems to hold that nature is anti-social. But why can't nature involve competition, and also genuine intra--species and inter--species sociality? As Lovelock's co-Gaiaist biologist, Lynn Margulies, said, "Life did not take over the globe by combat, but by networking."

There is a fascinating "Gaia" novel from before Lovelock and Margulies' work, by Lem, called *Solaris* (1961). It concerns a planet that is an intelligent organism, which incarnates beings from the memories and fantasies of the astronauts who are exploring it. The very dream of journeying to a distant living planet is revealed as another symbol of our alienation from our own planet and inner life: fetalized astronauts,

unable to breathe in outer space without their mechanico--umbilicus, aliens on Solaris, the planet of life. The water of its seas comes to meet your hand when you reach out to it.

Lem projects the living earth in alien form as the planet Solaris. C.P. Snow once wrote of "The Two Cultures," meaning the split between science and the humanities. David Lavery has updated the distinction, claiming that the "two cultures" prominent in the contemporary imagination are those of space versus earth, of those who would flee our swirling globe of life in a dream of unlimited progress and those who accept earth-limits as a condition of life. The former condition, space-age consciousness, manifests not only in literal technicalism, but in a wide variety of "spaciness."<sup>2</sup>

Why would people think that removing oneself from the planet that gave us life, that is literally incarnated in the very structure of our being, would likely mean progress, improvement, freedom? We live on a planet that is a living organism: we are the earth come alive to self-reflection, more, to continued self-creation. Touch any thing living and you are

being touched by Gaia, the living earth.

***The Devilish Pursuits of Dr. Einstein***

*“I like Heaven for the climate, Hell for the company.”* –

bumper sticker

Lem’s inclusion of the fantastic within scientific inquiry and of the dark forces at work not only in the human psyche, but in the workings of science itself, is reminiscent of Dino Buzzati’s short story,

“Appointment with Einstein.” There Albert Einstein, walking through the woods of the Institute for Advanced Study, imagines himself in the midst of curved space, and begins to wax proud with the power of man to comprehend the nature of the universe. The scene suddenly shifts and Einstein encounters a gas station attendant, who asks him for a match. The gas station attendant turns out to be the Angel of Death, the devil Iblís, come to take his life.

Einstein pleads for a delay, telling Iblís that he is almost finished a very important project. He is given more time, two delays in fact.

Finally Einstein appears at the appointed time for his death, and tells the

Angel of Death that he is ready to go with him, that his work is completed, that “in a sense the universe is now in order.” The Iblís gas station attendant suddenly breaks into a knee-slapping laugh and tells Einstein to go home, that his real purpose was to help Einstein finish his project. When Einstein quizzically asks why his work mattered to Iblís, the devil responds, “To me, it meant nothing. But downstairs the big devils run the show. They say your discoveries have already been extremely useful. You’re not to blame for it, but it’s true. Whether you’re pleased or not, dear professor, Hell has profited greatly from your ideas.”

Buzzati is suggesting that the good Albert Einstein in his pure research was yet part of the *Zeitgeist* of the twentieth century, helping to open the doors through which greater, darker powers could pour through. In 1905, as Einstein was publishing his theory of relativity, as Picasso was beginning to displace noses on the face and discover cubism, Henry Adams wrote a remarkable letter to Henry Osborn Taylor. Despite some faulty methods of reckoning, he reached some

startlingly accurate insights into the nascent century: “The assumption of unity, which was the mark of human thought in the Middle Ages, has yielded very slowly to the proofs of complexity. The stupor of science before radium is a proof of it. Yet it is quite sure, according to my score of ratios and curves, that, at the accelerated rate of progression since 1600, it will not need another century or half century to turn thought upside down. Law, in that case, would disappear as theory or *a priori* principle and give place to force. Morality would become police. Explosives would reach cosmic violence. Disintegration would overcome integration.”<sup>3</sup>

A half century later, after Hitler and Stalin, after Guernica and Auschwitz and Dresden and Hiroshima, after Nazi scientists and technicians were effortlessly absorbed into the ranks of their American and Russian colleagues to continue their researches, thought indeed had been turned upside down. The United States space program used ardent Nazis such as SS officer Wernher von Braun, who had used slave labor to develop the V1 and V2 terror rockets. It used Arthur Rudolph, a Nazi

scientist-ghoul who later designed American astronaut John Glenn's space suit and who had earlier designed a pressure chamber truck used in altitude studies at Dachau concentration camp in which prisoners were pressurized to death. These were not moral questions for the American military establishment after World War Two, because only expedient force mattered: morality had become police, as it already long since had in the Soviet Stalinist Union, and big science only too gladly pimped itself to military purpose and money. By January, 1955, a half-century after Adams's prediction, the US and USSR were actively polluting the biosphere with gigantic hydrogen bomb "tests," spewing deadly global radioactivity in bombs too powerful to be useful.

Yet despite the replacement of the human ends of life with the mechanisms of "cosmic violence," with mechanism itself transforming human ends to its means, there remain many happy souls who believe in the sanctity of scientific/technological advance. Eighty years after Henry Adams' letter and after all that has happened in between, Gerald Holton could still write in all seriousness: "The marriage of science and

technology is undoubtedly permanent and beneficial to each....It is not merely a question of the commonplace observation that our physical burdens have lightened, farm life has been transformed, and medicine improved, but of the direct and indirect influence that the results and attitudes of scientific/technological advance have had in extending the very conception of *human rights*. Since Thomas Hobbes, to whom the essence of such rights was merely the freedom to eat and be eaten, moral and legal rights have increased greatly.”<sup>4</sup>

Holton sees very clearly the role of scientific/technical advance in extending “the very conception of human rights” but he is totally blinded to the dark side of scientific/technical advance as radically extending the possibilities for “human wrongs.” Even so commonplace an observation as “our physical burdens have lightened” does not free us from *The Unbearable Lightness of Being*, to use Milan Kundera’s title, of a world which can function as a frictionless, and feelingless and meaningless plane through the powers of technology. The possibility that scientific rationality, cut free from its moral obligations to human life and life in

general, might be acting as a self-aggrandizing and destructive force, as an alienated voice of the power system, of the machine of modernity, seems to be beyond Holton's ken. It takes a fantasist such as Lem to offer a more realistic appraisal of the situation, twenty years before Holton's remarks:

“We have wholly abandoned ourselves to the mercy of technological progress. The roles are now reversed: humanity becomes, for technology, a means, an instrument for achieving a goal unknown and unknowable....The imagination of humanity has become, in a sense, frozen in place transfixed by the vision of atomic annihilation--which, however, has been sufficiently evident to both side for them to abort its materialization. The fascination with scenarios of the thermonuclear apocalypse, written by strategists and scientific advisory councils, has paralyzed minds to such an extent that no attention is paid to other--and who knows if not ultimately more dangerous--possibilities hidden in progress.”

Lem's Hogarth then goes on in 1967 to predict the use of space-

based missiles--what became known as “star wars” “strategic defense initiative” in Reagan’s 1980s. “SDI” was to be part of a strategy of “indirect economic attrition,” of deflecting the Soviet economy, which was already well on its way to collapse, regardless of how America chose to continue to waste its money.

What lies in our minds and is projected out through the HNV project? Two groups of the scientists, biochemists and biophysicists, independently discover that a carbon and silicon based life form, a gelatinous blob, can be created from the signal. The life-form, which one group terms “frog eggs” and the other calls satanically “Lord of the Flies,” lives on internally generated micro nuclear reactions, and it is discovered that in sufficient quantity, it can produce “tele-detonations,” or detonations at a distance from the object itself. Once this finding becomes known to the research group as a whole, the governmental informers call Washington, and the military swoops in and takes total control of the project.

If this sounds too far-fetched a scenario, consider those scientists

who worked for the Atomic Energy Commission in the fifties and sixties who were threatened with dismissal or who were discredited when they attempted to make known their results on the lethal effects of nuclear bomb testing on thousands of American children. Or consider the whitewashing of the records of Nazi scientists and technicians by the OSS and later the CIA in “Operation Paperclip.” Consider Edward Teller helping to discredit Robert Oppenheimer in the 1950s before the kangaroo court which stripped Oppenheimer of his security clearance. In that betrayal, in which Teller played a nuclear Salieri assassin to Oppenheimer as Mozart, we see the displacement of science with a conscience by science as pure pursuit of power.

### ***Mirroring the Modern Soul***

*“Get your facts first, then you may distort them as you please.” –Mark Twain*

Lem reveals for us the mind of technical civilization, behind which lies the invisible dictator of POWER, ready to assume direct infantile

control at will. As the Pentagon officials discover that the tele-detonations become randomly located and unpredictable at larger, bomb-like sizes by occasionally blowing themselves up, Hogarth understands that even the “secret” HNV project was itself a mere facade of a far more secret enterprise.

Big science so frequently only serves as the veneer of the power complex, just as the actor character in Heinrich Mann’s novel *Mephisto* appears to be a true manifestation of German Kultur, but in actuality is a pawn, a fly to be crushed at the whim of the power-mad Nazis. Lem calls this the “rational husbandry of scientists,” based on the metaphor of how pigs were trained in the nineteenth century to hunt for truffles and were tossed acorns for their efforts, like so many research grants: “Availing himself appropriately of outlets here and there, the scientist-pig--explained Rappaport--can then, without further distraction, devote himself to the hunting of truffles, for the benefit of the rulers but to the undoing of humanity, as indeed the new stage in history will demand of him.”

No artist works on the HMV project, possibly because no artist's findings could enhance the power complex. But what if a composer were to decipher the musical equivalent of Bach from the incredibly advanced Senders? What if the great code of life itself is more like a song, a fantasia, a pouring forth of beauty more than a computer code? What if the Senders were to decipher our message installed on the Voyager space probe? What would the Senders think of a civilization that sends Chuck Berry and Bach, as we did? The Senders would find our science incredibly primitive, perhaps no more advanced than one cell organisms are to human bodies. But would the same be true of Bach? Or could they, from Bach's music, become truly aware of the human body in a way that the mere diagrams etched on the information disk could never begin to reveal.

As Lem puts it: "The synthesis of Frog Eggs was preceded by the tearing, from the code, of its elements, which were then assigned atomic and stereochemical 'meanings.' There was a sort of vandalism in this, as if on the basis of *Moby Dick* one were to begin slaughtering whales and

rendering their blubber.” Written well in advance of the human genome project, *His Master’s Voice* nevertheless draws attention to how a similar vandalism may be at work in that decipherment project. Though scientists have now mapped out the basic “notes” of the genome, what if they are missing the melodies, the harmonies, and rhythms which might be involved in it? What if there are meaningful patterns, involving “non-meaningful” individual genes in ways similar to how blubber-analysis cannot comprehend *Moby Dick*? The human genome as blubber-analysis?

One reading of the formless silicon blob of life with radioactive characteristics is that the two groups of scientists only understood so much of the cosmic message as to be able to create a mirror image of the modern soul. The modern soul, with its silicon-based computer mind and nuclear bomb body, is a composite of chance and calculation. It is an anti-soul, being the antithesis of that pouring forth spontaneity that marks real soul. The great reality of the modern mechanical universe is its fiction of soullessness. Modern culture was the attempt to replace life

with rational mechanism, an apocalyptic delusion of that crafty retarded ape that is humanity, braining itself out of existence.

From the observation of the skies, so central historically to the establishment of science and of that increasingly abstracting consciousness, there arose the idea of a clockwork universe ticking away, devoid of soul, accidentally producing life and consciousness. The living cosmos, which ethnographic and archaeological evidence suggests informs the lives of all aboriginal peoples--and in my opinion the very evolution into humanity--becomes anathema. Life itself becomes an accident, and reasonableness unreal.

The shapeless nuclear-silicon fabrication of the scientists is precisely the incarnation of anti-life that is the terrible secret of "virtual reality," whether made literally in silicon-valley--which only emerged after this novel was written--or in its broadest sense. And perhaps the ultimate physical realization of the rational, scientific soul-substitute is abstracted radioactivity, or what I would prefer to characterize as "cosmic shit." The cult of twentieth-century scientism is perhaps best

symbolized by the image of radioactivity, the scientific *Portrait of Dorian Gray* in a white lab coat. To all appearances the scientist dispassionately unlocks the secret of the atom, but the portrait in reality is a human creature only too ready to surrender itself to raw Power, to all-too-human Power, all the while playing, like a rational infant, in its own cosmic shit. In its organic context of the sun interacting with the earth, radioactivity is, indeed, an essential source for life. But it assumes a wholly different appearance when taken as power symbol of twentieth-century science and technology.

Suppose commodified radioactivity, as abstracted Power Symbol, is the human embodiment of Cosmic Hate, and the principle of life, in its purest manifestation, is the bodying forth of relation, of Cosmic Love, of what Peirce termed “Evolutionary Love.” Existence, as we know too well, is “impure,” and must necessarily hold within it admixtures of both principles. But there are those exceptional moments, when the bindings are loosed, and a flash of Hate or Love suddenly transilluminates the social scrim with a “power surge” of blinding intensity. Such, it seems to

me, is the story of the twentieth-century; a great moment out of time, enlightened by the power of a thousand suns of darkness, ruled by the generals of blind particulars, dominated by the science of secrecy. It was Henry Adams' prophetic insight come true. It was the perfecting of that inverted goal of idealized Greco-Judaic-Christian idealized love: The Apocalypse, whose legacy we are now living.

Lem's scientists, as Hogarth's "notes from the underground" reveal, discovered the "mojo" of modern life. If I may reinterpret Marx, the natural philosophers only *interpreted* the world in their various searches to make gold from lead; the point, however, is to *change* it, and this the scientists did. They made pure shit, and believed they had finally deciphered the cosmic source: the shapeless silicon homunculus, the globular merging Mr./Ms. Microsofty, the ultimate modern material of power: the milk and sperm of human hate, each his/her own slithering little nuclear bomb!

***Evolutionary Love: An Energizing Reasonableness?***

"Almost forgetting for the moment all thoughts of Moby

Dick, we now gazed at the most wondrous phenomenon which the secret seas have hitherto revealed to mankind. A vast pulpy mass, furlongs in length and breadth, of a glancing cream-colour, lay floating on the water, innumerable long arms radiating from its centre, and curling and twisting like a nest of anacondas, as if blindly to clutch at any hapless object within reach. No perceptible face or front did it have; no conceivable token of either sensation or instinct; but undulated there on the billows, an unearthly, formless, chance-like apparition of life. And with a low sucking it slowly disappeared again.”

–Herman Melville, *Moby Dick*

So is Lem saying in *His Master's Voice* that the universe is suffused with Love and infused with Hate? What is the relation of Love and Evil in *HMS*? Lem seems to be saying that the evolution of the universe tends toward universal communication, and that the substance of this universal Voice is life itself, considered as incarnate love or living relation.

I submit that the universe is an act of self-creation and self-renewal, and that the purport of life is not simply to reproduce genes and species, but to further living reasonableness. Material evolution is more than a Gospel of Greed, it also involves genuine social relation as a dynamic, Peirce's evolutionary love. Material evolution is in this sense involved in general evolution, in the development of real generals. Therefore all life arrives in potential, if it is not destroyed first or if it does not destroy itself, at the developmental point where it begins to take control of its destiny, and to enter into active participation in the ongoing creation of the universe.

In her "space fiction" novel *Shikasta*, Doris Lessing describes this as "the Necessity," that universal development to which all--including beings that could be considered as gods relative to humans--are subject. When this process reaches maturity, the life-form becomes the universal act of continuing creation. Projected on to an advanced civilization, this means that such a civilization gives voice to the creative process in universal form. In other words, as Lem shows so clearly, such a

civilization sends out waves of life-creating and life-sustaining properties. But then, even at our relatively infantile state of science, why can't we do this here on earth?

Why has the entire history of human civilization--the history of history itself--been the complete opposite, the devouring of the sustaining life-environment by possessive expansion? Why has Civilization thus far taken *The Gift of Life* as a thing to be *taken*, possessively, rather than the very medium in which to participate in the fantastic epiphany of life-giving itself?

Worse: Is not the direct participation in incessant creation precisely the way of the hunter-gatherers, who live centered in what David Abram has called the relation of the human to the "greater-than-human?" We became human through such a way of life, centered in attunement to surrounding life, to how did we lose it? How did we reach a point where we can see its virtues in a cosmically advanced future, while forgetting it was the way of our evolutionary past-and remains, in my opinion, embedded in our very bodies? The aliens who would save us simply

reveal our own alienation from the very conditions of the living earth that bodied us forth into being, attuned to and participant in the ongoing creation of the universe.

Between the two “masters” in Lem’s book lies the whole question of life: must life inevitably give way to entropy, or to its human equivalent--evil and death? Or do evil and death, and entropy itself, play some necessary part in the transcendent drama of life? The words of Boris Pasternak in *Dr. Zhivago* reveal a deep insight into that “glassy essence” of humankind and cosmos, which remained opaque to all except Hogarth on the HMV project:

“Re-shaping life! People who can say that have never understood a thing about life--they have never felt its breath, its heartbeat--however much they have seen or done. They look on it as a lump of raw material that needs to be processed by them, to be ennobled by their touch. But life is never a material, a substance to be molded. If you want to know, life is the principle of self-renewal, it is constantly

renewing and remaking and changing and transfiguring  
itself.”

The great neutrino beam is not only capable of creating life itself, but of feeding the spirit. For the story of the “His Master’s Voice” project shows how the confrontation of human fallibility with the Great Code of Life brings to the surface all the latent and manifest evil of “civilized” modern man. Would that the human genome and cloning researchers could have read Lem. Life is never a mere material meant to be molded to human purpose. That view, which has dominated modern life and found expression in Kant’s philosophy and the HMV project, was simply wrong. Quite the opposite. We child-like apes evolved through molding ourselves to the intelligible web of life in which we were immersed. We remain the “substance” to be molded to the deeper designs of life, whose reasonableness is not simply “in” us, but which also does issue forth through us.

The arrogance of modern materialist science, of the domination of modern and not so modern “civilized” man by the power complex, the

tendency to surrender all control to faceless bureaucratic forces: to military secrecy, to disciplinary arrogance, to anthropomorphic narcissism, to individual self-aggrandizement and raw institutional power, all are stripped of their veneer of respectability and prestige.

What emerges from the HVM project is the realization that the interpretation of the Code will be the task of generations, that the interpretation of the Code is itself part of its cosmic transformative message, feeding the human spirit even as the neutrino rays themselves “feed” primitive planetary atmospheres and oceans with their life-creating properties.

The laws of the material universe govern the living creature. But there is more to life than that. There is creation, the spontaneous bodying into being, manifesting in every single living creature in its singleness, utilizing and transforming the material laws in the mystery of creation. This is the living stuff of which the religious impulse is made.

Though it has been crucial in science, abductive inference seems to me a capacity problematically weakened by civilization, strangled by

rationalizing modernity, silenced in post-modern culture. Abduction is the logic term for the inner voice of nature, which speaks primarily iconically. It is the inner voice of general nature, by no means limited to humans. Modern science outlawed the inner voice from its quantifying machine, leaving it a poor stranger outside the city gates, not realizing that the poor stranger was in reality its abundant provider.

Yet if humans have, as Peirce claimed, a “genius” for guessing, for abductive inference, then abduction should show itself in the bio-cultural evolution of humans. The physiology of abduction should be found in the experience of wonder, and in a consciousness of wonder. Animism is such a consciousness, found in the religious-ritual-artistic world-views of hunter-gatherers. To wonder at the ongoing all-surrounding drama of creation, of the life in all things, of the voice of life-creation in fellow creatures, all the living enactment of the drama with something to say, something for us to listen to and learn, such is life lived in full awareness. Full awareness, in wonder, is the propellant of the evolution of “Big-brain,” not mere Darwinian anti-social *homo competitor*. It

requires a mind coalescing with its environment, attuned to it, *in* it.

How can the sciences or religions not see the reality of creation, of a universe possessed of genuine novelty, a living universe still in an active process of creation, its laws still evolving? To religious moles blinded by authority conventions, "creation" is as finished and dead as it is for scientific head-in-the-sand ostriches, blinded by science conventions, who think the big clock was already wound and is just ticking down. A recent finding by a team of astrophysicists suggests otherwise: that the basic laws of physics are undergoing development.<sup>5</sup>

The world teems with transformation, and what is the cycle of life and death--and the incredible variescence of life itself--if not a testimony to the mysterious transformative and illuminative nature of nature? It is this transilluminative essence that the religious impulse feels, dreams, envisions, and attempts to body forth, a *transilluminative essence* in which we feel the greatest resonance, precisely because we are incarnations of its laws, and for which we feel the greatest longing, because our tendencies to habitude and self-enclosed greed and hubris so

frequently obscure life's transformative nature.

The stuff of which the universe is made is illuminative, not simply in the modern materialist sense of glowing gasballs nor even in the rationalist "enlightenment" sense. It is illuminative in its tending toward living relation. If this sounds hopelessly anthropomorphic it is: as all human conceptions and modes of expression must inescapably be. But we dreamy conjecturing apes are of the stuff from which the universe is made, and therefore we can see the universe objectively, not despite our anthropomorphism, but because of it. As Peirce put it: "Must we not say that . . . there is an energizing reasonableness that shapes phenomena in some sense, and that this same working reasonableness has molded the reason of man into something like its own image?"<sup>6</sup>

We are creatures of habit, who see *through* our habits, not merely with them. The illuminative, which sporadically shows itself to us in dreams and dramatic experience, irradiates our habits, dangerously. Those who can incorporate and body forth the illumination are subtilized and enlarged in their human capacities. But those who fail to humanize

creation itself can be destroyed by it: the truth sometimes hurts, and beauty can kill, as Narcissus tragically discovered.

We need to refigure the majesty and divinity of nature, of the mysterious and miraculous voices of reasonableness that surround us without and within, and to which we must ever attune ourselves. This is, to my understanding, what is meant by the Native American expression “to walk in beauty” and by Peirce’s understanding of the ultimate basis of conduct as esthetic, as Beauty, considered as the intrinsically admirable. The deepest purpose in life is nothing less than to become the ongoing creation of the universe in the myriad ways of one’s life.

Lem’s American allegory asks us to reconsider the basis of modern life and our relation to the living universe. The lie of civilization, that we can power ourselves to “heaven” by walling ourselves off in spectral consciousness from life, has revealed itself as a deadly delusion, the delusion called history. A new kind of civilization is required, one which incorporates organic limits and organic, cosmic goals, comprehending the primary reality of a self-creating universe, of a spontaneous

reasonableness energizing into being as no machine ever could.

Inquisitive awareness involves attunement to the real voices of creation, to all-surrounding life, without which a religion, a science, a civilization will not endure.

## *Endnotes*

1. Charles Sanders Peirce, *The Collected Papers of Charles Sanders Peirce, Volumes 1-6*, Edited by Charles Hartshorne and Paul Weiss. (Cambridge: Harvard University Press, 1935: Volume 6, paragraph 469).

2. David Lavery, *Late for the Sky: The Mentality of the Space Age*. (Carbondale, IL: Southern Illinois University Press, 1992).

3. Henry Adams, "Letter to Henry Taylor Osborn, January 17, 1905." Cited in Mumford, Lewis, *Interpretations and Forecasts: 1922-1972*. New York: Harcourt, Brace, Jovanovich, 1979: 358.

4. Gerald Holton, *The Advancement of Science and Its Burdens* (New York: Cambridge University Press, 1986: 291-92).

5. James Glantz and Dennis Overbye, "Cosmic Laws Like Speed of Light Might Be Changing, a Study Finds." *The New York Times*, August 15, 2001. Here is an excerpt: "An international team of astrophysicists has discovered that the basic laws of nature as understood today may be changing slightly as the universe ages, a surprising finding that could rewrite physics textbooks and challenge fundamental assumptions about the workings of the cosmos...The observations revealed patterns of light absorption that the team could not explain without assuming a change in a basic constant of nature involving the strength of the attraction between electrically charged particles.

If confirmed, the finding could mean that other constants regarded as immutable, like the speed of light, might also have changed over the history of the cosmos...The work relied on observations of light from distant beacons called quasars, which shine with a brightness equivalent to billions of suns. The light is probably emitted by matter torn from young galaxies by the powerful gravity of a black hole. "

6. Charles Sanders Peirce, *The Essential Peirce: Selected Philosophical Writings, Volume 2 (1893-1913)*. Bloomington, Indiana: Indiana University Press, 1998: 68.

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