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21st CENTURY SCIENCE & TECHNOLOGY

Vol. 17, No. 2

Summer 2004

Science & the LaRouche Youth Movement

- 6 **THE IMPLEMENTATION OF A SCIENTIFIC DISCOVERY
IN RAISING HUMAN POPULATION POTENTIAL**
The Paradox of Motion
Rachel Brown
- 10 **How We Built a Working Steam Engine**
Will Mederski and John Milner
- 11 **THE CONCEPT OF TECHNOLOGY**
**How Hypothesis Formation Determines
The Price of Things**
Niko Paulson
- 14 **FROM LINCOLN TO LAROUCHE'S LAND-BRIDGE**
On the Implementation of Technology
Wesley Dean Irwin

Features

- 22 **REDUCTIONISM AS MENTAL SLAVERY**
When Even Scientists Were Brainwashed
Lyndon H. LaRouche, Jr.
"Today's prevalent, pro-reductionist form of globally extended European culture is, quite literally, brainwashing," argues economist Lyndon LaRouche.
- 48 **THE SCIENCE OF THE ADVANTAGE OF THE OTHER**
**Pythagorean Spherics: The Missing Link
Between Egypt and Greece**
Pierre Beaudry
There is no mystery or "secret knowledge" of the pyramid, as centuries of cultists and pyramidiots have alleged. Only the open secret of the *science of the Advantage of the other* lies behind its construction and use.
- 68 **THE TWO-EDGED ATOMIC SWORD**
Getting the Atom Away from the Army
Theodore Rockwell
How a youth movement of scientists in 1945 fought the Establishment to win civilian control of nuclear power, as told by an eager participant.

News

- CONFERENCE REPORT**
78 **'Ideas That Will Change
the World' Presented at
Moscow Conference**
Jonathan Tennenbaum

Departments

- EDITORIAL**
2 **Bohr Model Fails Again;
Moon and Harkins Were Right**
Laurence Hecht
- 4 **NEWS BRIEFS**
- 21 **LETTERS**
- BOOKS**
82 **Why Hanford's Nuclear
Waste Cleanup Wastes
Your Money**
**HANFORD: A CONVERSATION ABOUT
NUCLEAR WASTE CLEANUP**
by Roy E. Gephart
Reviewed by Michael Fox
- 86 **The Axiomatics of Fascist
Archaeology**
**SECRETS OF THE SANDS:
THE REVELATIONS OF EGYPT'S
EVERLASTING OASIS**
by Harry Thurston
Reviewed by Rick Sanders
- 87 **The End of Civilization
—Almost**
**THE GREAT INFLUENZA: THE EPIC
STORY OF THE DEADLIEST PLAGUE
IN HISTORY**
by John M. Barry
Reviewed by Stuart Lewis

On the cover: Peter Martinson (foreground) and Rachel Brown examine a steam-driven piston constructed by Will Mederski (right) and John Milner, as part of a Seattle LaRouche Youth Movement pedagogical presentation. Photo by Riana St. Classis; cover design by Alan Yue.

Bohr Model Fails Again; Moon and Harkins Were Right

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21st Century Science & Technology (ISSN 0895-6820) is published 4 times a year by 21st Century Science Associates, 60 Sycolin Road, Suite 203, Leesburg, Va. 20175. Tel. (703) 777-6943.

Address all correspondence to **21st Century**, P.O. Box 16285, Washington, D.C. 20041.

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Subscriptions by mail are \$25 for 6 issues or \$48 for 12 issues in the USA and Canada. Airmail subscriptions to other countries are \$50 for 6 issues. Back issues are \$5 each (\$8 foreign). Payments must be in U.S. currency.

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21st Century Science Associates

Printed in the USA ISSN 0895-682

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A paper accepted for presentation at the Vernadsky State Geological Museum's international conference in April 2004 (see page 78), reports on experiments which demolish the independent electron-orbital conception of the Bohr atom, and suggest, instead, the validity of the concept of the atomic nucleus developed in 1986 by University of Chicago Emeritus Professor of Physical Chemistry and Physics Dr. Robert J. Moon (1911-1989). The paper, "Effects of Atomic Electrons on Nuclear Stability and Radioactive Decay,"¹ reports experiments showing a billion-fold increase in the rate of beta decay when atoms of the radioactive isotope Rhenium-187 are fully ionized, from a half-life of 43 billion years to only 33 years.

Beta decay refers to the emission of an electron from the nucleus, in the course of which a neutron is converted into a proton, increasing by one the atomic number of the daughter nucleus. The demonstrated relationship between the rate of beta decay and the occupancy of the extra-nuclear electron orbitals, establishes an indisputable link between the nuclear and extra-nuclear electrons, a concept which had been all but discarded over most of the modern history of atomic physics. For this we can thank Niels Bohr, and those who, like Rutherford, sided with Bohr's obsessive effort to suppress the valid criticisms of the physical chemists against his oversimplified atomic model.²

Whether or not such extreme shifts in decay rate with ionization are unique, or specific to certain nuclei, the demonstrated case already presents a great challenge to existing views. Rather than bemoaning the destruction of the textbook model, the demonstration of so clear a paradox ought to be a source of joy for us. It means it's time to re-examine cherished axioms, and find where the errors lie.

The Historical Background

Robert J. Moon's hypothesized nuclear model represented the culmination of almost two centuries of work on the atomic hypothesis, dating to André-Marie Ampère's 1825 proof of the existence of the electrodynamic angular force. Ampère, often mistakenly identified as a Newtonian, proved himself the opposite, in establishing that the force between electrical current elements depended not merely on the distance of separation, but on their angular relationship. Thus, the then-current theory of unification of forces (gravitation, electrostatics, and magnetism) around the pseudo-concept of a Newtonian *inverse square law* was demolished: Its truth, Ampère showed, was in inverse proportion to the quantity of supporting advertising from such as Laplace, Biot, Grassmann, et al.

After the publication of Ampère's 1825 *Memoire*, Carl Friedrich Gauss recognized the fundamental importance of the discovery, and focussed his scientific efforts, beginning 1829, on verifying the truth of the Ampère angular force. The results of Gauss's collaborative effort with his younger assistant, Wilhelm Weber, were published by the Royal Saxon Scientific Society in Leipzig in 1846, to commemorate the 200th anniversary of the birth of Gottfried Wilhelm Leibniz. This most seminal paper in the history of 19th Century physics provided the exhaustive experimental data establishing the existence of the Ampère force.

The issues addressed by the Ampère-Gauss-Weber studies in electrodynamics—although commonly ignored—remain at the heart of all fundamental questions in physical science today. One cannot address any fundamental issue, such as is raised by the paradox of beta emission, while remaining ignorant on these matters. Specialists would thus render a service to the cause of truth, by holding their tongues until they have

remedied this weakness in their education. The fault is not entirely their own, as forests of hard-wood have fallen in the printing of textbooks spreading ignorance on this crucial matter.

Weber's Solution to Fusion

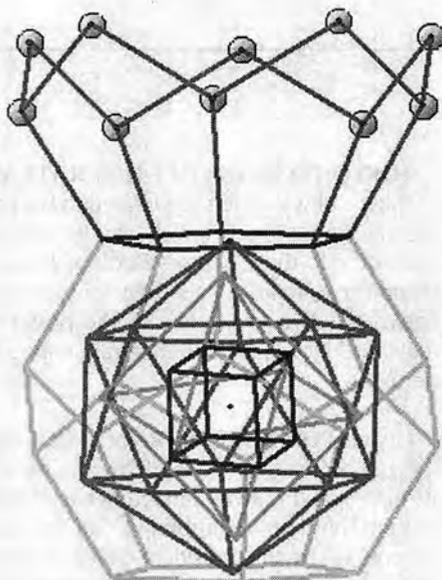
In subsequent work, particularly his 1871 paper on *Electrodynamic Measurements*,³ Weber demonstrated the existence of a *critical length*, below which the force of repulsion of like particles is reversed. That discovery of Weber's, premised on the standpoint of Leibniz's *Monadology*, became the basis of a school of thought among physicists which was particularly strong in America, including among its leading proponents the man who was to become President Franklin Roosevelt's chief wartime science adviser, Vannevar Bush.⁴

Moon was among those young physics students of the 1920s to 1930s who adopted the standpoint of Ampère and Weber in electrodynamics, recognizing in it the key to achieving his life-long dream of nuclear fusion. Moon's work came to fruition in the spring of 1986 in a hypothesis on the structure of the nucleus. The Moon nuclear hypothesis was immediately inspired by the combined influence of an intensive study of the scientific writings of Lyndon H. LaRouche, Jr. and a reading of Johannes Kepler's *Mysterium Cosmographicum*.

Moon proposed an ordering of nuclear shells in which the vertices on a nested arrangement of four Platonic solids (cube-octahedron-icosahedron-dodecahedron) determine the positioning of the protons in the first 46 elements, and a similar twinned structure defines the heavier elements. The inverse of the fine structure constant (137) emerges as a configuration of three such dodecahedral structures, the vertices of which determine the configuration of electrons in free space.⁵

Neutron Ordering from Moon's Model

In my 1988 report on Moon's discovery,⁵ I proposed an ordering of neutron shells determined by the subsumed set of Archimedean solids contained within



Jacob Welsh

Moon model representation of the nucleus of Barium (atomic no. 56).

the Platonic solid nesting. I noted the correlation of the filling of these shells with the closing of the extra-nuclear electron shells in the generally accepted view of the atom. That was, to my knowledge, the first identification of a systematic relationship between the neutrons and orbital electrons.

In more recent work in collaboration with Charles B. Stevens, a clearer hypothesis of the neutron-electron relationship has emerged, which we have elaborated in a soon-to-be-published paper. We hypothesized the existence of a new construct, the *Weber pair*, which consists of two protons, associated in the dynamically stable aggregation postulated by Wilhelm Weber in the referenced 1871 paper. Within a sphere of diameter approximately 10^{-16} cm, two protons will remain paired, oscillating to and fro along a straight line connecting them, accelerating to a superluminal relative velocity of $2c$ as they pass through each other at the center, and decelerating to a zero velocity as they reach the sphere's boundary. By consideration of the Ampère angular force, it is seen that four *Weber pairs* will achieve a stable configuration when arranged along the diagonal axes of a cube. The eight protons so associated, define the oxygen nucleus.

The ordering of both the extranuclear electrons and the neutrons in the nucleus must be determined by the configuration of these Weber pairs. In the hypothesis explored by Stevens and myself, the electron is drawn into a helical spiral by the motion of the charges in the Weber pair, resulting in the possibility of formation of a neutron, as an orbital condensation upon a proton, at the relativistic velocity achieved at the center of the nuclear structure. We shall elaborate this further in our coming paper.

The validity of Moon's strong hypothesis of the nuclear structure does not rest on the results of this single cited experiment in change of beta decay rates. On the other hand, the prevailing conception of independent electron orbitals, however modified by conceptions of electron-screening and the effect of the Coulomb force, must fall with these results. (It is thus unfortunate, that public discussion of the original experiment centered on an internet debate with Creationists, who saw the results as undermining the method of isotopic dating in general.) As we have been saying for some years, it's time for some new ideas, which also means it's time to get serious about understanding what you think you know about some old ones.

—Laurence Hecht

Notes

1. G. Lochak, L.I. Urutskoev, D.V. Filippov, www.scienceandfuture.sgm.ru; and citation to: F. Bosch, T. Faestermann, J. Friese, et al., "Observation of Bound-State β^- Decay of Fully Ionized Re-187: Re-187-Os-187 Cosmochronometry," *Phys Rev Lett*, 1996, Dec. 23, Vol. 77, No. 26, pp. 5190-5193.
2. Cf. Wm. D. Harkins, "The Structure of Atoms, and the Evolution of the Elements as Related to the Composition of the Nuclei of Atoms," *Science*, Vol. 46, No. 1192 (Nov. 2, 1917) pp. 419-427.
3. Wilhelm Weber, "Electrodynamic Measurements—Sixth Memoir, relating specifically to the Principle of the Conservation of Energy," *Phil. Mag.* 4th Series, Vol. 43, No. 283 (January 1872), pp. 1-20, 119-149.
4. V. Bush, "The Force between Moving Charges," *Jour. Mth. and Phys.* Vol. V, No. 3 (March 1926).
5. Laurence Hecht, "Mysterium Microcosmicum: The Geometric Basis for the Periodicity of the Elements"; and Robert J. Moon "Space Must Be Quantized," *21st Century* May-June 1988, pp. 18-30, and www.21stcenturysciencetech.com, home page.



Kathy Wolfe/EIRNS

Japan's Maglev poster.

TOKYO TO OSAKA IN 1 HOUR VIA MAGNETIC LEVITATION!

Tokyo subway riders are treated to big color posters advertising Japan's Yamanashi Maglev train, which travels at 581 km per hour. (It is the fastest train on Earth, according to the *Guinness Book of Records*.) The Maglev now operates only on a demonstration line, and the plans are to extend the maglev to a 1-hour route between Tokyo to Osaka—as the poster says, “bringing the heart of Japan closer together.” Now, Japan’s bullet train makes this journey in 2 hours, running at 300 km per hour.

HIGH-SPEED KOREAN TRAIN LAUNCHED; LINK TO TRANS-SIBERIAN IN FUTURE

South Korea became the fifth country to run a high-speed train when it launched its high-speed railway service between the capital, Seoul, and the southern port of Pusan. The train could be the “starting point for a 21st Century Iron Silk Road” to Europe, said acting President Goh Kun at the opening ceremony. “These bullet trains will lead South Korea to become the prosperous hub of Northeast Asia, connecting to the North Korean railway, the Russian Trans-Siberian railway, and the Trans-China railway,” he said.

The new train cuts the journey time to 2 hours and 40 minutes, and will shrink it to under 2 hours when all the high-speed tracks are installed.

SOUTH AFRICA'S ENERGY MINISTER BACKS NUCLEAR ENERGY, PBMR

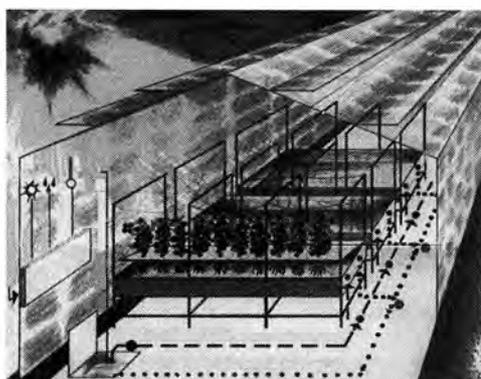
South African Energy Minister Phumzile Mlambo-Ngcuka told the National Assembly that nuclear power would help the nation “increase energy diversity, security of supply, and reduce energy-related emission levels, because it is a cleaner burning fuel.” As reported in the *Mail & Guardian* June 22, Mlambo-Ngcuka praised the safety record at the Koeberg nuclear plant, which supplies 6.5 percent of the country’s electricity, as “highly commendable.” She also backed the prototype pebble bed modular reactor (PBMR) project, and noted that the Cabinet had endorsed a 5- to 10-year plan “to grow a critical research and skills base to support the PBMR program.” “[South Africa’s] PBMR is poised to respond to the invitation to bid for building a reactor system in the United States,” she said, “which will produce both electricity and [be] used as a heat source for hydrogen production.”

GAIA GURU EMBRACES NUCLEAR AS ONLY ALTERNATIVE TO GLOBAL WARMING

Dr. James Lovelock, author of the “Gaia” Earth theory, sounded the alarm to the Greens to drop their obstinate objections to nuclear power development, or face imminent doom. “Global warming, like a fire, is accelerating and almost no time is left to act,” wrote Lovelock in an op-ed in the London *Independent* on May 24. “We have no time to experiment with visionary energy sources; civilization is in imminent danger and has to use nuclear—the one safe, available, energy source—now or suffer the pain soon to be inflicted by our outraged planet.” How ironic that a paranoid vision of global warming-caused climatic catastrophes has driven this prominent 84-year-old environmentalist to his senses about nuclear technology.

ITALIAN FIRM PROMOTES ISRAELI-PALESTINIAN PEACE VIA ‘AEROPONICS’

The Vicenza, Italy, firm SAID has signed a contract with the University of Jerusalem for a joint Israeli-Palestinian agricultural venture featuring aeroponics, a unique technique for soil-less plant cultivation. Dr. Giancarlo Costa, Aeroponics creator (see interview, *21st Century*, Spring 2002), and Giannino Bonato, SAID manager, joined with several Italian, Israeli, and Palestinian companies at a meeting sponsored by the Italian Foreign Trade Ministry. Their mission is to develop a basis for dialogue through joint economic development projects.



SAID

Schematic of a SAID aeroponic greenhouse. The Italian company signed a contract with Israel and the University of Jerusalem to develop greenhouses that can “grow any kind of vegetable and fruit with minimal doses of water, or better, with a solution that we have patented,” reported SAID manager Giannino Bonato.

CANCER RATES DROP SHARPLY FOR RESIDENTS IN RADIOACTIVE BUILDINGS

About 10,000 people who lived in highly radioactive Taiwan apartment buildings for 9 to 20 years have cancer death rates that are a fraction (about 3 percent!) of the cancer death rates in the general population. The recycled steel used in constructing about 180 buildings in 1983 was accidentally contaminated with discarded cobalt-60 sources, which was not discovered until 1992. An article in the *Journal of American Physicians and Surgeons*, Vol. 9, No. 1 (Spring 2004), reports on an extensive study of the affected population by a team led by W.L. Chen, head of the Radiation Protection Department of Taiwan's Atomic Energy Commission (AEC).

Although many residents had received high total doses of radiation, "medical examinations did not reveal the presence of any harmful radiation sickness syndromes," Dr. Chen et al. wrote. Further, no chromosomal aberrations were detected in blood analyses. In fact, the article stated, "The overall conclusion of the AEC is that the chromosome aberration studies indicated that groups that received higher doses seemed to have lower levels of chromosome aberrations."

The article concluded: "The observation that the cancer mortality rate of the exposed population is only about 3 percent of the cancer mortality rate of the general public . . . is particularly striking, and consistent with the radiation hormesis model. This assessment suggests that chronic irradiation may be a very effective prophylaxis against cancer." The authors noted that their findings are a great departure from those expected by the current radiation protection standards, which are based on the Linear No-Threshold model, and they recommended a "reevaluation of these standards. . . ." The authors suggested that long-term exposure to radiation at a dose rate of about 5 rem (50 mSv) per year "greatly reduces cancer mortality. . ." and ask medical scientists and organizations to "seriously assess this and other current evidence" showing hormesis.

300,000 YEAR-OLD FLINT WAS MINED TO MAKE BLADES

An Israeli research team discovered flint tools in Tabun Cave near Haifa, that were made from mined flint, dated to 300,000 years ago, reported *Nature* magazine, May 18. Tools made from flint, a hard but brittle rock that can be flaked to have sharp edges, have been dated back to 2.5 million years ago, but the Tabun Cave tools have been made from rocks on the surface, not from underground mined rock. The research team used levels of beryllium-10 to determine the difference in the rock origin. Underground rock had higher levels of the radioisotope, because its silicon dioxide was not broken down by cosmic rays hitting the Earth's surface.

At another Israeli archaeological site, researchers found evidence of human beings using controlled fire 790,000 years ago, as reported in *Nature*, April 30.

GENE MALLOVE, EDITOR OF INFINITE ENERGY, MURDERED MAY 14

Dr. Eugene F. Mallove, who spent the last 15 years of his life championing cold fusion, was brutally murdered May 14, while visiting his childhood home in Norwich, Conn. A homicide investigation is ongoing.

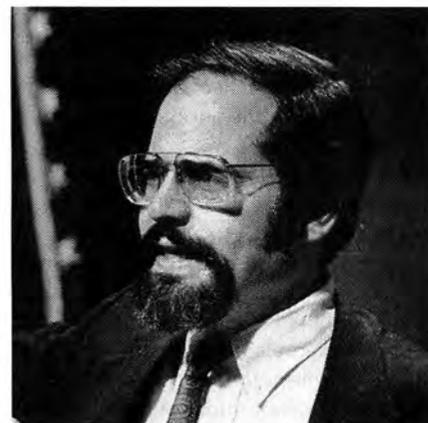
Gene began his coverage of cold fusion as the Chief Science Writer for the MIT News Office in 1989. He later left MIT because the institution lied about the positive results of its cold fusion experiments. In 1991, his book *Fire from Ice: Searching for the Truth Behind the Cold Fusion Furor* was published by John Wiley and Sons. In 1994, he founded *Infinite Energy* magazine and the New Energy Research Laboratory to promote cold fusion research and other forms of "new energy." Under attack by an unfair and hostile science "establishment," *Infinite Energy* rejected anything "established," including hot fusion and nuclear energy, and embraced non-established science, often without discrimination.

Gene's dedication and his personal "infinite energy" will be missed.

NATURAL, PREDICTED, AND OBSERVED RESULTS FOR 8,000 APARTMENT RESIDENTS

Natural (expected) cancer deaths	186
ICRP model predicted cancer deaths	242
Observed cancer deaths	5
Natural (expected) congenital malformations	46
ICRP model predicted congenital malformations	67
Observed congenital malformations	3

Source: Adapted from W.L.Chen et al., "Is Chronic Radiation an Effective Prophylaxis Against Cancer?" *Journal of American Physicians and Surgeons*, Vol. 9, No. 1 (Spring 2004), p. 6



Stuart Lewis/EIRNS

Gene Mallove at a Washington press conference to promote his cold fusion book, March 27, 1992.

The Paradox of Motion

by Rachel Brown

As a young person, going through the motions of public education, somehow I remained completely devoid of any understanding of physical processes. The chewing gum tests in sixth grade were fun, but only that. Growing crystals in eighth grade seemed no different to me than mixing ingredients in home-ec class to bake a cake. Chemistry class? I developed a systematic method of achieving, but no scientific method. To me, the equations were as imaginary as the formulas I was given in algebra (literally, what was that "imaginary" number stuff?). I really gave up caring then.

So, embarking on a mission to understand the development of heat-powered machines, I was enthusiastic, but had little direction. In such a situation, the physical universe is the best teacher. I

started reading Gottfried Wilhelm Leibniz's "Specimen Dynamicum" (1695), Sadi Carnot's *Reflections on the Motive Power of Heat* (1824), and Philip Valenti's *21st Century* article, "Leibniz, Papin, and the Steam Engine" (Summer 1997). These scientists, with the exception of Valenti, did not have access to minute methods of observation, and the motive power of heat, and motion in general, was little understood. So, I thought, with my most basic level of understanding, I might actually be an appropriate transmitter of this process of discovery.

First, I attempted the "Specimen Dynamicum," which I didn't understand at all, until later experimentation with Carnot's examples. Leibniz is looking at the nature of motion and matter. Is matter simply dead, indifferent to rest or motion? Is it actually resistant to motion, or does it have an inclination to move?

Leibniz talks about *active force*, which he also states could appropriately

be called *power*, as being two-fold. That is, either *primitive force*, which is inherent to bodies, and which could also be called *soul*, or *substantial form*. This force, however, addresses only general causes, and is not sufficient to explain specific phenomena. The second is *derivative force*, described as a result of a collision of bodies driven by primitive forces, and found in different degrees.

He uses the example of a ball in a cylinder (Figure 1). The ball is first held in place with string,



Riana St. Classis

Will Mederski and Rachel Brown demonstrate a steam-driven piston lifting a gallon jug of water. Steam comes from a pressure cooker (not visible).

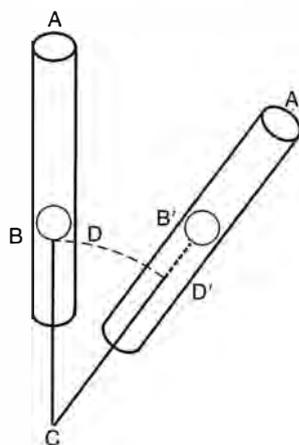


Figure 1
LEIBNIZ'S TWO-FOLD
ACTIVE FORCE

When a ball (B) is held by string in a cylinder and released as the cylinder is rotated on a plane, the ball will move toward the end of the cylinder (A). Although, at first, the centrifugal force is small compared with the rotational force, both accumulate in what Leibniz calls a two-fold force.

released as the cylinder is rotated on a plane. The ball will move toward the outside end of the cylinder because of centrifugal force. As the rotational motion is started, the centrifugal force on the ball will be very small compared to the force with which it is moving rotationally on the plane (with the movement of the cylinder).

However, Leibniz says, as the centrifugal force is continued, it will build up *nisus* (will) in the ball, thus demonstrating two-fold force, that is, the accumulation of centrifugal force, and the force moving with the motion of the cylinder.

SCIENCE and
the LaRouche
Youth Movement

Looking at this example, Leibniz identifies this two-fold force as containing both *elementary*, or *dead force*, in which motion does not yet exist; and *living force*, which is force joined with actual motion. Thus, *living force* points to an accelerating process, not a simple arithmetic equation.

Leibniz also disproved the then prevailing idea, that the force of a moving body is determined by multiplying the mass by the velocity (*mv*). He uses this incorrect hypothesis to construct a perpetual motion machine, to show its absurdity. Essentially, his idea is that the work required to elevate a body however much distance, must equal the *living force*, or energy, that it uses on the way down, not any more or less.

Cartesian circles said this was merely a matter of semantics. Leibniz disagreed, showing that objects (shadows of processes) in the universe usually do not correspond to simple mathematics. He even recognized his exact moment of writing, as in a path of discovery, as being a moment of change in a larger process. He equated that idea of the discovery process, to the relationship which holds between the force of a moving object considered at a particular moment of time, and the force of the same object considered as the sum of the forces it possessed in the moments leading up to that point in time. Thus, he corrected the expression for the work done by a moving body from *mv* to *mv²*.

Physics and Metaphysics

Leibniz goes through his own process of discovery, determining that, for example, a body that collides with another body and carries the second along



Sadi Carnot
(1796-1832)

with it, is always slowed down by the second body, "and that there is neither more nor less power (*potentia*) in an effect than there is in its cause." He writes:

"Therefore, I concluded from this that, because we cannot derive all truths concerning corporeal things from logical and geometrical axioms alone, that is, from large and small, whole and part, shape and position, and because we must appeal to other axioms pertaining to cause and effect, action and position, in terms of which we can explain the order of things, we must admit something metaphysical, something perceptible by the mind alone over and above that which is purely mathematical and subject to the imagination, and we must add to material mass a certain superior, and so to speak, formal principle. Whether we call this principle *form* or *entelechy* or *force* does not matter, as long as we remember that it can only be explained through the notion of forces."

He adds in a footnote: "It is enough for practical purposes for us to investigate not the subject of motion as much as the relative changes of things with respect to one another, since there is no fixed point in the universe."

This idea, is the key. When a person dies, one moment they are living, the next they're not. But is there a point in between, where they are both living and non-living? If there is not, there is a leap, from one thing to another, with no intermediary step in between, which is impossible. But how could there be such a moment, when one is both living and non-



Gottfried Leibniz
(1646-1716)

Scientific Discovery And Human Survival

Is technology a cancer on the Earth? Does the Industrial Revolution mark a black spot on the history of the United States?

Well, if you want to destroy public sanitation, sliced bread, and X-ray machines, this would be representative of your view. LaRouche's International Youth Movement is a cadre of Renaissance thinkers, who are out to prove something different.

A team of five youth from the LaRouche Youth Movement in Seattle set out to explore a concept very central to LaRouche's economic ideas: how the discovery of a universal physical principle is realized in technology. Here we set forth four pedagogical discussions summarizing the work of this team, which was presented to a LaRouche Youth Movement cadre school in April 2004 in Seattle.

—Rachel Brown

living? So it's paradoxical; motion itself is paradoxical.

Similarly, when one object is approaching another, at what point does it cease to be far from it, and to be near? Is it the middle point? Which one? How small? Therefore, Leibniz comes to the conclusion, in his "Dialogue on Continuity and Motion: Pacidius to Philaethes," that the way to define motion is *change*.

But even the change itself is changing! It is like recognizing that a planet never takes the same orbit twice, or trying to grasp the square root of 2, mathematically, as opposed to geometrically. Geometrically, you can construct it quite nicely on a piece of paper. Mathematically, however, you try to represent this "number," and every time you try to finish defining it, it moves a step farther away!

SCIENCE and the LaRouche Youth Movement

So, motion must not be something so simple as matter, following straight-line rules. And matter must not be so simple either.

Leibniz, as a young student, attended the newly founded French Academy of Sciences, with another student, Denis Papin, an attendee on behalf of Madame Huygens, wife of a founder of the academy, Dutch scientist Christiaan Huygens. Huygens emphasized in the original program, the development of technology based on combustion of gunpowder, or the power of heat, then

called fire engines. This was seen as invaluable to the economy, as most people were employed in manual labor, spending most of their time sustaining themselves and their family.

Papin's Steam Engine

Although, because of political turmoil in Europe at the time, Leibniz was forced to leave Paris and take a position as librarian at Hannover, and Papin travelled to London, they continued to correspond, thinking that there was much worthwhile effort in the development of this technology, as it could potentially be

used to power vehicles, especially ships.

They made several breakthroughs, one based on the refutation of the first patented steam engine, that of Savery in 1699, whose design was guarded as an English state secret (Figure 2). However, in 1704, Leibniz acquired a description of it, and with Papin concluded that the design was based on principles they had already hypothesized to be unsuccessful. (They were right; Savery's design didn't work in full size.)

The Savery design used only one cylinder, or chamber, which means that the heating up and cooling down were done in the same container. This, they determined, led to an extreme loss of motive



Figure 2
SAVERY'S 1699 DESIGN FOR
A STEAM ENGINE

The English Parliament granted Thomas Savery an exclusive patent covering all conceivable "fire engines," even though his design didn't work in full size. Savery's engine used only one cylinder (for both heating and cooling), and had no piston. Thus, there was much heat loss.

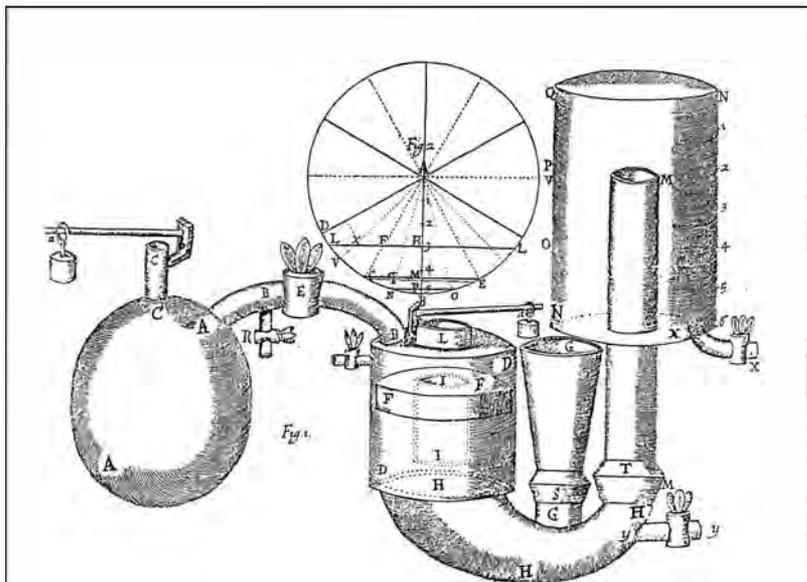


Figure 3
PAPIN'S 1707 STEAM ENGINE

Papin developed the first successful steam engine using a piston. He invented a weighted safety valve mechanism (ab), which releases excess steam at (C), maintaining the pressure of the steam in the boiler (AA). When steam from the boiler is released through the spigot (E), the steam rushes into the cylinder (II). The opening (L) and the receptacle (II) are designed to allow insertion of hot irons to increase the heating effect of the steam. Pressure in this cylinder is controlled by a second safety valve (ab).

The expanding steam acts indirectly against the cold water, via the disk-shaped piston (FF), which is designed so that the steam side is hot and the opposite side is relatively cold. The action of the steam on the piston forces the water out through (H), and up through the valve (T) into the closed vessel (NN). As the compression of air in (NN) increases, the valve at the bottom right of the vessel opens, allowing the raised water to exit forcefully through the pipe (XX). This high-velocity jet of water then turns the paddlewheel, designed by Papin.

power of heat, as all temperature change causes motion, which should be harnessed. Also, there was no piston to act as an intermediary substance, just steam working directly to push cold water up a pipe, as a horse draws a plow. Without a piston, the steam started to condense as soon as it hit the cold water, and much heat loss occurred there, as well.

By 1707, Papin developed the first successful steam engine using a piston. The motive power is not limited to that of *suction* of the piston, resulting in condensation, but, with Papin's invention of a safety valve, it builds up a high amount of pressure in the boiler. When released, the steam pushes a piston, moving cold water to a second chamber, which is allowed again to build up pressure, and be released out another valve to power a waterwheel (Figure 3).

Great discovery, right? What assistance to society! But, as a discovery represents man's increased power over the universe, there were some who wished to eliminate the discovery. Upon travelling in his newly invented paddleboat (to be powered in London by his engine), Papin gets stopped in Munden by a boatmen's guild, who steal his boat! Not discouraged, Papin continues to London, to present his discovery to the Royal Academy, then headed up by President-for-life Isaac Newton.

Papin appeals for financial support to build the engine, presenting his design, only to be turned down. The *Transactions of the Newcomen Society* report that Savery denounced it, stating that a cylinder and piston would never work, "because the friction would be too great," and that Newton said it would cost too much!

Papin writes six more papers to the Society, but complains in his last known letter, that none of them had been presented in his name. In 1712, Papin vanishes, without even a death notice. Later that year, Thomas Newcomen, who had never before produced any papers on the subject, publishes a steam engine design, although much inferior.



Riana St. Classis

The author puts her reading of Carnot into practice: watching a balloon secured on top of a bottle expand when the bottle is placed inside a pot of boiling water.

Carnot and Thermodynamics

Move forward a century, to 1824. Sadi Carnot, son of military genius Lazare Carnot, publishes a *Treatise on the Motive Power of Heat*. Like Leibniz, Carnot emphasizes this power as being independent of any medium, and says that it is only through the relationship of two extremes, and the action between the two, that the motion is created. This process of motion, is a result of two conditions changing. This change could be that between any two opposite conditions in the same manifold, not only temperature, but also numbers, say three to thirty-nine. You can't just jump there, and ignore whatever exists between. Or try the process from blue to red. You will have to go through purple: There will be a process of transformation.

Carnot compares the "fall of caloric (heat)" to a waterfall, whose power is determined by the height of the waterfall, the quantity of water, and the machine which catches the motion. The power of caloric, he says, is determined by the difference between the two temperatures, and the substance used to transfer the caloric. He theorizes that heat will always strive to obtain equilibrium, and because of friction of the machine, there will always be heat loss. From this, you get the so-called Second Law of Thermodynamics, which fails to take into account the self-developing nature of the universe, which (don't

freak out now) I will explain later.

As with the Leibniz, I little understood the Carnot paper when first reading it. I did several simple experiments, which helped.

Some Experiments

First, we filled a balloon with air, and put it in the freezer. Amazingly, the size of the balloon shrank! Next we put a bottle, with water inside and a balloon secured on top, into a pot of boiling water. The balloon expanded when heated up, and shrank back down when taken off the heat. An aluminum can worked even faster, with the balloon almost instantaneously suctioned to the top of the can when moved off the heat into cold water.

Hey, it may seem small potatoes to some of you readers, but for me it was the opening of a door to discovery. When acting upon these principles, I could actually produce results, and know that they would work! This is what Leibniz and Papin were doing—although I had the added resource of being able to read their works, and reproduce their discoveries for myself. Which actually gets to this interesting characteristic of the universe, this constant progress.

Leibniz, with the benefit of Johannes Kepler's discovery of the harmonic ordering of the solar system, looked not at the *objects*, but the *invisible principles ordering the motion of the objects*. Papin worked on these same principles, made a discovery, established the technology with which to manifest it, and attempted to implement it into society. This thread, over a century later, was picked up, and developed by Carnot. These successive discoveries came together to advance the state of humanity.

Thus, "nature," as it existed, displayed certain principles, these movements of the clouds, water, and such. They presented a puzzle to man, who, upon observing paradoxes in patterns of sense perception, and acting upon a hypothesis of something unobservable, makes a validatable discovery, to actually change the universe, and our species' relation-

ship to it. No, this discovery does not let us simply understand this principle, as if we are lucky to be let in on the secrets of "nature." The principle that orders the universe is a cognitive one: We are included. One must not ask, "What effect does humanity have on the universe?" but, "What is the nature of the universe that it created humanity?"

The Role of Human Creativity

Going back to economics, science, and anything which hopes to have a desired, knowable effect on the universe, one must approach it from a particular, truthful standpoint that Lyndon LaRouche,

puts forth in his book, *Project A*:

". . . [T]he efficiency of creative reason is, in first instance, represented by the nature of the connection of each isolated individual who does creative reasoning in our society in the present, with the past, present, and the future, as I have indicated earlier. That demonstrates that that causal relationship is the nature of the efficient relationship between creative reasoning and the universe. That is, the individual, creative reasoning, and the universe. This gives us the map."

Human beings have a unique, knowable role in the universe. We make dis-

coveries of invisible principles, we work to implement those discoveries, so they can benefit the lives of future generations whom we will never "know," and we strive to form governments, and economies, which nurture this quality. These principles, although not always implemented, are the ideas set forth in the Declaration of Independence and Preamble of our Constitution, and this is the meaning of "pursuit of happiness," in the Leibnizian sense, which was its intent. To pursue happiness, is to pursue truth, the mean between man and creation, the finite and the infinite: creative reason.

How We Built a Working Steam Engine

by Will Mederski and John Milner

After reading Philip Valenti's *21st Century* article (Summer 1997) on "Leibniz, Papin, and the Steam Engine," we based our original design on the "Greek Steam Engine," utilizing escaping steam as the motive force. This force would then be applied to a paddlewheel, turning a pulley, creating motive power to do "work."

After some initial experiments, we realized that this system would prove dangerous and unreliable,

because of the temperatures necessary to attain the needed pressure. Back to the drawing board we went.

We then looked into constructing a piston and cylinder apparatus, with a pressurized boiler and closed delivery system. This would allow for the steam to build up pressure in the area under the piston, and, with enough pressure, to move it.

Our first experiment, using a common PVC pipe, resulted in the apparent lack of caloric transfer, as outlined by Sadi Carnot in his 1824 *Reflections on the Motive Power of Heat*. To solve this problem, we used a 2-inch copper plumbing tube, sealed at one end, with a 1/4-inch copper tube to allow the transfer of steam. The specific heat of copper solved our problem, and we were able to address the boiler system.

Our first design integrated a thin alu-



Rachel Brown

Authors Will Mederski (left) and John Milner with the steam engine they built, using an industrial-grade pressure cooker.

minum pot, which we would seal, and attach a tube to. But this proved far too dangerous, as a closer inspection revealed the strength of this pot to be a mere 3 pounds per square inch (psi), and we had both been warned about the damage that can be produced by an exploding pot. At a quick search of near-by thrift stores, we came across a 2-gal-

lon, industrial grade, aluminum pressure cooker, which had an amazing 15 psi capability. Knowing that this new pressure cooker would not explode, we moved on to our next dilemma: creating a piston.

For the piston we used an end-cap of PVC pipe. We milled into it two grooves, to allow for two O-rings to be seated.

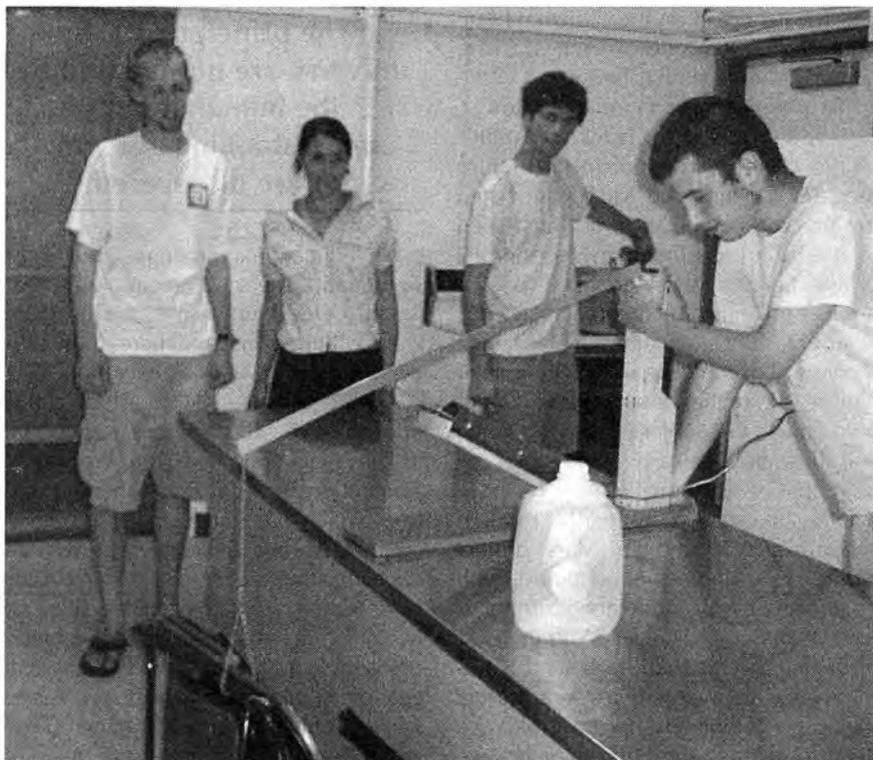
SCIENCE and
the LaRouche
Youth Movement

These O-rings would allow the piston to seal against the inner walls of the cylinder to prevent the escape of steam. With a pushrod connected to the piston, we devised a lever system to utilize the motion of the piston in order for work to be done. At last, our steam engine was complete and now we could begin testing its abilities.

Lifting 10 Pounds

We found that when steam was transferred from the boiler to the cylinder, it would expand, pushing the piston and rod to move the lever, easily lifting an amazing 10 pounds. To retract the piston, we would apply cold water directly to the outside of the cylinder, condensing the steam inside, and creating a vacuum, pulling the piston back. The only problem was that our cylinder would fill with water, and need to be emptied every six or seven cycles.

When the steam engine was completed, we presented it to the LaRouche Youth Movement Cadre School, as a model of the principle of cognition in abiotic materials, which have been utilized by the creative reason of mankind.



Riana St. Classis

Left to right: Wesley Irwin, Rachel Brown, Will Mederski, and Spencer Cross (stabilizing the apparatus) observe as the steam-powered piston lifts several steel folding chairs.



Wesley Irwin

Author Niko Paulson and Regina Wanecke of the Seattle LaRouche Youth Movement study the projection of an ellipse on a cone.

THE CONCEPT OF TECHNOLOGY

How Hypothesis Formation Determines the Price of Things

by Niko Paulson

One year ago, upon consideration of the rapidly collapsing world financial monetary system, it seemed necessary for me to take some type of effective action in opposition to everything that appeared to be going horribly wrong with the country. At that time I had been associated for a number of months with the youth movement of Presidential pre-candidate Lyndon LaRouche. However I had virtually no understanding of how to change, or even what was causing the perceived crisis.

I realized that to willfully improve the situation I was faced with, it were necessary for me to master some of the principles at work driving the present situation.

I surveyed my options, looking for the subject which, when I assimilated it, would have the maximum possible impact on the universe. Upon careful consideration, I saw economics as having the greatest scope, seeming to encompass all other fields of knowledge, and having a particular relevance for creating solutions to the crisis at hand.

The following is part of an ongoing investigation into the principles organizing the science of physical economy. This represents some of the fruits of my labor, borne out of inquiries into a number of works on economic science, most notably *So, You Wish to Learn All About Economics* by Lyndon LaRouche. Although this is certainly not a compre-

hensive statement on the subject, I hope it can be of some use to others asking questions along similar lines.

Two Views of the Moon and Mars

If you propose to launch a multi-phase science-oriented infrastructure program to mine the Moon as a step towards the colonization of Mars, such as the plan outlined by economist Lyndon LaRouche, you are likely to get a number of interesting different responses regarding the significance of this single program. For the sake of brevity, I shall choose, out of the innumerable different opinions on this subject, just two, which will illustrate as clearly as possible, the point that I wish to make.

First, the fiscally conservative modern economist will say: "A Mars project would be a frivolous expenditure, with no guarantee on a monetary return for at least a generation, if ever. With the type of financial crisis that the United States is faced with in 2004, a Mars project would be completely irresponsible. We need to balance the budget, before we go shooting money off into space. The only moral thing to do in this situation is to fulfill the obligations we have, through the means we know of. We need fiscal austerity!"

Second, and contrary to this, is the view of the American System economist who will say: "A Mars project represents a multi-generational mission orientation, requiring the redevelopment of the productive sector of the U.S. economy. This means massive job creation as well as

"The principles of the universe are not created by the human mind's understanding of them, but are discovered."

crash educational programs, but most significant, the new technology that would be developed from this program would cause a massive increase in productive output within a generation."

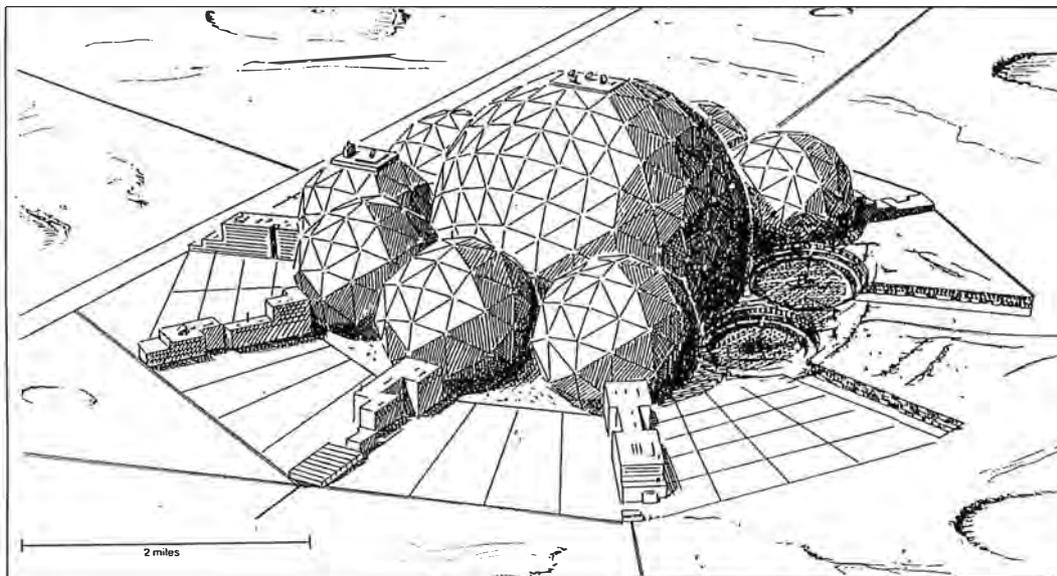
Now, take a step back and look at this from a more self-conscious standpoint: an investigation into the axiomatic assumptions and consistent theorem lattices which are underlying these statements. The hypothetical event we are contemplating hasn't changed—a Mars colonization program—but we see that two different hypotheses about the nature of the same event, lead us to two physical economic processes, which are everywhere distinct from one another. These are not simply different sensory interpretations of the same event, dependent upon a different vantage point, but fundamentally different sets of axiomatic outlooks, each on a different trajectory, intersecting one another at this point.

The first, the deductive view of the modern economist, denies the human mind's ability to make new discoveries. His shortsighted ideas about "monetary value," and "working within his means," leads him to believe that the Mars project is nothing but an anomalous, unnecessary

expense, something outside of his idea about what wealth is and how it is generated. That causes him to slash investment in this and similar programs, suppressing scientific and technological development in favor of immediate monetary profit, and this through methods which are already familiar to him. What appears to be an immediate gain financially, in the long term leads to an entropic spiral of diminishing returns in production. This eventually will destroy the known resource base, and finally collapse the living standard of the population.

The second hypothesis, that of the physical economist, sees the human being's ability to make valid new discoveries of universal physical principles as the means by which we improve the productive powers of labor. Gottfried Leibniz, the founder of the science of physical economy, saw that, through the advent of the heat-powered machine, applied to aid the process of mining coal, the amount of labor required for a given quantity of coal extraction was reduced by an order of magnitude, thus allowing the individual employing the machine to accomplish a much greater quantity of work with the same amount of effort as the individual who worked without aid of the machine.

From this standpoint, the science driver becomes the impetus to push the boundaries of human knowledge, forcing us into situations where our current hypotheses break down in the face of seemingly insoluble paradoxes. This



"Science City" colonies on Mars in the next half-century will be the laboratory for solving the anomalies of today's frontier areas of astrophysics, microphysics, and biophysics. Today's fiscal conservative economist, denying the possibility of the human mind to make new discoveries, would toss this plan out the window as not profitable.

requires the development of new hypotheses for their resolution. Out of this process, new scientific paradigms are born, generating new resources and technologies, which increase the productive output, leading into an anti-entropic economic process of increasing energy throughput and a rising living standard.

The contrast between these two hypotheses and their differing physical effects, points us in the direction of one of

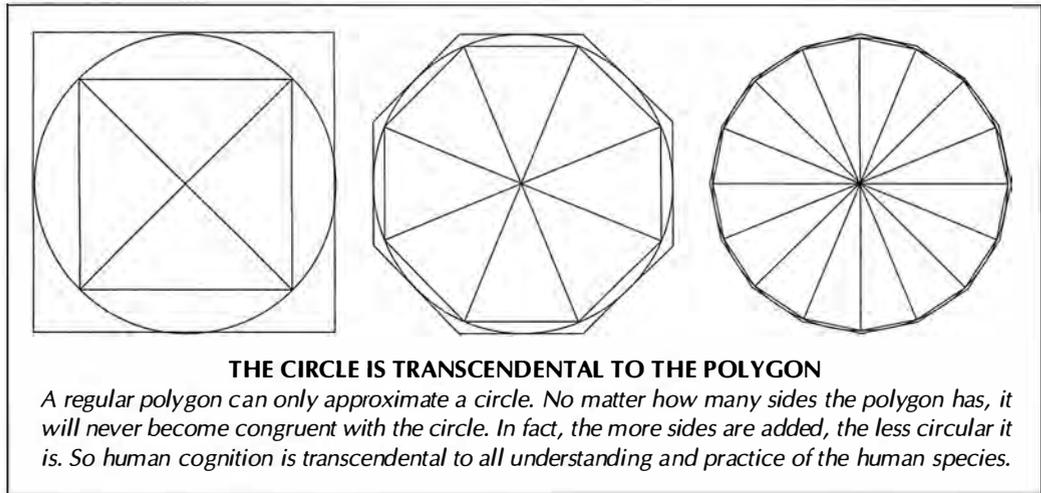
the most fundamental aspects of economic science: the ability of the individual to willfully vary his or her own hypotheses about the organization of the universe, thus changing the nature of the physical response to any given situation.

Now the question arises, how shall we direct the transformation of our hypotheses? What shall be our criteria for a valid transformation? To this end, we must now not only put our hypotheses under scrutiny, but also investigate the overall trajectory of the transformation from one hypothesis to another.

Discovering Principles of the Universe

Our perception, even our understanding of the universe at any given moment, is limited. This limited view is an hypothesis, an hypothesized universe, the universe in your head as you know it. This hypothesized universe is made up of what are understood to be the principles governing the perceived action in the world around us. This hypothesis is always in some degree of approximation to the real universe; however, it is never a perfectly accurate representation. The principles of the universe are not *created* by the human mind's understanding of them, but are *discovered*.

Any given level of economic activity is analogous to an hypothesis, which represents what is possible in the universe at that moment. Our current level of understanding of universal physical principles, determines what types of natural resources are available to us, through our willful employment of those principles in the form of technologies. This hypothesized universe bounds the types of economic activity, which are



THE CIRCLE IS TRANSCENDENTAL TO THE POLYGON

A regular polygon can only approximate a circle. No matter how many sides the polygon has, it will never become congruent with the circle. In fact, the more sides are added, the less circular it is. So human cognition is transcendental to all understanding and practice of the human species.

possible, in a similar fashion to the way in which a regular polygon divides a circle bounding some area within it. But just as some discrepancy always remains between the area of the polygon and the circle, so it is with the hypothesized universe to the real.

The recognition of that discrepancy takes the form of an ontological paradox. An example of this is the claim of an economic recovery, but with rising unemployment and decreasing production. This type of paradox leads the honest individual, through those uniquely human powers of creative reason, to generate and test a new hypothesis, which exists beyond the bounds of our previous understanding of the nature of the subject that we are contemplating. Because no single human hypothesis contains all of the principles of the universe, a statement of absolute truth cannot be located in any single body of knowledge. Only through the capacity for creative reason, does the potentiality exist for all further discoveries and advances in human knowledge.

In the same relationship as the circle has to the polygon, so human cognition is transcendental to all understanding and every practice of the human species as such. The hypothesis of the higher hypothesis is an examination of the higher consistency ordering a series of discontinuous paradigms. The subject of a rational system of political policy is the perfection of the hypothesis of the higher hypothesis. Its main concern is with the generation of a perpetual scientific revolution, through making axiomatic change in policy of practice.

Only those changes which increase the human species' ability to survive per capita and per square kilometer, through the development of the productive powers of labor, shall be deemed a valid change. The proper metric for this is the increase of the potential relative population density of the society. This is the only criterion for determining new economic policy.

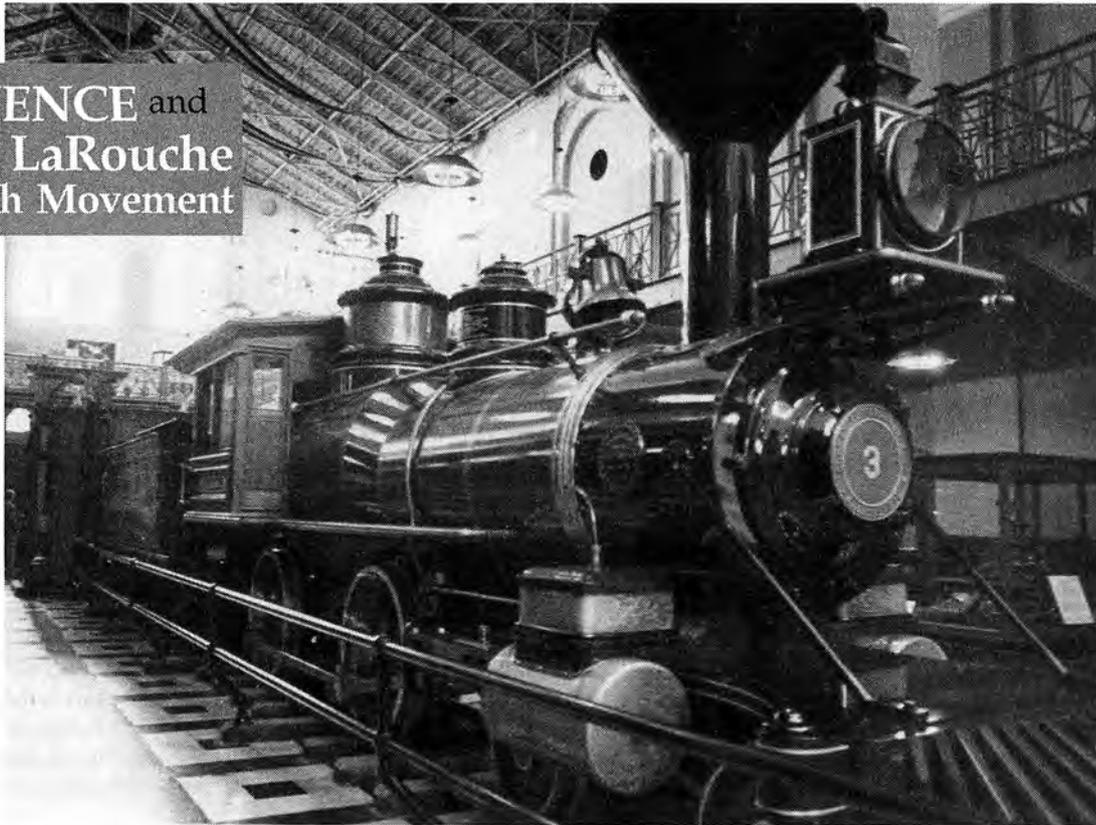
Now, from this standpoint, having circumscribed in our minds the issues underlying the science driver, let's take a new look back upon a Mars colonization project. It is not simply a new financial burden, or even a momentary increase in productive activity of the economy. It is a further development in a nonlinear succession of higher hypotheses

aimed at bringing an increasing number of the principles of the universe into the domain of human understanding and under the willful control of man.

Looking at the current level of U.S. economic activity, it appears as though, intellectually, and now financially, corrupt ideas about economy have become politically dominant. Before it is too late, let's fight for economic policies organized around principles of reason, and while the opportunity still exists, launch a Mars colonization science driver, to bring our economic practices into a closer consistency with the possibilities existent in universe, and to reorient civilization toward the successful survival of the human species.

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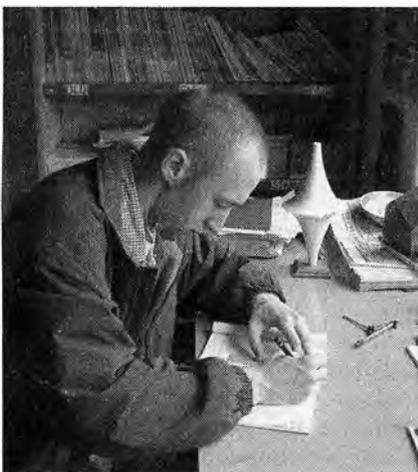
Stuart Lewis/EIRNS

The Baldwin Locomotive at the Smithsonian Institution in Washington, D.C. Railroad development, promoted by the American System leaders Monroe, Adams, and Lincoln, was key in 19th Century America, to develop and defend the nation.

FROM LINCOLN TO LAROUCHE'S LAND-BRIDGE

On the Implementation of Technology

by Wesley Dean Irwin



Niko Paulson

"What about the power of the human mind to imagine a better world, and to act on that principled idea?" Here, the author working on geometry.

In 1999, I was told by one pre-lecture, margarita-guzzling professor at the University of San Diego, that Political Science was the pursuit of, acquiring of, and use of *power*, which always has a direct correlation to quantity of *money*. According to Professor Stoddard (whose sole course text assigned to his Introduction to Political Science class at the University of San Diego was the treasonous, criminally long, and boring *Diplomacy*, by Henry Kissinger), the two words are almost always interchangeable, with very rare exception.

I never bought it. Neither should John Kerry, if he finds the survival of the Democratic Party, and our nation, desirable. What about the power of the human mind to imagine a better world, and to act on that principled idea of a possible future reality, brighter, better

than our current one? Does that not have relevance? Is that not real Power?

What I have come to find through studying the great American minds who have led the world in the fight for Universal human progress, is that the principled truth underlying the push for human progress (technological innovation), is the knowledge that human beings are made in the image of the Creator, as implied in our nation's founding documents. This means that through the power of our minds, we all have the chance to act in an immortal fashion, through our contributions to future generations of mankind, that will continue to have effects long after we die, shaping the curvature of the Universe for generations to come.

We all have the power of hypothesis, and we can all change our environment to better suit our creative nature, and that's good!

Educational Robbery

I haven't always thought that. In fact, having been robbed of an education concerning the principles of physical economy, as well as the political fight in this country over the implementation of those principles (which has been ongoing in these lands since before the Declaration of Independence), how could I know the real purpose of man? How could I know, scientifically, what human beings do that all other known forms of life in our Universe can't?

And, growing up in the world's Greenie headquarters, the U.S. Northwest, why would I ever think that what human beings do is at all "natural," let alone good?

Powerful American (and world) leaders of a sublime quality of intellectual and emotional development have been few and far between, thus far in human history; but by studying the implementation of true physical principles, through the American System of Political Economy, as opposed to the anti-science, Wall Street and British Free-Trade, imperial, economic "looting" policies taught in universities today, we may catch a glimpse of what those sublime souls had intended for later generations to become, and in that glimpse, envision something of our own future, immortal role on the stage of "living" history.

Immortality and the American Railroad

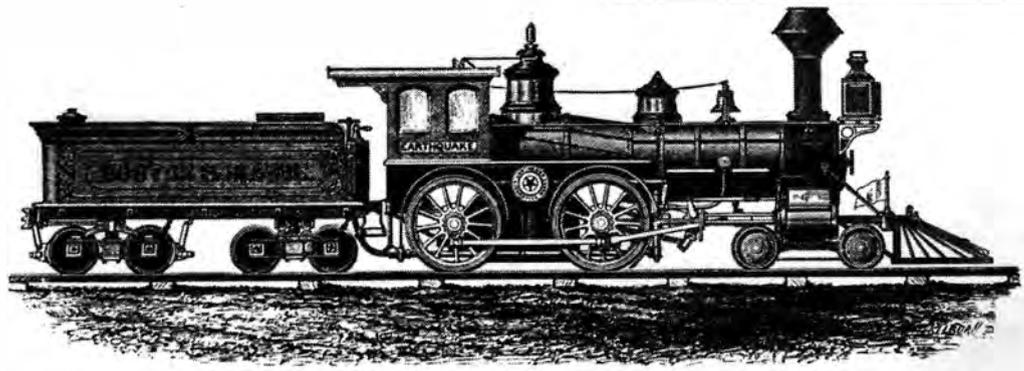
Denis Papin's invention of the steam engine (1707), applied to an idea for mass-based transportation of goods and people, spawned the first American railway system. This was a new technology that was vital to the nation, not only because of the increased ability to move goods at a faster rate, but, just as much, if not more so, for security.

The United States was a young Republic that had, only a decade before, survived its second war (launched in 1812) against its abusive, maniacal, obsessively possessive stepmother, the British Empire. And because its West Coast flank was exposed to future invasion, resulting from lack of development, the transcontinental railroad was

a necessity for continued survival. If U.S. troops could not be physically moved from the East Coast to the West Coast in a time much shorter than the several months it then took, the future survival of the nation was dubious.

America's first railroads, engineered on the East Coast by the U.S. Army, were financed by local and state government in coordination with the Bank of the United States. The railroads came to political life through the General Survey Act of 1824 by President James Monroe, who received help from Speaker of the House Henry Clay, and then-Secretary of State, John Quincy Adams, in pushing the bill through Congress. That same year, protective tariff legislation was passed to increase internal production of goods for the project. From here, these

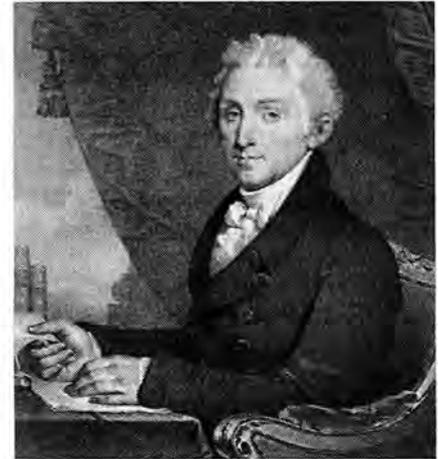
Below, an early East Coast locomotive for the Boston & Maine Railroad; at right is President James Monroe. America's first railroads came to political life through the General Survey Act of 1824, promoted by President Monroe.



institutions but in proportion as it improves the conditions of those over whom it is established. Roads and canals, by multiplying and facilitating the communications and intercourse between distant regions and multitudes of men, are among the most important means of improvement."

Lincoln gave the following philosophical justification for these "internal improvements" in a speech given on the Fourth of July, 1828:

"We are informed by the holy oracles of



Library of Congress

great republican minds, who preceded those of the young genius, Lincoln (who was only 15 years old at the time), set the foundation for the future expansion of the U.S. railroads across the country, and did so, consciously, with the advancement of human economy in mind.

In his first Annual Message to Congress, President Adams spoke on the purpose of government concerning these matters:

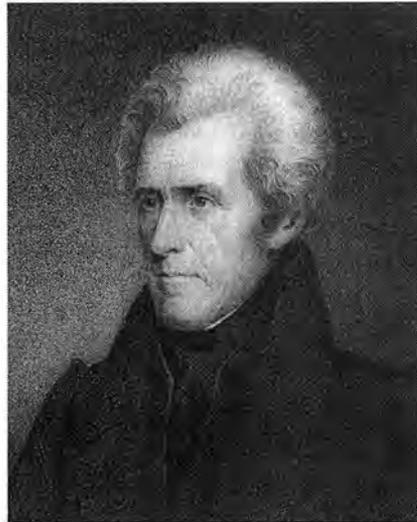
"The great object of the institution of civil government is the improvement of the condition of those who are parties to the social compact, and no government can accomplish the lawful ends of its

truth, that, at the creation of man, male and female, the Lord of the Universe, their Maker, blessed them, and said unto them, be fruitful, and multiply, and replenish the Earth, and subdue it. To subdue the Earth was, therefore, one of the first duties assigned to man at his creation; and now, in his fallen condition, it remains among the most excellent of his occupations. To subdue the Earth is pre-eminently the purpose of this undertaking."

Now, this philosophical outlook was pretty hard for me to swallow at first, having been raised Unitarian-environmentalist, although I now think it's absolutely the right one. Points of clari-



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President Andrew Jackson (right), under the influence of Wall Street's traitorous Martin Van Buren, destroyed the U.S. National Bank, which had provided the credit to build the first American railroads.

fication: (1) "Subduing the Earth" does not necessarily mean doing so with more McDonalds, Starbucks, and Wal-Marts. (2) Referring to the "Creator" doesn't mean you have to be a raving, six-day-Creationist, Christian "Fundie." Rather, think about what the "nature" or, intention, of the Universe must be that it would produce a cognitive being which has the power to exert its power of mind, in action, over every other living and non-living thing in it.

Now, suspend your judgment long enough to consider that, perhaps this is good; good because it is the natural intention of the Universe itself, and is clearly self evident in that we are here! Lincoln's explicit view was that humans were good, and that the United States should be cultivated to provide resources for hundreds of millions of them as quickly as possible.

This, of course, runs in total opposition to the current popular opinion of biologists and other teachers in the cult of currently practiced empirical science. The reality is, though, that human population growth is not only good, but is entirely necessary for continued human survival, and for the ongoing improvement of the Universe. We need people of all sorts, making all kinds of new discoveries! The human species has a population of 6 billion, because of our power of mind to invent and develop technology. That is *natural*. The Universe produced us in that manner,

with that intention, so that a self-conscious creative being would exist in the Universe; and you can know that.

Rejoice! Our System Isn't Finite

Please, do not, for even a moment, consider, as I did, that it is necessary to kill yourself for the good of bitch-goddess "Mother Nature," just because some petri dish experiment tells you that yeast populations or reindeer on an island die off after consuming all the food in their fixed system of resources. Human beings have minds! Rejoice! *Our* system isn't fixed. We have the ability to create new resources, and there are an infinite number of principles in the Universe for the human mind to discover.

When John Quincy Adams entered the Executive Branch directly following James Monroe, our country experienced the unique precedent of two pro-Republic, nation-building Presidents taking office, consecutively, with a common conception of the purpose of mankind's existence as being to build a better world. They applied the power of their minds by putting their ideas into action in the most loving way towards mankind, through fighting for the implementation of scientific innovation.

The result was, that from the chartering of the first railroad, the Baltimore and Ohio, in 1827, to the completion of the last of the Army-engineered projects in 1840, the United States laid nearly 3,000 miles of railway, comprising at least 60

Army-engineered railroads, which were used to rapidly improve the standard of living of the American people. In many places, goods that once took three weeks to move via canal, then took less than a week by train. That's important if you're a parent anxiously awaiting medicine for your sick child to arrive at the town store. Without question, this improvement in human economy saved lives, and improved countless others.

Over the course of these two Administrations, Americans took increasing control over the power of their economy and minds, while Wall Street and British banking interests became increasingly upset about their own lack of control. In 1833, the U.S. National Bank, the most effective tool for providing the credit to build these massive, long-term infrastructure projects, was destroyed by President Andrew Jackson (elected after J.Q. Adams), who initially voted for the General Survey Act in 1824, but after that fell increasingly under the control of the British/Wall Street-backed Martin Van Buren, especially during his second term in office.

Van Buren, who was an outright traitorous bastard to the Union, then came into office following Jackson; and in 1838, he repealed the General Survey Act, which was the basis for giving the Executive Branch the power to propose these projects, which were deemed "necessary from commercial and military points of view." Van Buren commanded all Army officers to immediately stop all work on railroad construction.¹

Damn Lies

I was told, in the oligarchy-grooming ground known as Lakeside High School, the outright lies, that Alexander Hamilton, the architect of the United States First National Bank, was an ally of Britain, who didn't trust the American people; that Abraham Lincoln couldn't have cared less about freeing the slaves; and that it is a distinct possibility that he even owned them!

Now, if you know anything about the way Hamilton or Lincoln's minds worked, you know these are damn lies. The family history of Lincoln is one of two straight generations of strict, anti-slavery moral-philosophical outlook; and Lincoln and Hamilton both show in their writings and in their action, a quality of mind of absolute principle in their

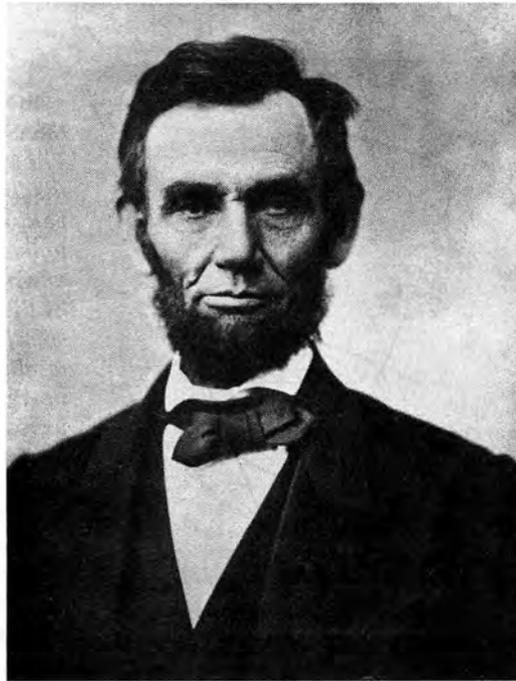
fight for national and human sovereignty, over the power of the feudalistic, would-be gods, of London and Wall Street.

Why, and by whom, with what ties, were these men killed? Why has history increasingly been rewritten in the post-World War II period to slander these men? What principled outlook did they share, which is still fought for today?

Like his truly patriotic railway-building forefathers, our nation's 16th president, Abraham Lincoln, had a well-defined conception of mankind's relationship to the Universe, and his own role of leadership in saving our Republic. From the early 1820s, Lincoln was committed to the idea of railroad development, not only for the continued security of our growing Republic, but for the implementation of the principles of American physical economy throughout the world, so that humanity could be free of imperial political-economic policy, once and for all. He fought for the idea from the time he first held public office in the Illinois State Legislature (then a young man only in his 20s), until he took the power of the Executive Branch and used it to launch the transcontinental railroad over two decades later.

Lincoln's mission would lead him head-on into one of the most intense political-economic struggles in history. Not only did Lincoln inherit a bloody Civil War, with the South immediately seceding upon his election, but also he faced constant assassination threats from the day of his seemingly improbable, if not impossible, election (which was by way of a three-way vote split between himself and two Democrats—Douglas, and Buchanan), until the day he was shot in the back of the head and killed, in 1865. This is not at all surprising, considering the financial and economic interests of those he was threatening.

Lincoln's main enemies were the Wall Street and British elites who were responsible for helping to finance and provide other needed support to the seceding South, and who fought tooth and nail against Lincoln's protectionist, high-tariff, nationalist policy for rebuild-



Alexander Gardner, President Abraham Lincoln, Nov. 8, 1863/Library of Congress

Abraham Lincoln fought for railroad development from the early 1820s, and later as President fought the Wall Street and British elites who hated his industrial development program for America.

ing American industry, which was absolutely essential for the railroads. Lincoln knew that these measures had to be enacted if the United States were to survive the war and have anything resembling a functional physical economy in the post-war period.

Upon entering office, Lincoln gave a speech in which he preemptively warned foreign powers against considering the idea of taking advantage of our divided nation by launching an attack. Both he and his sole international partner in leadership position, Tsar Alexander II, were well aware of Britain's intention to prevent both the U.S. transcontinental and Russian trans-Siberian railroads from becoming a reality. Lincoln sent one of his most trusted allies, Cassius Clay, as American Ambassador to Russia, to keep good relations and to secure partnership on matters of industrial development, as a means of outflanking these all-too-typical British geopolitical maneuvers. At one point, in 1863, Russian troops were stationed in New York and San Francisco to prevent any outside interference into the U.S. Civil War as another preemptive measure against would-be invaders.

According to Brigadier-General Colin Ballard, Britain and France's idea was to come in and call a truce after a series of quick strike victories were achieved by the Confederacy, thus securing a divided American nation. Lincoln's brilliantly powerful strategic mind, developed with metaphors from the Bible, Shakespeare's dramas, and the works of Edgar Allen Poe (who was also born in 1809), outflanked this international conspiracy, as well as Wall Street's dirty operations domestically, which were coordinated with Britain.

An Industrial Vision

Lincoln demanded that Wall Street give him the money the government needed to fund the war and build the transcontinental railroad. Consistent with his principled American System outlook, Lincoln also called for promotion of industry in the South over the Southern plantation system; the creation of a separate Agriculture Department of Government to promote scientific advancement in farming; and free state colleges throughout the country, arranged for by the federal government. When the bankers proposed instead that the U.S. Treasury deposit its gold in private banks; that the U.S. government sell bonds to the banks, which they would then resell to the European banking establishment; and that Lincoln should finance the war by putting a tax on basic industry—Abe decided it was time to take decisive action.

Against the advice of the all-knowing *London Times*, Lincoln pushed forward with the "greenback" policy, to immediately print \$150 million in Federal money, thus subverting the power of the private banks. After Congress passed the bill, Lincoln sent his Treasury Secretary, Salmon Chase, to demand another \$150 million on June 7, 1862, which was followed by the Tariff Act of July 14, of that same year.

Lincoln and his brilliant economic advisor, Henry Carey, raised tariffs on foreign goods so high that they forced the first American steel industry into existence. It became cheaper to build iron and steel products in the U.S. than to be forced to buy them from England and elsewhere. It was only through this strong

**SCIENCE and
the LaRouche
Youth Movement**

intervention by the power of the office of the Executive (known to libertarians and free-traders—correctly spelled free-traitors—as “big gov’mint”), steered by Lincoln’s powerful imagination and principled economic outlook, that the United States avoided disaster; and soon after 1880, became the world’s leading steel producer, creating 1.2 million tons per year, compared to only 12,000 tons in 1860 when Lincoln was elected.

A Science Driver

Numerous problems arose in the construction of the railroad itself, and new technologies had to be created in some cases to overcome them. One such problem was, how to go about building rail lines through granite mountains? Through the science driver mission of Lincoln’s transcontinental scheme, black powder dynamite, which was weak and inefficient in removing granite, was replaced by the invention of nitroglycerine, which could blow the hell out of rocks a lot faster.

There were other problems concerning how to cross river beds and mountain gorges, which in some cases spanned long distances at great heights. This problem was solved through technological advancements applied to Leonardo da Vinci’s original design of the first bridge-and-trestle system. These American discoveries went on to be implemented in various places throughout the world, and are still being used to a far lesser degree, in the United States and elsewhere today.

Although there were all kinds of financial profiteering going on with the building of the railroads, and generally conditions for everyone were pretty rough during this period, Lincoln provided the needed concentrated leadership and focussed vision of what the United States had to be in the post-war period to keep things “on track,” shall we say. He never lost sight of the fact that the ultimate goal was a nation committed to the principle of the general welfare of every human being in it; and that that could only occur through perfect national sovereignty, without subversion from outside political or military forces, or internal financial pressures applied by the bankers.

Because of Lincoln, both Northerners and Southerners had productive jobs to come home to after the Civil War, and through his initiative, the United States

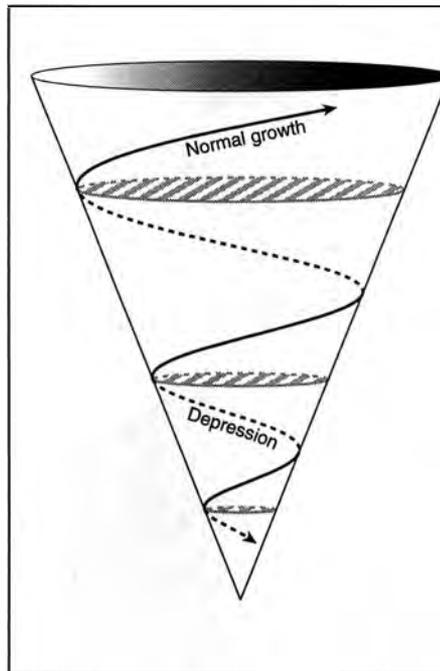


Figure 1
RELATIVE POTENTIAL
POPULATION DENSITY IS THE
MEASURE OF ECONOMIC GROWTH

The physical measurement, as discovered by economist Lyndon LaRouche, for the application of a truthful human discovery, the product of which is technology, is represented by the upward motion on this conical spiral. The corresponding physical result for society represented by this upward, progressive motion, is an increase in human population, increase in standard of living of members of society, and increased ability to use resources more efficiently, as well as increased power to discover new resources. This process is referred to as an increase in the relative potential population density of society.

became the leading industrial power in the world, providing the model for numerous other countries to adopt a pro-science industrial policy throughout the 1860s and 1870s, which has directly brought some countries—but unfortunately, far too few—to a much higher state of technological progress today.

People Come First

Lincoln wrote numerous documents on his philosophy of economy and his thoughts on the purpose of mankind, but to give you a sense of the principles around which his mind was oriented, and upon which he was organizing the population against policies of financial speculation and usury, here is a segment from his First Annual Message on December 3, 1861:

“Labor is prior to and independent of capital. Capital is only the fruit of labor, and could never have existed if labor had not first existed. Labor is the superior of capital, and deserves much the higher consideration.”

In other words, people come first, before money and before bankers! Money takes a back seat to the general welfare of the workers according to the principles of natural law in our Constitution, an idea that “Honest Abe” acted on. Lincoln also based his identity on the same universal truths fought for by James Monroe and John Quincy Adams on the question of the nature of man.

Take the following from Lincoln in 1860: “All creation is a mine, and every man a miner.

“The whole earth, and all within it, upon it, and round about it, including himself, in his physical, moral, and intellectual nature, and his susceptibilities, are the infinitely various ‘leads’ from which, man, from the first, was to dig out his destiny.

“In the beginning, the mine was unopened, and the miner stood naked, and knowledgeable, upon it.

“Fishes, birds, beasts, and creeping things, are not miners, but feeders and lodgers merely. Beavers build houses; but they build them in nowise differently, or better now, than they did, five thousand years ago. Ants and honeybees provide food for winter; but just in the same way they did, when Solomon referred the sluggard to them as patterns of prudence.

“Man is not the only animal who labors; but he is the only one who improves his workmanship.”

This comes from “Inventions and Discoveries,” which was supposedly Lincoln’s favorite stump speech from his 1860 Presidential campaign. It really does demonstrate his profound Universal outlook on mankind; that the purpose of man’s existence is to improve his condition through the use of his mind, making discoveries; and through those discoveries, to transform nature as his destiny demands.

Now, if you have the mindset of an oligarch, and see the world in terms of your ability to assert influence and control over others whom you deem inferior, rather than working to improve the quality and power of man's mind, you despise this idea! This truth will pick at you and haunt you. Why? Because it's true! The Universe verifies it to be true. Any human child, of any color skin, of any religion, from any country, has at the very least, the innate potential to be a Universal thinker.

That fundamental truth, becoming a globally accepted axiom of thought, is the basis on which now depend a world of sovereign nation states, with classical humanist educations and ongoing scientific breakthroughs. In fact, the very immortal historic personalities of our railroad-building forefathers may well also depend on this human revolution in identity quickly becoming a reality through our actions.

The world stands at a turning point. On

the one hand we have a massive global economic meltdown, because of decades of free-trade financial speculation, which is now accelerating rapidly, combined

with a general collapse in basic physical infrastructure in the United States and much of the rest of the world, over the past four decades.

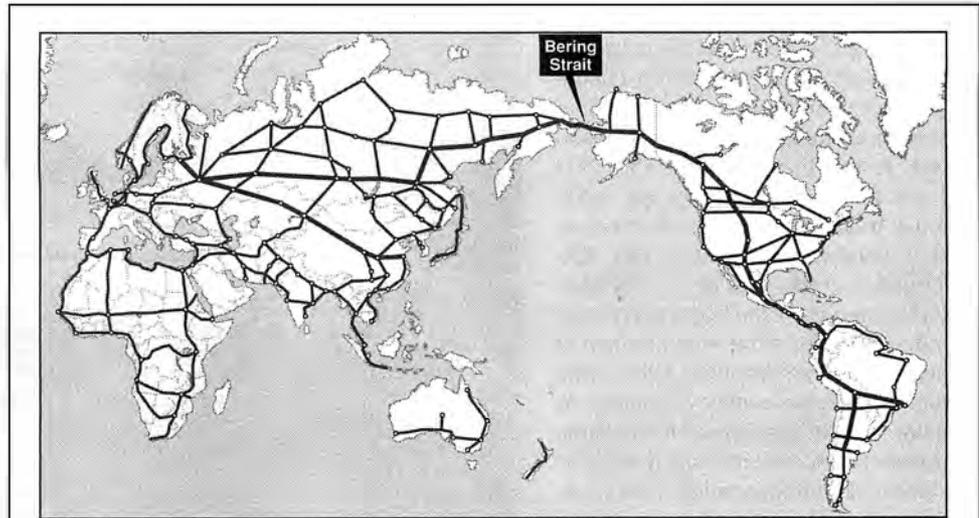


Figure 2

LAROCHE'S WORLD LAND-BRIDGE DEVELOPMENT PROGRAM

The Eurasian Land-Bridge and its international extensions are a 21st Century development of the American System concepts of Monroe, Adams, and Lincoln. The main lines of a worldwide rail network are sketched here by H.A. Cooper.

Source: "The Eurasian Land-Bridge: The 'New Silk Road'—Locomotive for Worldwide Economic Development" (Washington, D.C.: EIR Special Report), 1997.

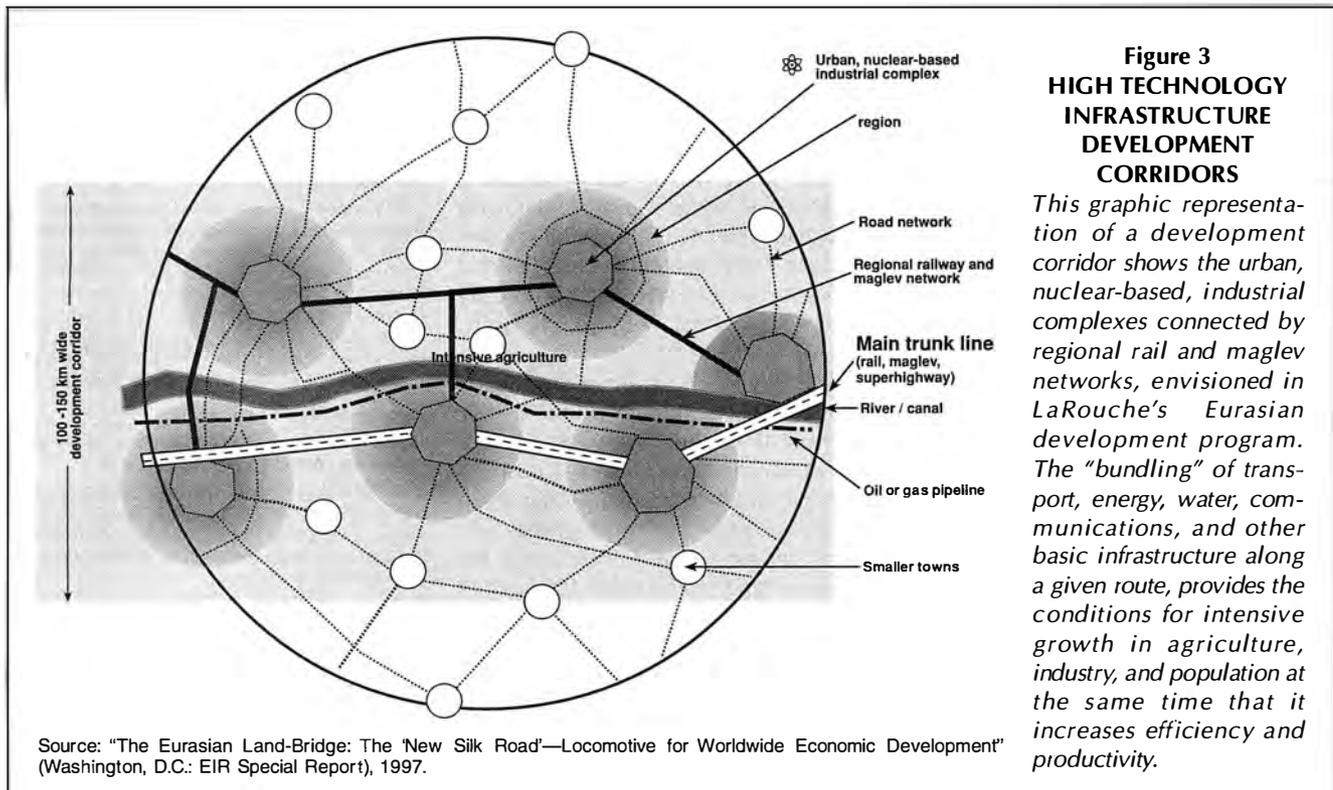


Figure 3
HIGH TECHNOLOGY INFRASTRUCTURE DEVELOPMENT CORRIDORS

This graphic representation of a development corridor shows the urban, nuclear-based, industrial complexes connected by regional rail and maglev networks, envisioned in LaRouche's Eurasian development program. The "bundling" of transport, energy, water, communications, and other basic infrastructure along a given route, provides the conditions for intensive growth in agriculture, industry, and population at the same time that it increases efficiency and productivity.

Source: "The Eurasian Land-Bridge: The 'New Silk Road'—Locomotive for Worldwide Economic Development" (Washington, D.C.: EIR Special Report), 1997.

On the other hand, we have a youth generation that is now actively struggling to break free of the existentialist culture they've been raised in, so that they can rebuild the world's physical economy and culture, so that they can have a future. I and my fellow associates in the International Youth Movement of that anomalously good-natured, witty, and self-described "old geezer," Lyndon LaRouche, represent the leadership of that later directionality. Now, with the help of Lyndon LaRouche's leadership, the youth of the world have a policy initiative to fight for, which has been on the table internationally for more than a decade: the World Land-Bridge policy. The Land-Bridge really is the further development of Monroe, John Quincy Adams, and Lincoln's conception of what the United States and the world should look like. It is driven by the same principles of the American System of Physical Economy, Universal humanist philosophical outlook, and sublime leadership principle.

Through the global implementation of the Land-Bridge policy, we not only provide the basis for a more efficient means of transferring goods and people, but also open whole corridors of development for scientific advancement, as part of a productive human economy. The land area over which these trains, which are of the

highest available transportation technology (magnetic levitation), will run, are areas in which new,

beautiful cities will be built. Imagine, cities that are actually organized on a principle of beauty!

This is the policy direction of China, and increasingly much of Eurasia as well. Unfortunately, we still have, for now, a bunch of Leo Strauss cultists, in the John Foster(ing Nazis) Dulles tradition, running foreign policy in Washington, D.C., who pose a deadly threat to the world. Fortunately, our youth movement has successfully been combatting them for well over a year now, with hard-hitting epistemological upper cuts like the "Children of Satan" pamphlet series of the LaRouche in 2004 campaign.

Two Choices

There are two choices: Either the neo-con "Clash of Civilizations" policy, pro-



Thyssen-Henschel

Magnetic levitation rail technologies will provide new high-speed rail for Eurasia—and the rest of the world. Here, the German Transrapid maglev system.

moted by the Republic-hating racist, Samuel Huntington, will be implemented and the neo-conservatives and/or liberal imperialists will have free rein to destroy the regions of Southwest Asia, China, and so on, by implementing Vice President Cheney's continuation of Bertrand Russell's pre-emptive nuclear war policy. Or, a youth leadership movement, such as ours, will self-consciously intervene with the power of mind of our brilliant forefathers, to radically change the manifold.

What better way to create a lasting peace in Iraq and the rest of Southwest Asia, than with new railroad lines, water facilities, and beautiful cities? What more effective means exist of physically demonstrating that we are all, truly, human?

Well, there ain't no other worldwide philosophical-political youth movement out there, but LaRouche's, and if you, personally, don't take responsibility for the future of mankind now, there is no guarantee that anyone else will either, so get to work increasing the power of your mind with LaRouche's economics, as well as the ideas of Adams, List, Hamilton, Carey, Lincoln, and the other great and powerful men of principle who have given us the opportunity to finally win the fight against oligarchies today. In the process of physically building a better future for our

posterity, we'll make the living Lincoln proud.

Notes

1. The U.S. Army officers assigned to work on the U.S. railway system were trained at West Point Academy, under the exemplary leadership of Gen. Winfield Scott and Maj. Sylvanus Thayer, who themselves studied the Universal method of Gaspard Monge and Lazare Carnot at the Ecole Polytechnique in France. Interestingly, this is the same Winfield Scott who sponsored the appointment of the young budding American intelligence agent Edgar Allan Poe to West Point, as well as the Major Thayer who gave Poe a recommendation to be given an officer's commission in the Polish (Republican resistance) Army, upon leaving West Point.

These forces, concerned with doing the work of the good, did not resume their activities until the preliminary surveying for the transcontinental railroad took place in the 1850s, as Lincoln's Republican party was being formed and developed, and Lincoln himself was preparing for his opportunity to complete his own life-long, globally required mission, of protecting and furthering the purpose of the United States, as a beacon of hope for the entire human species.

Recommended Reading

- W. Allen Salisbury, *The Civil War and the American System* (Washington, D.C.: EIR, 1992).
- Friedrich List, *Outlines of American Political Economy* (Wiesbaden, Germany: Böttiger Verlag, 1992).
- Brigadier-General Colin Ballard, *The Military Genius of Abraham Lincoln*, (Cleveland: World Publishing Co., 1952).
- Anton Chaitkin, "How the Government and Army Built America's Railroads," EIR, July 17, 1998
- Anton Chaitkin, "The Lincoln Revolution," *Fidelio*, Spring 1998
- Jeffrey Steinberg, "Lincoln's Railroad and the Eurasian Land-Bridge Today," EIR, March 28, 2003
- The Eurasian Land-Bridge: The 'New Silk Road'—Locomotive for Worldwide Economic Development*, EIR Special Report, January 1997



Letters

The Ozone Hoax: When Integrity Meant Something

To the Editor:

When I took gas-phase kinetics in the mid-1960s, we all memorized a series of chemical equations showing the formation and depletion of ozone involving chlorine, ultraviolet, water, etc. It's important to recognize a number of possible gas-phase reaction equations showing the consumption (as distinct from formation) of ozone as well!

All of this was sort of fun, and we had no way of knowing at the time whether the equations actually occurred in nature, let alone their reaction rates. It never dawned on any of us that [former AAAS President and Nobelist] Sherwood Rowland et al., or anyone else, could take them and turn them into media scare stories.

Integrity meant something in those days. Oh yes, the AAAS has been politicized for nearly 40 years, ever since the days of the DDT scare.

Michael Fox
Richland, Wash.

Is a New Ice Age Under Way?

To the Editor:

I have just read "Is a New Ice Age Under Way?" [www.21stcentury-sciencetech.com] by Laurence Hecht.

Then I read "Ages-Old Polar Icecap Is Melting, Scientists Find," by John Noble Wilford [*The New York Times*].

Let's put Ph.D.s aside, and theories which each Ph.D. has ownership of. What is the true story? Shouldn't combined models be made, etc. etc.?

This debate is real. I think there is accumulation of knowledge that should be put to devise a model. Both scenarios are scary: The world

fries, or it freezes. The only difference is that cold numbs pain.

Just a question?

Stephen Wall

The Editor Replies

The argument that a New Ice Age is on the way does not rest on readings of short-term data trends. Competent climate science is based on the study of the effect of changes in solar radiation reaching the Earth, of three principal astronomical cycles: the 26,000 year precession of the equinox; the 40,000-year cycle of obliquity; and the approximately 100,000-year cycle of change in the ellipticity of the Earth's orbit. Through the work of Vladimir Koppen, Alfred Wegener, and Milutin Milankovitch, among others, in the first decades of the 20th Century, the long-term cycles of the Ice Ages were established. Data accumulated later in the 20th Century confirmed the essential validity of these Milankovitch cycles.

For the past million or so years, the Earth has moved through successive cycles of approximately 100,000 years of glaciation, followed by warming, or interglacials, of approximately 10,000 years duration. We are roughly 11,000 years into the present interglacial, and therefore probably already on the way to the next glaciation cycle. Whether it will be as extreme as the last one, in which a 1- to 2-mile-thick block of ice reached down to New York City and across the U.S. Midwest, and covered most of the British Isles and northern Europe as well, is not known. The maximum summer temperatures of the present interglacial were experienced in Europe about 6000 B.C. and over North America about 4000 B.C. We have been cooling ever since.

The attempt to adduce future climate from extrapolation of short- to medium-term statistical trends, as by computer modelling, is scientifically incompetent. As we have documented, the massive funding of these efforts conducted through the leading universities, and government and private science agencies, is part of a politically motivated hoax, designed to prevent the spread of the benefits of science and technology to the Third World nations, and reduce the world's population. Such has been

the stated national security doctrine of a powerful faction within our government, since the infamous National Security Study Memorandum 200, issued April 24, 1974 under Henry Kissinger's direction.

We refer you to the *21st Century* Special Report "The Coming Ice Age: Why Global Warming Is a Scientific Fraud," available at our website, for documentation of these matters.

Michelson-Morley Questioned

To the Editor:

The Michelson-Morley experiment of 1887 seemed to prove there was no ether, certainly not a stationary ether. Einstein, based on the observations of the experiment, created his Special Relativity to explain the experiment's results.

If we look at the experiment critically, we see that Michelson and Morley accounted for the path lengths travelled through space. However, they neglected to account for the phase differences that would be generated by light redshifting and blueshifting during the experimental runs. Were ether stationary, or were Einstein correct that the speed of light in space travelled as an absolute constant, the phase shifts should have been easily observed. That phase shifts were not seen, can only be explained by the alternate explanation offered at the time, that the light travels in an entrained ether, at a speed constant to the frame of motion.

The Michelson-Morley experiment, when correctly analyzed, has profound implications in physics and cosmology. The transition of light between entrained ether and the cosmological background ether gives a false picture of the universe, exaggerating redshifts, dimming the light, and making clocks appear to slow down, beyond the effects called for by Einstein's relativity. If the speed of light is not an absolute, universal constant in Einstein's sense, then, while the speed of light, or matter, in any inertial system is limited, that inertial system is not itself bound by the speed of light.

As we observe so often, progress in
Continued on page 81

REDUCTIONISM AS When Even Scientists Were Brainwashed MENTAL SLAVERY

by Lyndon H. LaRouche, Jr.

April 7, 2004

RE: U.S. Cultural Policy/
A New Revolution

"Today's prevalent, pro-reductionist form of globally extended European culture is, quite literally, brainwashing," argues economist Lyndon LaRouche.



NASA/JSC

The subject of this report is the nature of that historically specific quality of mass-insanity which has brought the world at large into the presently erupting, global, monetary-financial, economic, and strategic crisis. This is the worst crisis in the history of modern European culture since the 1648 Treaty of Westphalia ended those monstrous, Venice-inspired European religious wars, led by Habsburg Spain, of the 1511-1648 interval. The specific tactic employed here, for addressing the present manifestation of that political mass-insanity, is to show the nature and root of the relevant mass psychological disorientation of pop-

ulations and institutions. The subject is treated here from the reference-point of the reflections of the way in which that more general problem is expressed within the bounds of the established, elementary presumptions of currently taught physical science.

I situate that report from the following point of historical reference in the domain of physical science itself.

The founding and development of what became the Fusion Energy Foundation (FEF), brought into play a broad, and expanding base of task-oriented scientific and related activities. Over a period of more than a decade, this reached the



Library of Congress

The reductionism of Lord Bertrand Russell (above) is a form of menticide infecting the teaching and practice of modern science. At left, NASA researchers monitoring a space mission.

level of involving more than 100,000 scientists, engineers, and other relevant persons. The growth and persistence of the influence of this association was most remarkable, until it was shut down, in 1987, by means of what was subsequently ruled, on the official record, to have been a prosecutor's fraud upon the bankruptcy court.

That was the fraud, principally against me, which had been perpetrated by a politically motivated action of the Alexandria, Virginia U.S. Attorney, Henry Hudson. That fraud was plotted and orchestrated through the guiding intention of a U.S. Justice Department team then headed by its Criminal Division head, William Weld of Boston, Massachusetts. Weld was the same wretch who had set up the situation, in October 1986, for the assassination of me and others by a large task-force of Federally-deployed armed forces. Only intervention of higher authority had prevented that mass-murder from being carried out under Weld's direction. The purpose of these interlocked, nested frauds by factions within the U.S. government, was to eliminate me physically from my established position as among leading international figures of U.S. political life. The evidence is, that the clear intent of that effort from those corrupt quarters, was to eliminate me either by assassination, or by a railroad-style trial intended to send me to die of old age in Federal prison.

The political motives of those officials and other influentials sharing that malicious intention, is abundantly clear from any

informed reading of the available record and correlated other evidence.

According to the court records from 1987 and 1988, this fraud was accomplished by aid of witting complicity by the chief judge of the notorious Federal Fourth Circuit's Alexandria, Virginia court, the crucial trial judge in the relevant case. The latter complicity included that judge's infamous Rule 11 prescription, excluding even essential forms of relevant evidence from the proceedings in which the defendants in that case were railroaded, without allowing the defendants reasonable time or related elements of opportunity to prepare a competent defense against hastily presented, actually fraudulent charges.¹ One of my certified prior political enemies was the foreman of that jury, who secured that position by implicitly perjuring himself in what passed for a *voir dire* proceeding on that occasion! All of this was part of corrupt, purely politically motivated operations coordinated with the notorious Internal Security section of the Justice Department. Had what was later shown to have been a pre-contaminated jury done an honest job, instead of what occurred, I would have been exonerated; but, in that case, I probably would have been murdered soon after I departed the courtroom a free man.

One of the most prominent elements of then current world history behind the motives for that corrupt operation, had been the FEF, which had been the institution which had become known for its leading role in generating continuing support for my personal initiative, later adopted by President Ronald Reagan, for initiating and crafting the economic science-driver alternative represented by a Strategic Defense Initiative (SDI), the proposal which I and President Reagan proposed to the Soviet Union, and to other nations, including our European allies. The proposal was made by me, and proposed to, and ultimately adopted by the President Reagan who presented it publicly to the Soviet Union on a TV broadcast of the evening of March 23, 1983.

It had been my intention in crafting that proposal, both to offer the Soviet Union a way out of the expected medium-term financial crisis which menaced both super-powers (and others), while building an escape-hatch for the U.S.A. itself from the Russell-Szilard trap of "Mutual and Assured Destruction" (MAD). Notably, it had been my known international role in fostering the preconditions for both the President's launching of SDI, and my continued work on behalf of that policy after March 1983, which, taken together with my 1984 candidacy for the Democratic Presidential nomination, had been the principal among the motivating issues behind a five-year effort, January 1984-January 1989, to eliminate me physically from the world's political scene, either by long imprisonment or death. Not by accident, the deployment of the Federal

1. The indictment itself was typical of a "conspiracy theory" run hog-wild. The charges against all defendants were conspiracy to commit financial fraud. The basis for the allegations presented was the financial injury done to the relevant associations by a continuing conspiracy led by the Federal government itself. This included the trial Judge Albert V. Bryan, Jr.'s own complicity, in protecting the prosecution's fraud upon the bankruptcy court, under a Rule 11 construction. That trial was scheduled to prevent a retrial of the subject of a long mistrial in Federal Court in Boston, Massachusetts, which had concluded with an affirmation of the jurors' intent to exonerate the defendants. The Alexandria, Virginia trial was scheduled by Judge Bryan to preempt the Boston retrial, where the defendants would have almost certainly won. See *Railroad!* (Washington, D.C.: Commission to Investigate Human Rights Violations, 1989).

forces which would have killed me by the morning of October 7, 1986, had occurred while President Reagan was on his way to Reykjavik, Iceland, where he would once again present the SDI to the Soviet Union. In fact, a television rebroadcast of the deployment against me was made in Reykjavik at the time the President was re-introducing the SDI proposal there.

The central driver of that and some of the other most notable among FEF's numerous and varied achievements, reflected my commitment to a mission-oriented dedication to the implications of reviewing the principal accomplishments of Plato, Kepler, Leibniz, and Riemann, and adopting these as the exemplary guides to creative work by our association.² From my vantage-point, I would have said then, and do still today, that the most important of the contributions to that from among the professional scientists, came from the influence of the now late Professor Robert Moon. Moon, at my first meeting with him, which occurred in the context of founding what became FEF, had presented me with a case which is for me typically memorable, still today. That case was the principled significance of the Ampère-Weber-Gauss discovery, partly assisted by Bernhard Riemann, of an electrodynamic principle which the influence of the philosophically reductionist school of Lagrange, Cauchy, Clausius, Grassmann, et al. had viciously excluded from the relevant standard university curricula. This was typical of Professor Moon's courage, as a scientist, in defending what were important, experimentally unique scientific truths, against fraudulent, politically arranged conventional mythologies in science, such as that of Clausius et al.; Professor Moon's action resonates in the annals of modern science to the present day.

Overall, the work of the non-profit FEF foundation filled an important niche in the support of science during that period. The specific quality of driving force which distinguished that institution, apart from, and significantly above the sometimes remarkable contributions by other leaders of the association, was located, chiefly, in the complementary intersection of my own and Professor Moon's leading influence. The case of my unique initiative, in defining, during the 1977-1979 interval, what President Ronald Reagan later adopted publicly as what he named SDI, in his March 23, 1983, televised address, is an outcome which serves as a leading example of the characteristics of my association with the remarkable

Professor Moon. It also expressed the creative scientific spirit of the association as a whole.

Reference to that experience provides a most efficient way of presenting today's subject: of showing the extent to which today's prevalent, pro-reductionist form of globally extended European culture is, quite literally, brainwashing: a brainwashing which defines the reductionism of modern Aristotelianism and the neo-Ockhamite empiricism of Venice's Paolo Sarpi, as a leading, continuing tragic factor in the life and destiny of that current of modern European civilization generally.³ In this report, I shall now show the nature of the conditions which promote the same kinds of problems, which occur as prominent,



Dr. Robert Moon (left), Charles Stevens, and Dr. Winston Bostick confer at the founding meeting of the Fusion Energy Foundation (FEF) at the Hotel Tudor in New York City, on Nov. 23, 1974. Initiated by Lyndon LaRouche, the FEF filled an important niche in the support of anti-reductionist science until its illegal shutdown by the Get-LaRouche Task Force in a forced bankruptcy in 1987.

2. Later, still during the early days of FEF, it was my wife Helga's collaboration with the leading scholarly figure, R. Haubst, of the *Cusanas Gesellschaft*, which led to our recognition of the role of Cusa as the virtual "Rosetta Stone" which provided the key to the connection of the Greek Classic to the Fifteenth-Century Renaissance. Today, we would place Cardinal Nicholas of Cusa securely in the position of the link between Plato and Kepler in that series, as Kepler himself argued in his time.

3. The Fifteenth-Century Renaissance, which revived a previously shattered Papacy, represented a revival of a Christian Apostolic tradition whose Platonic characteristics had been stressed so emphatically by the Apostles John and Paul. The corruption which had led into the Fourteenth-Century New Dark Age, and shattering of the Papacy, was a reflection of the gnostic *ultramontane* cult of opposition to sovereign nation-states, which had dominated European civilization during the hegemony of a horrid alliance of the Venetian financier-oligarchy, the Norman chivalry, and the followers of

Mathilda of Tuscany. Venice's treacherous role in orchestrating the fall of Constantinople, had enabled Venice's oligarchy to effect a resurgence, especially during the interval of religious warfare, 1511-1648. It was during that interval that a continuing effort was made by the Venice-led forces to uproot the institutions of the preceding Renaissance. The philosophical corruption employed and deployed by Venice is best typified by the attack on the work of Cardinal Nicholas of Cusa by Venice's Francesco Zorzi, a hater of modern science, and the marriage counsellor to England's Henry VIII, who led in demanding the supremacy of Aristotle against Plato and the early Apostles; and, the later "lord of Venice," Paolo Sarpi, who concocted a modern empiricism modelled upon the lunatic medieval doctrine of William of Ockham (Occam). It was the same Venice, as typified by the roles of Zorzi, Plantagenet pretender Cardinal Pole, and Venice-trained Thomas Cromwell, which orchestrated those schisms in the Christian church which were exploited to cause and promote the religious warfare of the 1511-1648 interval.

frictional problems among the ranks of scientists and others. These were problems which stirred even the atmosphere of the work of the association itself. I shall contrast the exemplary successes of the FEF, and the basis for those persisting internal frictions which had spilled over from the existing science community generally, and shall show how that provides an appropriate reference for the subject-matter which I address in the following pages. The case of the SDI will serve as our principal point of implied reference for this purpose.

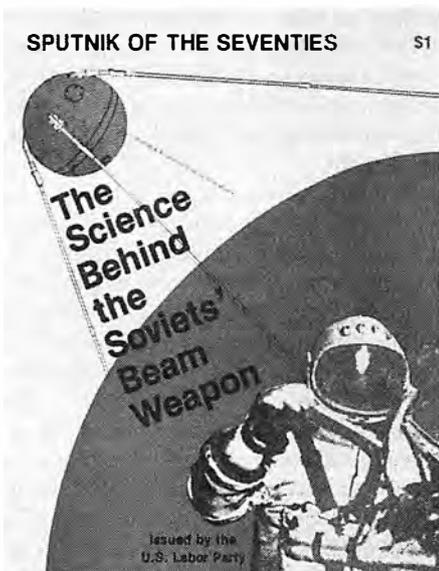
The specific historical relevance of that subject of discussion now, is the following.

1. The Cultural Crisis Of the Recent Century

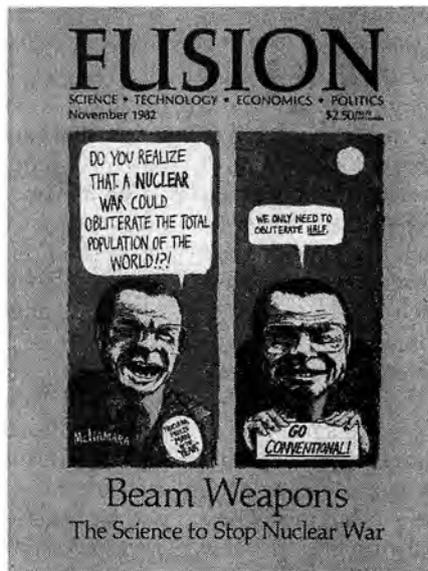
The disorder, and induced boredom which pollutes much of the teaching of physical science today, is not a failure of sci-

entifically validated principle of truthfulness. Indeed, in no part of history of humanity as a whole, has society's progress in these matters matched the pace and scope of the benefits unleashed by that Renaissance.

motivated folly on this issue, is not a product of physical science, but, rather springs from certain dark, dank, and putrid waters of belief; from sources which have nothing to do with the generally assumed subject-matter of physical science itself. It were impossible to locate and understand the axiomatic underlying sources of Euler's relevant pathological conceit, without focussing on its roots in an axiomatic irrationality. This irrationality influenced the Twentieth Century in an extreme way, through the influence of such radicals as Bertrand Russell and his clones. Typical of those clones, is the way in which Wiener and von Neumann polluted the Twentieth Century's classrooms; it is a corruption which has spilled over, as those same pathological influences, into the present young century. That pattern of corruption, as it is encountered in Euler, or the influence of radical positivists Russell, Wiener, and von Neumann today, can not be competently understood without treating the issues involved as a process of ebbs and flows, since as far back as the birth of European science as pre-Euclidean Classical Greek philosophy. I trace that connection here.



As early as 1977, LaRouche advocated beam defense research into new physical principles, and reported on the advances of the Soviets in this area, as in this mass pamphlet issued by the LaRouche-affiliated U.S. Labor Party in 1977.



Fusion, the popular magazine of the FEF, featured its campaign against the nuclear freeze and the anti-beam-weapons faction in November 1982, along with a petition campaign to President Ronald Reagan in support of a crash program to develop directed energy beam weapons for ballistic missile defense.

ence as such. It is the result of a more general, underlying disorder: a disorder of a type which has flowed into the work of scientific teaching, from the more widespread, recently accelerated cultural pessimism of the society in which that teaching is practiced. In attacking the most typical frauds met in the modern mathematics classroom, the same fraud against the calculus to which Carl Gauss pointed in his 1799 exposure of the hoax of Euler, Lagrange, and others, we discover that the belief which compelled an otherwise skilled mathematical formalist, such as Leonhard Euler, into his stubborn, maliciously

humanity as a whole, has society's progress in these matters matched the pace and scope of the benefits unleashed by that Renaissance.

This continuing progress in modern European civilization, until recently, must be traced in the history of government itself. This superiority in progress, over all known preceding forms of society, has been due to the establishment of the first modern nation-states, Louis XI's France and Henry VII's England. The possibility of creating such nation-states depended, in turn, on the premises defined by the preceding, great ecumenical Council of

Florence in which Nicholas of Cusa played a crucial kind of specific role. Studying the same matter more deeply, the adoption of that Socratic principle of *agapē* which was promoted, most notably, by the Christian Apostle Paul's *I Corinthians* 13, as the notion of the *common good*, or *general welfare*, is the foundation upon which instances of the sovereign nation-state's healthy existence, and persistence, have depended, without exception, still today. This is the same principle identified by Gottfried Leibniz, as that notion of the *pursuit of happiness* conveyed into the founding of U.S. Independence, from Leibniz's attack, in his *New Essays on Human Understanding*, on John Locke's decadent, pernicious views.⁴

The Platonic conception of *agapē*, as recognized as a matter of principle by Christianity, is properly identified as the fundamental constitutional principle of a true republic in general, and a modern democratic form of constitutional republic in particular. This principle is central to the U.S. Declaration of Independence and to that statement of intent governing the existence of the U.S., which is the Preamble of the Federal Constitution.

This concept, as underscored by Leibniz, rests upon *the principled nature of the absolute difference between human and beast. That is a revolutionary point of difference between us and the lower species of life, a difference which is expressed essentially by the human individual's unique capacity to discover and employ efficient universal physical principles whose existence can not be directly accessed by sense-perception.* It is through the exercise of that sovereign capacity of the individual person, that mankind has risen to levels vastly above the potential relative population-density which had been possible under the fixed potential for a species of higher ape. This activity is the soul and essence of physical science.

It is in the pursuit of the fruitful expression of that same specifically human capacity reflected as fundamental scientific progress, and also in other ways, that mortal man touches immortal happiness. The promotion of the rights of mankind so endowed, so allowed, is the principled basis for the sovereignty of the republic. It is the basis for the principle of promotion of the general welfare, and, therefore, of the means to fulfill the duty of the living to better the welfare of their posterity.

It is through those processes of communication, which are typified by the Platonic form of Socratic dialogue, as typified by valid methods of physical science, that the people of a society are enabled to generate, and to replicate valid discoveries of universal physical principle. The definition of truthfulness, both for science, and otherwise, lies exactly here.

The idea of "democracy" is a morally and functionally valid one, only if we mean a society which is dominated by that principle of dialogue represented by Plato, which is truthful; rather than a beast-like society ruled by the tyranny of so-called popular or kindred forms of mere opinion. If "democracy" signifies the pursuit of truth as Plato's Socratic principle defines this; democracy were noble. If it signifies the substitution of mere opinion for Socratic dialogue, then, as the judicial murder of Socrates attests, a democracy ruled by the tyranny of mere opinion, as at Athens then, is evil, and dangerous to the society of its believers. This is shown for the case of the ancient

Athens of Pericles and Thrasymachus, by the doom of that city—which had been, prior to such corruption, the noblest and best expression of the upward impulse of Classical ancient Greek society—through its criminality in launching and conducting the Peloponnesian War.⁵

The controlling presence of evil in a society was typified then, by the systemic irrationality of the Delphi cult, and of philosophical reductionists such as the Eleatics and their successors, such as the Sophists and Aristotelians. In modern Europe, evil as typified by the influence of the empiricist followers of Venice's Paolo Sarpi, is typical of the early influence of such mental disorders in the roots of European culture today. The principal errors in ideas about science today, are to be traced from a general moral failure within U.S. society, increasingly, over the lapse of time, to date, since the untimely death of President Franklin Roosevelt. To understand the relevant causal connections for this kind of decadence, we must abandon the foolish habit of considering currently prevalent practices as being "normal" simply because they happen to be currently prevalent. We must recognize, and confess, that, often, the name of "democracy" is used as if it were a surrogate for the arbitrary power of an emperor, king, or tyrant. Often, the tyranny of a popularized false opinion, the tyranny of forms of widespread irrationalism, became the instrument by which the majority of a people may do a willful injury to themselves as grievous as might, otherwise, be expected of a lonely dictator.

The human species is intrinsically good, when it is true to itself. Contrary to preacher Jonathan Edwards and his followers today, God does not have bad taste. Man is, by nature, the noblest and best of all living creatures. It fails to be its good self, when it permits its passions to bring it to descend into infantile beastliness, as populism typifies the most common form of that moral corruption which has sometimes led from populist notions of democracy into fascism. On this account, as in the United States itself, the degradation of the behavior of a great people and nation is the consequence of a lack of exceptional men and women, who, in becoming leaders, are able to bring out the better qualities of their people. Often, the doom of a great nation is the result of either a lack of such leaders, or their rejection by corrupt populist littleness of the people, as in the case of the Athens of Pericles, or the slide of pre-1939 Germany or Italy into fascism and world war.

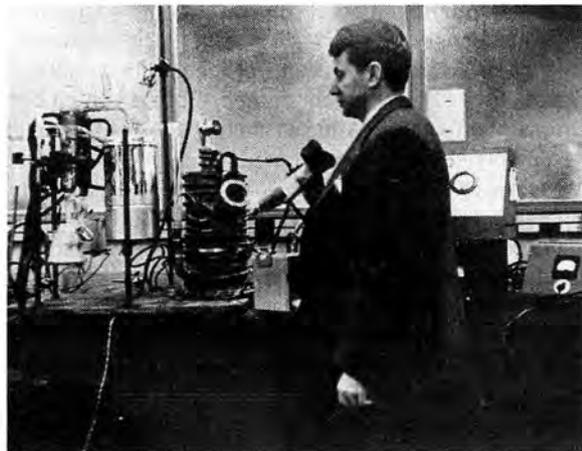
Abraham Lincoln's famous warning typifies the problem for the case of the U.S.A.: You can fool all of the people some of the time, and some of the people all of the time, but you can not fool all of the people all of the time. Lincoln's warning sums up the U.S. republic's internal experience, the ebbs and flows

4. See Philip Valenti, "The Anti-Newtonian Roots of the American Revolution," *EIR*, Dec. 1, 1995.

5. Typical of the category of absolute denials of the existence of truth, is the case of the "Frankfurt School" elements of what are fairly described as fascists such as, notably, Theodor Adorno and Hannah Arendt, and the school of drama of the frankly diabolical Bertolt Brecht. The existentialists, such as Arendt's Nazi intimate Martin Heidegger, based their so-called philosophy on an explicit denial of the existence of truth. In the case of Arendt, she based her denial of the existence of truth, on the reading of Immanuel Kant by Karl Jaspers. Her argument was a correct reading of the implications of Kant's doctrine. This denial of truth, as by her, formed the basis for the pernicious, implicitly Nietzschean doctrine of The Authoritarian Personality, and related sophistry expressed as ritual, hyperventilated chants against "conspiracy theories," which has been deployed in the United States since the late 1940s. Cf. Lyndon H. LaRouche, Jr., "When Economics Becomes Science," *EIR*, Dec. 18, 1998.



Dr. Robert Moon (1911-1989), LaRouche's valued collaborator in the scientific work of the FEF, speaking here at an FEF meeting in Chicago on beam defense in 1982.



Moon was a leading scientist in the Manhattan Project, who conceived of the graphite moderator of the first fission reactor ("pile"), and the first to design and build an effective cyclotron. Here he is shown with his vacuum furnace, in which he bonds alloys to use as targets for the world's first scanning X-ray microscope he designed in 1949.

Moon was an independent thinker, who emphasized the significance of the electrodynamic discoveries of Ampère, Weber, and Gauss and taught their methods to old and young alike. In his years with the FEF, he developed a new model of the atomic nucleus. Here, he is teaching youth in a summer camp program to re-create the Ampère electrodynamic experiments.



Philip Ulanowsky/EIRNS

of our shifts from achievement, to lunacy, back to achievement, and so on, over the entire span of that people's experience, from the beginning of that republic, through the present day. In a constitutional republic such as ours, no tyrant can prevail for a significant time, unless the majority of the people themselves have first become corrupted, as today, to an effect coinciding with Lincoln's famous aphorism.

The art of tyranny is: Corrupt the people first, and they will probably come to accept, or even demand the tyrant. The deep cultural pessimism fostered in Germany's post-war population of the 1920s, generated the potential which Britain's Montagu Norman and others exploited to place Adolf Hitler in power. The populists' deluded faith in their perverted definitions of "democracy," is the cherished delusion, that tyrants come to power by acting against the will of the people. Exactly the opposite is true; It is the corruption of the opinion and morals of the people, which paves the broad highway down which the tyrant marches to triumphant acclaim by the popu-

lar will, as Hitler did in Germany, and elsewhere. Later, the foolish people who cheered for the rise of the tyrant, may come to regret what they have done; but, even then, they will rarely allow that bitter lesson to remind them that, essentially, they did this to themselves.

Thus, as in the notable case of Nazi Germany, the tyranny of popular opinion may lead to a people's imposition of an incarnate tyrant, and perhaps, also, an incurable system of tyranny, upon themselves. The means by which a people's popular opinion brings a monstrous tyranny upon them as in that case, is the adoption of a Romantic's sort of entertainment-oriented fantasy life, such as what is expressed in the pathology of a mass of screaming fanatics at a sports event, such as feeding Christians to the lions in ancient Rome, or a Nuremberg rally in Hitler's Germany. It is the substitution of what

is, or pretends to be a democratic quality of popular opinion, for truth, which is the usual root of a people's self-inflicted tyrannies. The United States, among others, has been experiencing a decades-long repetition of that kind of long wave of alternating surge of flow and temporary ebb of a continuing flood of corruption by such tainted popular opinion.

Therefore, in the history of modern Germany or the U.S.A., for example, the study of how corruption of the greater mass of popular opinion, as in the United States recently, creates the appetite for a threatened or actual tyranny, as today, must be a foremost concern of the study and application of political science. In this report, I reference a crucial aspect of the recurring experience of this problem which had to be overcome, again, and again, in each step forward made by FEF. I reference that experience here, to go, as directly as possible, to the inner core of that recent and continuing, British Fabian Society-like corruption of popular opinion, the which is the leading source-cause of the

presently immediate internal threat to the continued survival of the U.S.A—and also, the United Kingdom itself.⁶

The scientists most attracted to FEF were drawn from men and women of an exceptional quality of development of their character, like physical chemist Robert Moon, as in our men and women of notable achievements in the domain of experimental physical science. It was the same in Europe in the past, and is expressed in a comparable fashion, to my personal knowledge of the situation, among the surviving leading scientists of Russia today. In the laboratory, or comparable settings, they were excellent models of the role of the Platonic method of hypothesis in the work of discovering universal physical and related principles. They were able, as experimentalists, to conceptualize a unique demonstration of a principle, not as a mere mathematical formula, as if at the customary mathematician's blackboard, but as a definite object of the mind, as what Riemann defined by his qualified use and application of Herbart's notion of *Geistesmasse*.⁷

The Trouble With Science Today

The trouble for many of these good scientists has often erupted, when the time came to submit an experimentally solid discovery of theirs to that virtual "Babylonian priesthood" to whom the accepted practice of today's society has entrusted the contemporary defense of the rabidly reductionist faith of "generally accepted classroom mathematics," the faith of Newton, Euler, Lagrange, et al. In short, with the ascent of those empiricists, "Things suddenly turned weird!" As Carl Gauss showed, in his 1799 attacks on the cardinal follies of Euler, Lagrange, et al., this was something external to physical science, something smacking of the quality of the same kind of evil which was the Spanish Inquisition of that rabidly anti-Semitic Thomas Torquemada who was adopted as a model for what was to become the fascism of Adolf Hitler, adopted by the intellectual, satanic founder of what became modern fascism, the Savoyard Martinist freemason, Joseph de Maistre. So, often, an evil influence had intruded along the march from the experimental laboratory to the Babylonian priesthood's torture-rack, the mathematical reduc-

tionist's "generally accepted classroom" blackboard.⁸

The existence of this intruding external evil, this generally traditional, but pathological division of science from art, is the object which Britain's notable C.P. Snow described as the paradox of "two cultures": physical science versus the rest.⁹

In effect, what Snow pointed toward, is the fact that the name of physical science is customarily assumed to bear the burden of representing a meaningful, experimental standard of truthfulness; whereas, popular opinion, and the currently popular opinion respecting the arts, tend toward enjoying the privilege of considering acceptable whatever a kaleidoscopically turbulent mass of evolving, currently fashionable opinion chooses. When experimental science is compelled to share the same bed with the widespread irrationalism of generally accepted, and academically taught "liberal arts" today, truth has been thrown out the window, and who knows what foul mental diseases (such as existentialism) may come in. The meaning of scientific "truthfulness" in general, is either degraded to a matter of a witness's crude, naive notion of sense-perception; or, it may appear as a theorem of physical science as explained at the blackboard in terms of "generally accepted classroom mathematics."

This is not only the exclusion of truthfulness from science; but, from opinion generally—as today's press is mostly freed from the encumbrance of laws banning maliciously reckless disregard for truth. As a consequent replacement for truth, we have such abominations as opinion by a chiefly lying press. Crooked courts, or, official decrees by lying official perverts, are typical of many cases in which the replacement of any kind of truthfulness, has occurred by the authority of mere opinion. In modern experience, when the standard of so-called scientific truthfulness itself is systemically false, it were more or less inevitable, as today, that no reliable standard of truth will long prevail in public affairs. Thus, as U.S. President Abraham Lincoln said famously: The substitution of a sophisticated kind of popular opinion has been repeatedly the chief agency of moral corruption in recent generations, as, again, over the recent four decades now.

6. The U.S. defeat, under Lincoln, of the treasonous, London-sponsored Confederacy, established us as a nation too powerful to be destroyed simply by repetition of that kind of subversion. So, the British successors of Lord Shelburne's Jeremy Bentham and his Lord Palmerston adopted a modified approach to the same ultimate end, an approach which became known as the Fabian Society of such leading notables as the utopian protégé of Thomas Huxley, H.G. Wells, and U.S.-hater Bertrand Russell. The Blair government at 10 Downing Street today, with its shamelessly intimate, Fabian Society ties to its accomplice U.S. Vice-President Dick Cheney, is a nest of such war-like, lying, virtual fascists of the Wells-Russell tradition, fascists strutting in New-Left-wing costumes today. Of the Downing Street-Cheney intimacies, it may be fairly said, that a buzzard which flies on two left wings, tends to veer to the far, far right, when careening in search of its beloved carrion.

7. Cf. Riemann, *Werke*, H. Weber, ed. (New York: Dover, 1953), *Anhang*. (English translation of "Philosophical Fragments" in *21st Century*, Winter 1995-96, pp. 50-62). The name of an experimentally validatable universal physical principle is not a card-index guide to a mathematical formula on file. The name of the principle is the name of the actual physical object as a mental object, and the mathematical formula is merely the description of *the shadow* of the object. The idea of that object is associated with the willful setting of the object into efficient motion; the mathematics is an effort to describe the behavior of that object (i.e., a Pythagorean-Platonic *power to act*) when it is set into motion. This notion was introduced to policies of education by Herbart; Riemann found in Herbart's Göttingen lectures the psychological key to defining the anti-Euclidean physical geometry of his 1854

habilitation dissertation. Thus, as Riemann emphasized in that location, he carried forward to its necessary further development, the notion of an anti-Euclidean geometry which Carl Gauss had developed under the tutelage of the great Eighteenth-Century mathematicians Kästner and Zimmermann. Riemann's notion of *Geistesmasse* is key for understanding the adoption of Riemann's integration of the germ of the higher geometry of Abel's work into his own work. This notion of *Geistesmasse* is also key to understanding the application of my own contributions to a science of physical economy. This corresponds to the requirements of Riemann's notion of the geometrical principles of Abelian, multi-phase-spaced functions for conceptualizing V.I. Vernadsky's functional notion of the Noösphere, and for an appreciation of my own view of Vernadsky's explicit reliance on Riemann. There is an ongoing pedagogical series on this implication of Riemannian Abelian functions, which is being conducted as an educational program among my associates.

8. I acknowledge my borrowing this usage of "Babylonian priesthood" from J.M. Keynes's published report on his examination of the contents of that famous chest of Isaac Newton's scientific papers. Keynes reported, that this chest, whose contents had not gone through any supposed fire, contained no hint of Newton's actual tendencies to discover a differential calculus, but, rather, was a collection of some of the worst sort of black magic in the form of medieval alchemy. For example, this same term used by Keynes was also employed, independently, by others, at a notable meeting of some FEF veteran scientists at Ibykus farm at the close of 1988.

9. C.P. Snow, *Two Cultures and the Scientific Revolution* (London and New York: Cambridge University Press, 1993 reprint).

The role of that kind of corruption in the practice and teaching of science, provides the relatively simplest demonstration of the principled source of the tendency for corruption which is, otherwise, currently rampant in virtually all aspects of social life. The refusal, or simple evasion of the moral obligation to deliberate the launching of a policy of practice according to the Platonic principle of Socratic dialogue among those choosing a course of action, is the typical result. Today, that is the most frequent cause for prevalence of the inanities and outright evils which may be perpetrated by, and within a so-called "democratic" society, or a free association of any kind within society. This kind of widespread perversion, is what I shall refer to, below, as the kind of general pathology which I identify as a "fishbowl" mentality.

A typical, concentrated expression of this, is the application of the immoral, sophistical doctrine of legal "finality" to instances such as executions of condemned persons, even when the facts prompting the judicial decision were discovered to contradict the claims on which the previous decision had been based. Such and kindred uses of "finality"—as in the case of the sophist Justice Antonin Scalia's Pontius Pilate-like intervention in the matter of the 2000-2001 Presidential succession, or the similar practices of the evil murderer and torturer, the anti-Semitic Spanish Inquisition's Thomas Torquemada—are often shown by experience to have been the cruelest crimes against humanity, and even an entire society.¹⁰

Reflection on this problem prompts us to define, and then combine the implications of two questions. First: what is the physical standard of truth which should be superimposed upon "generally accepted classroom mathematics"? Second: what is the comparable, appropriate standard for matters other than physical science? Third: how are the two standards to be reflected as a single principle of truthfulness governing both? Those are the intertwined questions which I

address in terms of the lessons to be adduced from the starting-point of my own and FEF's experience with the development of what became known as the U.S. Strategic Defense Initiative (SDI).

1.1 The Continuing Utopian Menace

Now, against the background of the argument here thus far, let us turn our attention to a leading aspect of the way in which the kind of problem, the problem represented by a surrogate for religious fanaticism, the continuing menace of strategic utopianism, which we have identified, has become a dominant feature of world events today. I shall situate the continued importance of my proposal for what became known as the SDI at a later point in this report, against the background I shall summarize here, now.

The matter we are considering in this report is not only complex, but the complexities themselves are an indispensable, essential part of a subject which is little understood, but on which the successful outcome of the present crisis depends. For example, as we turn now to the political source of the present world crisis, the cultural impact of the British Empire on the world's physical science and political culture, the reader should not forget that the point toward which we are working here, is the social-political motive for that Empire's tendency to suppress all competent knowledge of both the underlying, controlling principles of effective science, and also of the nature of truth in artistic culture and political practice.

The question we must pose, and answer, as I do that in this report, is: *What were the forces in modern history which, in effect, considered it necessary for their continued political power, to uproot the idea of truth as a systemic principle?* The solution for that riddle, of how the systemically pathological features of modern culture were embedded, is found in the systemic, empiricist features of the 1763-2004 history of the continuing British Empire and its impact on the world as a whole, especially upon globally extended European culture.

With this purpose in view, look now at certain characteristic features of Twentieth-Century history as a benchmark for study of the cultural problem of globally extended modern European civilization as a whole.

The Twentieth Century as a whole should be remembered by future historians as, chiefly, the symbol—if but a mere part of a more than a century-long single source—of the persistently recurring periods of tragedy experienced by globally extended European civilization. At the start of this tragedy, there was the deep-going cultural decadence which accompanied the Edward VII-led, 1892-1904 onset of World War I, and the 1920s aftermath of that war. For our purposes in this report, it is sufficient to focus on the later portion of that process, its recent eighty-odd years of history, the period since the infamous Versailles Treaty which bridged the connection between two World Wars, and also laid the basis for the present threat of a global form of spreading asymmetric warfare, a form of warfare which might be the world's plunge into a protracted new dark age comparable to that of Europe's Fourteenth Century.

The key to most of the past 72 years of world history, since

10. It is emphatically relevant to the point being developed in this present report, that the report that it was "the Jews" who were responsible for the Crucifixion of Jesus Christ, is not an expression of opinion; it was a falsehood spoken out of malicious disregard for truth. Under Roman imperial law, the only authority which could order a public crucifixion was the Roman Emperor; in this case, the Tiberius reposing at Capri during the time of Christ's crucifixion. The only authorized surrogate for Tiberius present in Judea at that time, was Tiberius' son-in-law, the Procurator Pontius Pilate. Pilate's motive for his order in this case was that Jesus was a Jew, specifically one with the rumored reputation of being an insurrectionary "King of the Jews," ostensibly the pretender of a Jewish population largely in a state of virtual revolt against the Roman occupation forces. The Jewish "Quislings" who howled for Christ's death, were the collaborators of the Roman occupation. Nero later crucified the Apostle Peter, on a related charge, as the Apostle Paul was also murdered by Rome for the same continuing reason of Rome's imperial policy. The crusades, including the Albigensian crusade and the Norman conquest of Anglo-Saxon England, were an expression of the fraudulent, actually Roman, not Christian, *ultramontane* legacy of the doctrine of Pontifex Maximus, as under Roman imperial law. The Inquisition under Torquemada was an expression of the same heathen bestiality expressed in the Norman Inquisition's burning alive of Jeanne d'Arc. The fraud, that the crucifixion of Christ was a Jewish conspiracy, was concocted as a cover for what became the so-called *ultramontane* dogma which dominated the medieval period associated with that Venice-Norman-Cluniac-Welf alliance, whose fraudulent "donation of Constantine" myth was a device for attributing the origins of the Christian church not to Christ and the Apostles of his generation, but, rather to contrary purpose, rooting the authority of the church as an opponent of the existence of sovereign nation-states, in the church's allegedly imperial, integrist legitimacy within the Pantheon of the Roman imperial doctrine. Such is the evil of mere opinion.

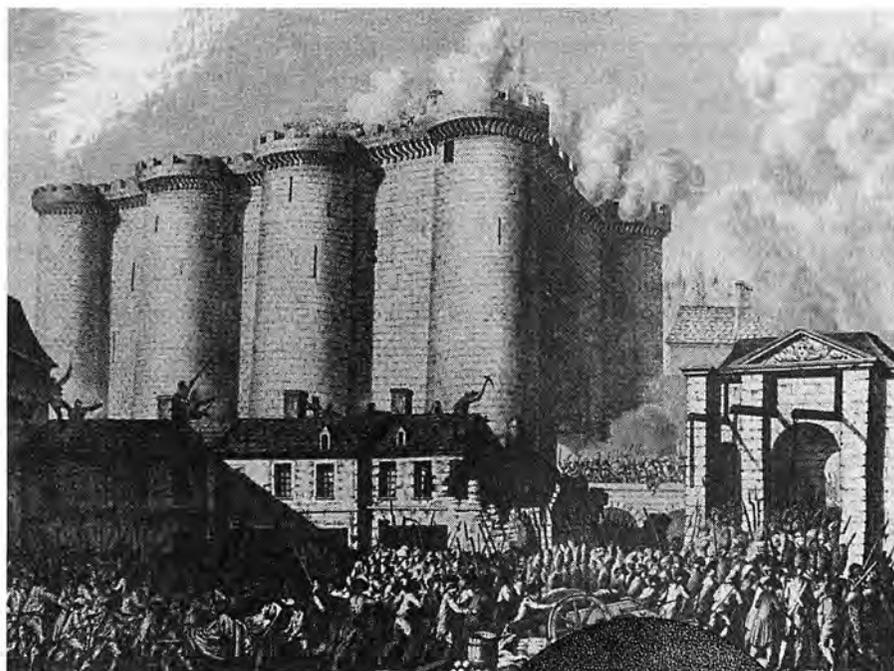
the March 1930 fall of Weimar Germany's Hermann Müller government, is expressed, in a concentrated way, in the crisis-reeking early years following the initial outbreak of the Great Depression. The most crucial turn is located between, on the one side: Germany's capitulation to Adolf Hitler's appointment as Chancellor, on Jan. 31, 1933, and Hermann Göring's Feb. 27, 1933 Reichstag Fire; on the opposing side: the inauguration of U.S. President Franklin Roosevelt, at a time just shortly after that assumption of dictatorial power by Hitler. It was Hitler's rise to power, through the infamous *Notverordnung* issued on the pretext of the Reichstag Fire, then, at a time even prior to Roosevelt's inauguration, which made World War II, or some variant of it, inevitable. Worse: Had Hoover, rather than Roosevelt, been elected, or had Roosevelt not survived the high risk of assassination, to be inaugurated, Hitler or his imperial successors might be ruling the world today.

That conflict between the policies of Hitler and Roosevelt has persisted to the present day, today, and is more acute, more ominous than during any time since the British Prince of Wales, later King Edward VII, began organizing Europe, beginning 1892-1904 developments in France, and by aid of the Fashoda incident of 1898, for what would become the so-called World War I. The most crucially relevant connections are, very briefly, as follows.

The Role of the British Empire

To understand the issues underlying that war, and the parallel threat represented by the Dick Cheney-Tony Blair echo of Hitler today, we must focus our attention on an institution, the France-Savoy-based Martinist freemasonic order, created by the British East India Company of Lord Shelburne's time, the freemasonic order which pre-organized both the French Revolution against Louis XVI, and the dictator Napoleon Bonaparte, and which produced, later, the Synarchist organization which organized the post-Versailles, fascist takeover of western and central continental Europe, during the 1922-1945 interval. The issues which prompted the Synarchists of 1919-1945, to organize the fascist regimes of that period, are the same issues of international private banking which are behind the roles of Tony Blair's 10 Downing Street and Vice-President Dick Cheney, as also Hjalmar Schacht-like George Shultz, and kindred scoundrels today.

It must be understood, that the British East India Company



The storming of the Bastille in Paris on July 14, 1789, was part of the subversion operations run by Foreign Secretary and British East India Company head Lord Shelburne (right) to prevent the establishment of republics like the United States in Europe. How the idea of truth was uprooted as a systemic principle can be traced to the Romanticism and existentialism promoted by the British Empire from 1763 on.



was an outgrowth of the neo-Venetian Anglo-Dutch banking-commerce associations, which had established the previously-planned British monarchy with the 1716 accession of George I. This was not merely an echo of the former character of Venice as a financier-oligarchical form of maritime power; it was a creation of those financier and related interests of Venice, which chose to reincarnate a thing in their likeness in the seas and related coastal areas of Northern Europe. In a typically Venetian way, that British private Company contrived to set the rest of continental Europe into what became known as the Seven Years War, a war against Frederick the Great's Prussia by every other power of the European continent. In the process, while France was distracted by this continental enterprise, the diligent British East India Company effectively took over India and grabbed France's principal territories in North America. As a consequence, the victory of the British East India Company in the 1763 Treaty of Paris, established the Company as the de facto British Empire which continues to exist, if in a tattered form, to the present day.

This idea of empire, as sketched by Lord Shelburne's lackey Gibbon, used the Venetian faction of the founder of empiricism, Paolo Sarpi, and, later, Paris-based Abbé Antonio Conti, to create the Martinist cult of the circles of Voltaire, d'Alembert, Cagliostro, Mesmer, et al., and, most notably, the most Satanically evil Savoyard, Joseph de Maistre, in France. This British-sponsored freemasonic interest, assisted by Shelburne's personal assets Necker and Philippe Egalité, pre-organized and conducted the French Revolution launched on July 14, 1789, while Shelburne's lackey Jeremy Bentham deployed British agents such as Danton and Marat, trained in and dispatched from London, to unleash what become known as the Jacobin Terror. Bentham, who earned the British Foreign Office its international notoriety during the ill-conceived remainder of his lifetime, created Lord Palmerston, and set the stage for Palmerston's launching of Mazzini as his puppet and controller of the Young Europe and Young America operations which toppled Britain's rival, Metternich, and put British agent Napoleon III on the throne of France. This set into motion what became that Confederacy which was intended to destroy the United States and to balkanize the remains of both the U.S.A. and other nations, such as Mexico, into a condition of squabbling local tyrannies suitable for British management of the Americas as a whole.

Given the unpleasant end of Shelburne's chosen model, the Roman Empire, Shelburne was at great pains to discover means by which such a doom as overtook that earlier empire might not overcome the recently born British East India Company's empire. To this end, the pathetic Mr. Gibbon was employed as Shelburne's scholarly, if emotionally disturbed lackey. Both Gibbon and the German Mommsen, are typical of the ideologues who managed the misleading accounting of history since ancient Greece, in a way intended to make the universe perpetually safe for an eternal British Empire.

These facts must not be read as presuming the existence of some primary British interest contrary to the tradition of the Venetian financier-oligarchy. The British East India Company, and its new empire, were then, and remained, the embodiment of a far-flung, international financier-oligarchical interest according to the Venetian model imported to England, among other places, by such notable Venetian Satan-helpers as Francesco Zorzi, the marriage-counsellor of Henry VIII, and, the Paolo Sarpi who launched English empiricism through notable assistance from such of his protégés as Galileo, Francis Bacon, and Thomas Hobbes.

Those leading features of that Venetian model adopted by England and the British monarchy later, are relevant to my development of the proposal which became known as President Reagan's public proposal of the SDI to Soviet General Secretary Andropov. The crucially relevant features of that proposal, are essentially two.

First, the British imperialists' conviction, that the potentially powerfully challenging forces of the Eurasian continent and the Americas, must be repeatedly set at one another's throats in such a way as to prevent the emergence of any power in the world which might be a capable threat to the continued existence of the empire which Shelburne had led in his time. World War I is a prime example of this British

strategy. (The slaughter of Britons in that war was a matter of the regime's relatively cheerful indifference to the interests of the British population; it was the City's "Old Lady" and what she represented, not human interests, which were intended to be served in such a gruesome fashion. For the "Old Lady," sacrifices must, obviously be made, when the occasion appears to warrant this service to cause of perpetuating the empire.)

The present threat of a fascist coup in the U.S.A., such as one by forces associated with Dick Cheney and George Shultz, and the echoes of Lazard Frères' pre-1945 France, goes to the heart of the second principal feature of the Shelburne policy-model.

On this second account, the kind of Anglo-Dutch Liberal model which reigns in western and central Europe today, is based on three elements which pass for "constitutional" among the credulous sorts of victims of such arrangements. One, obviously, is the non-parliamentary state apparatus. The second, is the parliamentary government, which is readily overthrown whenever the emergence of a crisis prompts the bankers to demand such adjustments. The third is the equivalent of what is commonly recognized today as an independent central banking system, which is the part of the government which is owned by the Venetian-style, international financier oligarchy, and which often prevails over state and parliament, as it did, so often, in continental Europe between 1922 and 1945.

However, for all nations, whether of the Anglo-Dutch Liberal model, or not, the kinds of international financial systems existing still today will, by their nature, lead repeatedly to the kinds of financial-monetary crises in which the bankers install a fascist dictatorship, or the equivalent, in order to ensure that the bankers, not the people, will be saved as financial powers, even if the people must be forced to die en masse to bring that happy financiers' remedy about.

Hence, since the establishment of the Venice-style of neo-Roman, British empire-in-fact, by the relevant 1763 Treaty of Paris, the world has been dominated *politically* by the ebbs and flows of either cyclical or systemic financial-monetary crises, as the world is presently dominated by the onrush of, *not a cyclical*, but a *systemic crisis* of the monetary-financial-economic system as a whole, an immediately threatened general breakdown-crisis. Among leading political and financial circles around the planet, many presently acknowledge this privately, although many of them, for reasons of political discretion, and reflections on the risks inherent in mortality, lie their heads off about this matter publicly.

These key features of Anglo-Dutch Liberal culture to date, are to be understood as the political and cultural reflection of, chiefly, the empiricist dogma introduced to Europe by Venice's Paolo Sarpi. Empiricism is a modern echo of the ruinous reign of sophistry by which Athens virtually destroyed itself in the course and aftermath of the culturally suicidal Peloponnesian War. The rottenness within modern European culture since the beginning of the Eighteenth Century is found, essentially, in the influence of not only Sarpi and his household lackey Galileo, but also their protégés Sir Francis Bacon and Thomas Hobbes, and in such Anglo-Dutch liberals as John Locke, Isaac Newton, Bernard Mandeville, Voltaire, David Hume,

François Quesnay, the "curry Wurst" composer Rameau, Adam Smith, Leonhard Euler, Jeremy Bentham, and Immanuel Kant. The specific moral-intellectual rot permeating the cultures of Europe and the U.S.A. today, is rooted in the systemic features common to these creatures of the Seventeenth- and Eighteenth-Century "Enlightenment." The British Empire is the pivotal expression of the Anglo-Dutch variety of the empiricism otherwise known as Romanticism and its outgrowth, existentialism.

London and Fascism

This brings us to that child of the post-World War I Versailles Treaty which is the 1922-1945 reign of fascism on the continent of Europe. The causes of the specific characteristics of that period are rooted in the folly of what was known as the "Versailles" monetary-financial system. Just as a core of the Nazi system was taken into the womb of the Anglo-American victors in World War II, the systemic features of fascism, in its character as a special outgrowth of empiricism, is the root of the especially vicious features of globally extended Anglo-American Liberalism today.

That said: identify fascism summarily, as an outgrowth of the Versailles system, in the following way.

Rather than writing down, as in lawful bankruptcy, the unpayable mass of British, French, and related war-debt accumulated during 1914-1917, Versailles proposed to avoid that remedy (in the main), by the following swindle. Woodrow Wilson's Secretary of State, Lansing, a man designed by disposition to earn much guilt himself, proclaimed, with a cupidity typical of him, that Germany must bear the total guilt for that recent war which had been diligently organized, not by Germans, but by the now-deceased British emperor Edward VII. It might have been suggested that President Woodrow Wilson was so preoccupied with mass-production of uniforms and burnable crosses for his Ku Klux Klan organization at the time, that he made no objection to Lansing's fraud. The relevant majority of the presumably great thinkers assembled as victorious vultures in those post-war proceedings, agreed to this fraud without a serious quibble. John Maynard Keynes did make a noise, but it was only a self-righteous, ineffable footnote on the proceedings. The Germans would pay the reparations needed to feed the bankrupt French and British bankers, out of which sums the British and French would be enabled to pay their war-debts to the eagerly waiting, hungry vultures, the Wall Street financiers.

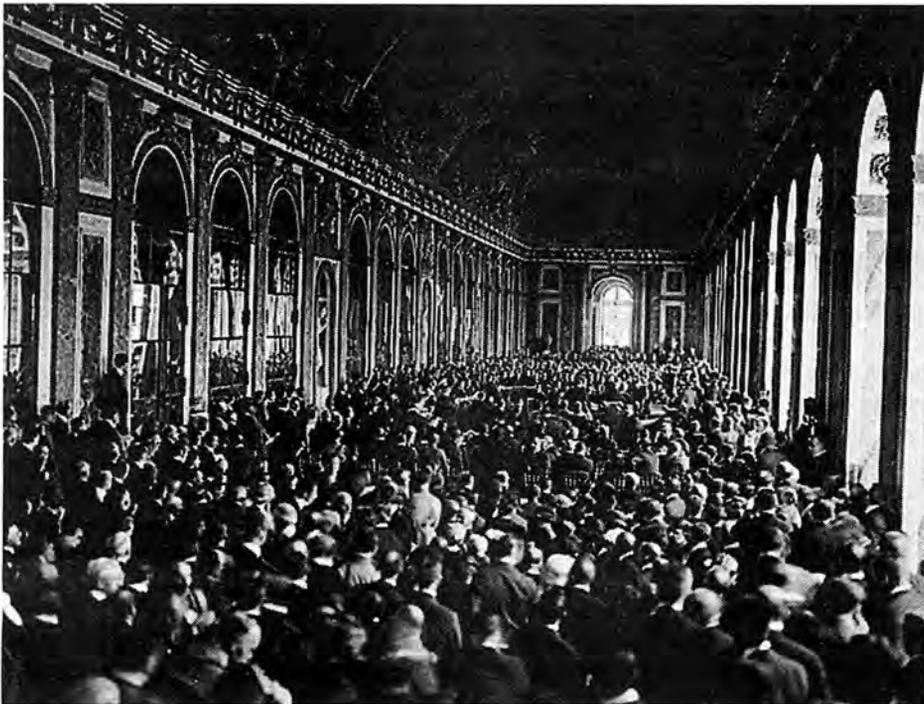
The hitch, as Keynes noted, is that the whole reparations scheme was a house-of-cards. Simply, as long as Germany was prevented from breaking out of the conditions imposed through Versailles, Germany could never pay the prescribed war-debt. The attempt of Germany to do so, produced the hyperbolic-like spiral of inflation, and then hyperinflation, of 1921-1923. The inability to repeat that kind of bail-out at the close of the decade, led to the fall of the German parliamentary government of Hermann Müller. This became the opportunity for the Bank of England's Montagu Norman, Harriman, et al., to proceed with successive fundings of their intended placement of the Weberian (e.g., "charismatic") psychopath Adolf Hitler, into power in Germany.

From Versailles on, all relevant higher-ranking financial authorities knew, as Keynes did, that the Versailles system based on reparations could not work. It was doomed, from the start, by its own design. Those private financiers and others who mobilized the Synarchist International for the purpose of putting fascist governments into power, already knew the truth about the system at the time of Versailles. They took the view, in effect: "Good! Let it blow up! We will bring in fascist governments everywhere!" The same kind of private financier interest, many of whom are biologically or otherwise direct descendants of the Synarchist financier circles of the Versailles Treaty and its aftermath, have made the same choice, once again, for the world at large, nearly a century later, today. In fact, the determination of the circles of Allen Dulles and James J. Angleton, during and following World War II, to bring about a form of fascist economy, known as a "globalized" world system of "universal fascism," was a continuation of the Nazi utopian goal which Dulles et al. shared with those Nazis whom they had ushered into the post-war American and related allied establishments. That legacy of Allen Dulles, Angleton, the Buckleyites, the late Roy M. Cohn, et al., has been continued by certain Anglo-American factional circles to the present day. The fascist network adopted by Dulles, et al., is the leading terrorist and related menace to civilization today.

Once you know that, you begin to understand the significance of the close connections among 10 Downing Street's "New Labour" Fabians around Blair, Vice-President and international carpet-bagger Dick Cheney, and Tony Blair's fellow-travellers in and around the Democratic Leadership Council in the U.S.A. still today. For the purposes of such fellows, new Nazi-like movements do not have to be built up *de novo*, as if from scratch; they never went away.

As noted and documented earlier, Hitler was put into power by the backing from the collaborators of the Bank of England's Montagu Norman, chiefly financier interests centered in London and New York City. Initially, the intent of those forces in London was to keep the potentially deadly rival, the U.S.A., out of what became World War II. Conditions changed. Edward VIII was dumped, and Churchill led the opposition to those powerful circles in Britain who intended to bring Britain and its navy into the continental fascist scheme to destroy the Soviet Union, and then destroy the naval and related power of the U.S.A. Churchill's motive was simple; he needed no one to teach him affection for fascism, but Churchill represented those who would not make a pact with Europe which would lead to the early dissolution of that British Empire established, in fact, by the 1763 Treaty of Paris. Churchill did not object to fascism; he objected to the development of a Germany-based "universal fascism" order, which would make the British a chess-piece of world politics, rather than the intended Anglo-American "cousins" as the hegemonic player.

Hitler and his regime are now long dead, but, as I have already noted, the surviving core of the Nazi apparatus is now entering its third adult generation through a pact struck between a core of the Nazi apparatus and right-wing Anglo-American circles typified by figures such as Allen Dulles and James J. Angleton. It is still a serious contender within the



National Archives

Inside the Palace des Glaces during the signing of the Versailles peace treaty, June 28, 1919. The British strategy of East India Company head Lord Shelburne continued into the fascism that took over in Europe after World War I, as an outgrowth of the Versailles system.

ranks of the pro-fascist thrust toward world power today. So, the inner core of the fascist rampage of 1922-1945 was tucked within the relevant part of the post-war Anglo-American establishment; and, so, the pestilence which had already created two "world wars," lived on, to plague the world still today.

Unfortunately, with the death of President Roosevelt, the United States under his successor, Harry S Truman, joined with the right-wing of the United Kingdom in making a remarkable right-turn. This right-wing adoption of key elements of the Nazi apparatus, as part of the post-war Anglo-American system, was not mystifying, if one takes into account that the issue which had prompted certain right-wing U.S. financiers and their British cousins to support President Franklin Roosevelt's war-time leadership temporarily, was simply the antipathy of those Brits and the American anglophiles for surrendering what they regarded as their English-speaking union to the yoke of a continental tyrant. As I have stated above, they did not object to Hitler because he was fascist, but because he was a continental figure. In the late Summer of 1944, once the U.S.-led Normandy breakthrough had sealed the fate of Hitler's regime, the British and U.S.A. right-wingers readily, even greedily absorbed that Nazi talent which they regarded as useful to their yearning for world government along the same lines Göring and Company had sought to create international mega-corporations in a globalized economy run by international financier oligarchical syndicates, rather than national capitals.

This right-wing turn was typified by negotiations, by a por-

tion of Anglo-American establishment which brought a core of the Nazi apparatus, around such figures as Hjalmar Schacht, Otto Skorzeny, Schellenberg, Wolf, and the fascist Synarchist International's financier network, into the post-war Anglo-American system, including the functions of NATO. The collaboration between those Nazi and Anglo-American circles, produced its so-called "utopian" faction of strategic policy-shaping of the post-war period to date. This faction, which relied significantly on using complicit Franco's fascist Spain for planting, and continued support, of Nazi influences into post-war Central and South America, was defined not only by an initial commitment to so-called "preventive warfare" against the Soviet Union, but by the dominant role of Bertrand Russell and his collaborators in defining a global policy of "world government won through the terror of nuclear-fission weaponry," as the needless nuclear bombing of

the civilian populations of Hiroshima and Nagasaki attests. The launching of the doctrine of "world government preventive nuclear war," by the British Fabian Society's Mephistophelean Bertrand Russell, combined with the needless nuclear bombing of the civilian populations of Hiroshima and Nagasaki, defined the launching of the utopian right-wing doctrine of the nuclear right-wing factions in the U.S., Britain, and NATO, down to the present day.

This nuclear policy defines that "utopian" faction to which President Dwight Eisenhower referred as a "military-industrial complex," the banker-run complex of that time, of which more decadent Vice-President Cheney and his neo-conservatives, like the similarly morally and intellectually decayed current incumbents of 10 Downing Street, are representative today.

Truman's folly in adopting Bertrand Russell's, and Winston Churchill's "utopian" orientation toward "preventive nuclear war" against the Soviet Union, led to the quagmire of the U.S. war in Korea, and the stunning revelation that the Soviet Union had achieved priority in development and successful testing of a deployable thermonuclear-fusion weapon. This situation led to Truman's retirement and the Eisenhower alternative. "Preventive nuclear war" gave way. However, "preventive nuclear war" returned, during Dick Cheney's stint as Secretary of Defense, under President George H.W. Bush, Sr. At that time, Cheney et al. saw the collapse of the Soviet Union's power as the opportunity to revive a "preventive nuclear war" doctrine. Now, with the pathetic son of the father serving as resident dummy in the White House, George

Shultz's retained ventriloquists, Cheney, neo-Wellsian Condoleezza Rice, et al., are putting the evil Mr. Cheney's nuclear madness into operation—unless they are prevented by a U.S. suddenly come back to its senses, now.

In the meantime, back during the 1950s, the seed of what Cheney represents today, was planted with the consolidation of Soviet General Secretary Khrushchev's position as Stalin's successor. Khrushchev, in concert with Russell, the latter the original architect of the doctrine of imperial world government through preventive nuclear war, put on the table what was to become known as "mutual and assured thermonuclear destruction," otherwise known as "detente." The missile-crisis of 1962 was an expression of that Russell-Khrushchev relationship. With the collapse of Soviet power during the 1989-1992 interval, Cheney et al. shifted from "detente," back to that pushing for preventive nuclear war which remains Cheney's policy, as Vice-President, today.

So, in that way, this Anglo-American-based outgrowth of the fascist overlordship of western and central continental Europe during the 1922-1945 interval, became known as the military utopianism reflected in the brutish moral criminality and barefaced lying of Vice-President Dick Cheney and his 10 Downing Street Fabian cronies today.

To understand this utopianism in a deeper, more effective way, we must recognize it as essentially the creation of two

Fabian Society fathers, the utopian H.G. Wells of *The Open Conspiracy* notoriety, and Bertrand Russell's leading role in designing and promoting the doctrine of "world government through (perpetual) preventive nuclear warfare."

The Russell doctrine was already being put through mass-rehearsals, prior to Hiroshima, by the Joseph de Maistre-style of Churchill-Lindemann doctrine of mass-murder of civilian populations, through creating fire-storm holocausts against the large non-military targets in Germany. The attempted British fire-storm in Berlin did not succeed, because the relevant Berlin avenues were too wide for the scheme to succeed; it was intended, for a while, to use the U.S. nuclear weapons on Berlin; but, the bomb was not ready for that use at the time it might have been so used. Instead, the Truman Administration consoled itself with the strategically counterproductive fire-bombing of the civilian population of Tokyo, and President Truman's utterly useless, militarily, nuclear bombing of Hiroshima and Nagasaki.

1.2 When I Came on Stage

I became, suddenly, a political figure on the world stage during August 15-30, 1971. There were three factors involved in bringing this about.

The first factor, was simply factual. I was the only known

economist of note who had accurately forecast publicly that kind of developments, and their outcome, developments which had been set into motion by policies responsible for a series of grave monetary crises during the 1967-1971 interval. Every notable economics textbook, its author, and its forecasts were shown, suddenly and in the most undeniable way, that my forecast had not only been accurate; but, more important, the only competent *method* of forecasting which was then visible on the world stage. My success on this occasion had international reverberations. Fortunately, but I think not accidentally, I have never spoiled that professional record as an economist during the decades since.

The second factor was an issue of the economic profession's prevalent range of doctrines. Since my humiliating defeat of Keynesian Professor Abba Lerner, chosen to challenge me on behalf of the profession in a celebrated, late 1971 debate, no economist opposed to my views has ever dared to challenge me in open classical debate format on economic and related policy-



Bundesarchiv

The London and Wall Street financiers' Hjalmar Schacht, German Finance Minister, with Adolf Hitler, in 1934.



Allen Dulles, of the wartime Office of Special Services and later the CIA, organized Schacht and other leading Nazi financier circles into a post-war faction to continue their fascist policies. This Anglo-American grouping promoted the utopian idea of "world government preventive warfare," associated with Bertrand Russell and the Fabian Society—and which is still alive today in the neo-conservative networks around Vice President Cheney.

matters. Usually, an outpouring of irrelevant, lying defamation is employed as a way of fending off the challenge to debate some terrified target of my challenge to such an encounter.

The third factor was political. I had warned that were the radical, anti-Franklin Roosevelt policy-changes in economic policy not reversed, the world was headed toward the only kind of regime which coincided with the effects of Nixon's policy: fascism, world-wide.

One point of explanation of my most unusual successes in this and related domains, should be made clear as an integral feature of the method which permeates the subsuming subject of this report as a whole.

More significant than all other factors responsible for the customary incompetence of economists and others posing as long-range forecasters, is the myth of the existence of an absolute, "the inevitable event." Whenever someone claims to have foreseen some event which he, or she claims to have been an unconditionally predetermined inevitability, that forecaster is self-exposed as intrinsically incompetent in that sort of work. As the success of Frederick the Great against the Austrians at Leuthen attests—or the defeat of both Napoleon Bonaparte's and his successor Hitler's invasion of Russia—the commander who saw the available choice of flanking action which another had overlooked, often secured victory precisely because his opponent had planned an "inevitable" victory. There are no unconditional, monotonic inevitabilities of specific events in the universe. What is "unconditional" is the imminence of a limited array of critical choices. In the case of the present world monetary-financial collapse, the characteristic feature of the overall situation, is a narrowing of the margin of those choices which might be considered acceptable to one or another of the relevant parties.

Take the case of the presently looming threat of rather immediate collapse into a general, global breakdown-crisis, of the world's present monetary-financial system. All of the choices adopted by leading relevant authorities, thus far, in the attempt to postpone the point of general collapse of that system, have the following net effect.

The adoption of a system of "post-industrial" economy by the U.S.A., Britain, and others, was associated with a second rule of thumb, radically extended forms of "free trade." The growth of "outsourcing" through the means of a "floating-exchange-rate" monetary system, over an initial period 1971-1982, created the preconditions for accelerated looting of weaker nations. This, in turn, paved the way for "outsourcing," and for the radical extreme of "outsourcing," which Ross Perot, in 1992, described as "that great sucking sound." The result was the collapsing of higher-price capital investment and productive employment in the U.S.A., the U.K., and other more industrialized nations, through aid of a low-wage policy for the new exporting nations, which latter was an echo of the same form of primitive capital accumulation practiced by Hermann Göring's steering of the practices of the Nazi mega-cartels employing forced and concentration-camp labor.

As a result, the physical-capital ratios, per capita and per square-kilometer, of most of the world, including a massive looting and destruction of the single greatest, 1989-2004 part

of this world-wide destruction, the former Soviet Union, has reduced the net physical-capital of the world, while hyperinflationary methods, especially the "John Law"-style financial-derivatives innovations launched by U.S. Federal Reserve Chairman Alan Greenspan, have unleashed what is, in fact, the greatest hyperinflationary bubble in history, a bubble more than ready to be popped now.

During the course of this time, especially since the oncoming systemic collapse of the world system was clearly visible, in 1987, the highest-ranking fools of the world, and others, have often congratulated themselves on their cleverness in postponing the already ripe collapse, by intrinsically hyperinflationary methods which made the next crisis more deadly than the preceding ones. Witness: the outsourcing bubble ("great sucking sound") which Vice-President Al Gore pushed. Witness: the IT bubble, financed by Alan Greenspan's lunacy, and premised on the terror of a touted collapse of the world on Jan. 1, 2000. Witness: the British and Greenspan's lunatic mortgage-backed-securities bubble. Witness: the Fall 1998 decision to use a massive outpouring of a hyperinflationary "wall of money," in the attempt to ensure that the general collapse would occur under President Clinton's successor; thus, the punishment so implicitly intended for Gore, which fell actually upon a Bush who successfully snatched the brass ring of folly from the foolish fingers of rival Gore.

So, over the entire period, beginning with Aug. 15, 1971, the Anglo-American hegemony have led the world in general, step by step along the road toward ultimate doom. At each critical point, there were alternatives. The only good alternative, was to scrap the radical change in economic policy which had been launched, in the wake of the Kennedy assassination, by the pro-utopian faction. The second class of alternatives, which represented no more than medium-term, or even short-term stop-gap measures, like that taken by President Clinton in the last quarter of 1998, always led to a worse threat of collapse than the preceding charlatan's nostrum.

Through all of this, there was a different sort of available choice. Scrap the system these charlatans were defending, and return to the proven principles of the Roosevelt recovery which had carried the United States and others, from March 1933 through the death of President Kennedy. Those geniuses were fleeing, in fact, toward their legendary meeting with doom, in Samara.

A concise summary of the way I foresaw the end toward which my rival economists were misleading their clients, runs as follows.

The mathematical-physical paradigm for the doom now descending upon the present world monetary-financial system, is Bernhard Riemann's famous analysis of the way in which a sonic shock-wave is generated, and also transcended. The relevant comparison is as follows.

What we are facing is not a recession, or cyclical depression. We are now faced with a systemic disintegration of that existing system. The only escape to safety, is by dumping that system, in favor of a return to a type of new system not inconsistent with the recovery methods which President Franklin Roosevelt applied to both the U.S. economic recov-

ery, and the extension of that to rebuilding a war-shattered world—the original, Roosevelt-defined, Bretton Woods system. The operation to be performed is comparable to the achievement of “breaking the sound barrier” as the latter was originally defined by Riemann. The possibility of survival under these conditions, depends upon applying the lessons of FDR’s successes to the process of placing the existing system into receivership by sovereign governments, for govern-

ment-supervised reorganization in bankruptcy under conditions of a government-credit-launched general economic recovery.

The “sound barrier” in this case is not a fixed value, but a relative one. The “sound barrier” analogue, against which the hyperinflationary surge of monetary-financial aggregate is being thrown, is determined by a ratio of the rate of increase of such aggregate, relative to the rate of contraction of real physical assets, per capita and per square kilometer. The kind of mathematical function so described may be viewed, in first approximation, as hyperbolic.¹¹ In this case, the increase of the financial-monetary aggregate is tied to a function of decline of net physical output per capita and per square kilometer. This is the case because the increase of credit to feed the financial-monetary bubble, depends upon what is termed “primitive (e.g., parasitical) capital accumulation” against the physical basis.



Stuart Lewis/EIRNS

A chance meeting between LaRouche and Ronald Reagan before a January 1980 New Hampshire Presidential primary debate, aided the process that led to President Reagan’s 1983 adoption of LaRouche’s science-driver policy for beam weapons defense.



EIRNS

LaRouche addresses a Fusion Energy Foundation conference on Beam Defense in Washington, D.C., in April 1983. The conference (which had been scheduled before President Reagan’s March 23 SDI speech), drew an overflow crowd of 800 attendees, who realized that the President, in his unexpected announcement, had adopted LaRouche’s “beam weapons” policy.

11. Actually, the comparison to geometric determination of the catenary function, as Leibniz and Bernouilli defined this in connection with Leibniz’s principle of universal physical least-action, were more appropriate. For present purposes of illustration, the notion of the lower-power hyperbolic function will be adequate.



EIRNS

The Fusion Energy Foundation and its foreign affiliates organized beam weapons campaigns around the world. Here, a June 1983 conference in Paris, which featured several French war heroes. Pictured are LaRouche collaborators Mme. Marie Madeleine Fourcade, head of the wartime Resistance Network Alliance, who is reading DeGaulle’s historic appeal of June 18, 1940; and General Thiry, chief of Force de Frappe during DeGaulle’s Presidency.

The result is an apparent increase of the steepness of the hyperbolic curve of financial-monetary aggregate, relative to each increment in of time. Time itself is relative, in this case. The rate at which the economy is looted to prevent it from collapse, determines the relative time expressed by the function overall.

When the steepness of the hyperbolic-like curve approaches "straight up," an absolute limit for the system has been approached very nearly. In that interval, which expresses itself with increasingly wild turbulence, the boundary layer reflecting the outer limit of the existence of the world monetary-financial system has been reached.

But even at that point, there is an option. Change the system, as I have proposed consistently over about four decades. It is the unwillingness of the relevant parties to consider changing the system itself, as I have proposed, which is the only reason they have to fear what they might regard as the inevitable doom of the world-system. Therefore, they fear and hate me, because my existence, by emphasizing that the collapse of the world economy is by no means inevitable, implicitly threatens the world they wish to have. As empiricist James Clerk Maxwell explained his fraudulent refusal to acknowledge his borrowings from the discoveries of Gauss, Weber, and Riemann, Maxwell and his British colleagues had wittingly refused to acknowledge the existence of "any geometries but our own."

Finally, on this matter of "inevitability." The rationale usually employed in a kind of formalist's defense of the notion of inevitability, is the same type of argument central to the underlying folly of all Aristotelian thinking, and also of the neo-Aristotelian modes known as empiricism, positivism, and existentialism. The problem is typified in the writings of Kepler, such as his *The New Astronomy*, in Kepler's focus on the fraud, in astronomy, by the Aristotelian Claudius Ptolemy and the pro-Aristotelian follies of Copernicus and Tycho Brahe. This is otherwise to be recognized, to the same net effect, as the pathologically anti-Promethean ideology of the Delphi cult, and the Eleatics, Sophists, Aristotelians, and empiricists generally. The core of the aspect of that issue which is of relevance in the present immediate context of the principles of forecasting, is expressed by the difference between the concept of "power," by pre-Aristotelian Classical Greek science, and Aristotle's proposed substitute for "power," "energy." Energy is an effect; power is the action whose footprint may often be termed "energy."

When we recognize that a failed self-esteeming forecaster thinks in terms of statistical or kindred extrapolations from observed effects, to the effect of assuming that an adduced pattern of effects is the motive for the subsequent outcome, we have put our finger on the deepest source of that forecaster's incompetence.

The essential distinction of man from the beast, is the individual human mind's sovereign power of cognitive insight, a power corresponding exactly to Plato's principle of hypothesis. The discovery of a previously unknown physical principle, by the Platonic method of hypothesis, equips us with efficient knowledge of some otherwise invisible, but already efficiently existing principle of the universe, a principle which existed

implicitly in the entire scope of Creation itself. The adoption of that discovered principle, when practiced by man, is a power of man to change the universe.

The very existence of man as a distinct species, resides entirely in that point I have just summarized. It is the motivating intent to cause a form of action, which expresses a discovered universal physical principle, which is the sole cause for the continued existence of the human species. Change, so defined, is the only form of existence actually known to mankind. Thus the passion to change the universe, rather than following intellectually and morally rotten Rome in preferring the illusion of fixed permanent laws of a mythical universe—the Aristotelian or comparable source of that deadly delusion which is to be recognized in the form of belief in inevitable outcomes.

This was the characteristic principle of evil ruling Rome; this was the utopia envisaged by Diocletian. This is the evil represented by the idea of a perpetual British empire, as by Lord Shelburne's crew, or a "Thousand-Year Reich," or the almost or actually Satanic belief in submission to a pre-fixed state of nature, as by the mentally and morally crippled "greenie." The search for a permanent ordering of the universe is an impulse which cripples its believer, intellectually and morally. At its least worst, it renders the victim of such a delusion psycho-sexually impotent. As a policy which the victim of such a delusion seeks to impose upon others, or society generally, it is the evil from which empires and fascism like Hitler's and Michael Ledeen's spread.

The economists whose wrath I have thus requicked by these remarks, represent a lackey-like dedication to fostering their careers in service to their actual or would-be master. They are apologists for their master, even comparable to parish priests of a Satanic-like cult. They wish to keep the world within the bounds of their master's pleasure. They are psycho-sexually inert, as faithful harem eunuchs are, to the effect of their seeking to assure only inevitably predetermined outcomes, because they have no reason to exist, but to defend their masters' delusions against all disturbing noises. They are stupid, because, for that reason, they wish to appear stupid.

Why My Enemies Feared My Superiority

As official documents, later released, attest, during 1973 the national Federal Bureau of Investigation (FBI) was engaged, through its assets in the leadership of the Communist Party U.S.A., in a plan to bring about my personal elimination. Our detection of that operation, during December 1973, led to the abortion of actual Communist Party deployments coinciding with what the later released official FBI internal document confirmed. The Loudoun County, Virginia events of October 6-7, 1986 and the Alexandria trial of 1988, are to be understood as essentially a continuation of a persisting pattern of similar intention and character over that period, extending to London's 10 Downing Street-based, Cheney-linked, operations in Europe and elsewhere, today.

The aversive operations of kindred nature from sundry agencies and the financier oligarchy-controlled press, were escalated by several crucial features of my 1976 U.S. Presidential

campaign, which was effectively a campaign against Henry A. Kissinger's utopian successor, Trilateral Commission founder and presumptive National Security Advisor Zbigniew Brzezinski. Brzezinski, obviously, was not pleased by my tampering with the intended success of several of his nastier ventures. The reaction zoomed with the SDI campaign, lost some of its vigor with my imprisonment, but erupted into successive escalations in 1996, the 2000 Democratic Presidential campaign, and my critical interventions into the worsening U.S. situation under the current President. The pattern here is not a succession of events, but, rather a continuing process which generates a succession of discrete effects. I illustrate the process by identifying a few of its exemplary effects.

My development of the proposal which President Reagan named the SDI, began with my reaction to a discovery of a document which chanced to fall into my hands during the 1976 Presidential campaign. That information became the most widely recognized feature of my 1976 Presidential campaign, and the subject of an election-eve, nationwide TV broadcast that year. For that alone, some of the establishment have never forgiven me to the present day.

During the 1975-1976 run-up to Zbigniew Brzezinski's replacing what had been his former Harvard bedfellow, under "house mother" Professor William Yandell Elliott, Henry A. Kissinger's position as National Security Advisor,¹² I chanced upon what is fairly termed "hot and solid evidence," that a section of the proposed Carter Administration—a section associated with utopian J. Rodney Schlesinger—was tinkering with an intention to stage what would readily become a nuclear standoff with the Soviet Union. Therefore, my 1976 U.S. Presidential candidacy featured my sounding the alarm against this feature of the incoming Brzezinski Administration's schemes. That warning succeeded in its purpose; there were no more such squeaks about "present danger" from Schlesinger's niche in the Brzezinski cabal during President Carter's term. Nonetheless, I had learned the lesson from that experience; the United States must find a science-aided alterna-

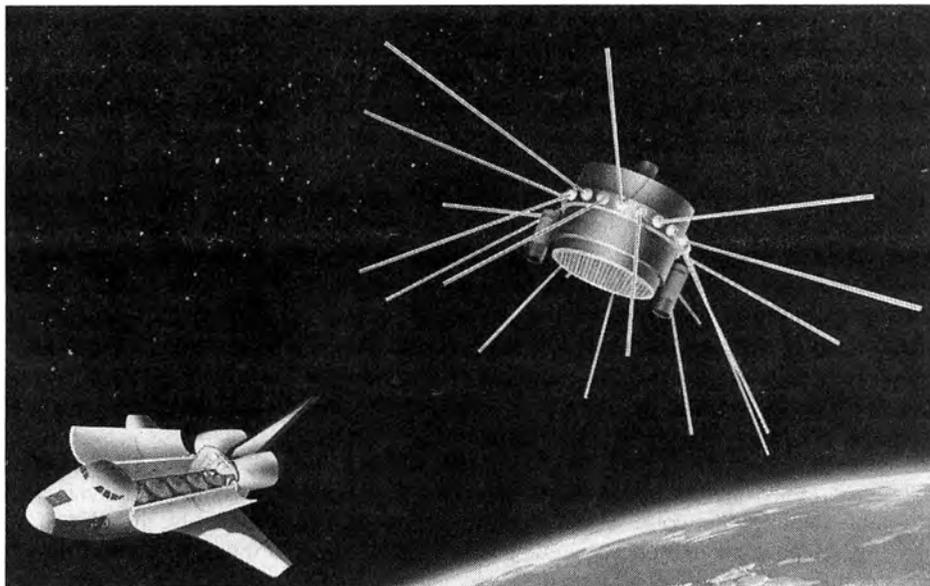


Illustration by Christopher Sloan

LaRouche pushed for "a shift from Bertrand Russell-style obsolete weapons of mutually assured destruction, to higher-order technologies which could become the weapons for escaping that deadly paradox" and "provide a science-driver upshift of the economies participating in the agreement." Here, an FEF illustration of an X-ray laser deployed in space as an anti-missile defense.

tive to the dead-end game of "Peace through Mutual Thermonuclear Terror."

My ability to turn an accumulation of scattered scientific and related facts into a strategic doctrine, depended upon a feature of my knowledge which lay outside the bounds of the generally accepted notions of the science-classroom. I have tended to rely, pedagogically, more and more on what I describe as "the fishbowl syndrome" to portray to others the characteristic way in which cultures tend to cling, stubbornly, to systemic delusions which tend to ensure a self-inflicted downfall or severe injury of an entire nation, an entire culture.

The post-1954 effort to restructure the entire cultures of Europe and the Americas, in particular, around development of what came to be known as "detente," is an example of that sort of systemic pathology. The Kissinger and Brzezinski phases of this variety of utopian strategic doctrine, was the pathology which I addressed in my design for an alternative to this utopian nightmare, an alternative expressed in the form of what became known as a "Strategic Defense Initiative."

What became known as "SDI," at least in the way I defined it, was based on an understanding of the relevant aspects of the prevalent "fishbowl syndrome" of that time. The solution for the challenge so defined could not have been developed into what became known as SDI, except from the standpoint which I had contributed to the founding and developing of the FEF.

About the same time I acquired the evidence of the nuclear-war-like intentions of Trilateral Commission circles associated with James Rodney Schlesinger, a fight had already broken out within the Defense Department over the

12. Elliott, noted as an American agent of British intelligence influence, was a prominent member of a right-wing association, with Fabian connections, known as the Nashville Agrarians. That association represented the tradition of the Tennessee founders of the original Ku Klux Klan. Den mother Elliott's charges in his Harvard department of government, where Kissinger was reared, have been more or less consistently agents of the so-called "utopian" (i.e., "universal fascist," Schacht) faction in U.S. military affairs to the present day.



After President Reagan adopted LaRouche's beam weapon defense policy on March 23, 1983, the Soviet leadership launched a vicious slander campaign to stop the spread of LaRouche's ideas.

Here (left), KGB journalist Fyodor Burlatsky surrounded by just a few of the headlines in Pravda, Izvestia, and other Soviet press attacking LaRouche in the mid-1980s. Burlatsky wrote several of the major attacks. At right is a huge slander in Literaturnaya Gazeta in 1988, which depicts LaRouche as a gun-toting Rambo, and his wife, Helga Zepp-LaRouche, as a German war goddess, Teutonia.

issue of development of what the diplomatic lexicon identifies as "new physical principles" of defense against nuclear-armed intercontinental missiles. In the process, the then-current head of the Defense Intelligence Agency, Lt.-General Daniel P. Graham, was a typical, fanatical opponent of such development. Graham was later to become a leading, rather savage 1982-1983 opponent of both me and Dr. Edward Teller on this issue. Graham demanded, as in his 1982 campaign for a kookish scheme called "High Frontier," that missile defense be limited to systems which had already, correctly been defined as obsolete back during the early 1960s.

During the second half of 1977, I was informed of the fight over the development of "new physical principles" ongoing within the Pentagon. I took the side of the proponents of "new physical principles," but I knew that those boosting the use of these principles there had not yet grasped the deeper implications of what they were supporting. In response, I recognized that without a general change in strategic doctrine, "new physical principles" could be degraded into the character of a technological gimmick. I concentrated on developing the needed doctrine, the doctrine which became known later, as SDI.

Before continuing with the process leading to the most recent reaction of the commitment to preventive nuclear war by Cheney et al., we must lay the groundwork with a look at those processes of the human mind which permitted modern society to drive into the kind of lunacy which Cheney merely typifies today.

These developments have divided the military professionals and related political circles of the U.S.A. between two fac-

tions, the sane (the "traditionalists" typified by Generals of the Armies MacArthur and Eisenhower) and the lunatic "utopians," typified by the followers of Churchill, Lindemann, Bertrand Russell, and RAND warrior clans, et al. The latter set of dangerous lunatics are to be diagnosed as a special case of what I have found it convenient to describe as a typical "fish-bowl mentality."

Since I am, as I have qualified this, a Promethean, I do not seek to fix hopelessly dysfunctional systems; I save my efforts to the purpose of making the necessary change in the system. My advantage, in crafting the original design for the policy which became known as the original, March 23, 1983 doctrine of SDI, differed from all others: In the sense that I used the idea of the implications of "new physical principles," to a strategic political end, a change in the world political system, as the basis for the employment of relevant scientific-technological and

related military-systems changes in the strategic configuration which had to be revolutionized. In effect, all of this, combined, was a fresh application of the same principle, applied to the 1945-1983 strategic conflict, which Cardinal Mazarin, et al., had applied, in the Treaty of Westphalia, to bring the Thirty Years War of 1618-1648 to a peaceful conclusion.

The objective of modern warfare is its unavoidable function as the securing of a peace which could be achieved in no other way. Thus, the design of forces, weapons-systems, and their applications must be designed accordingly. To achieve that result, we must start backwards in time, from the peace sought, to the selection of the means needed to bring that about.

Therefore, the crucial point of reference by me, to the Soviet side of the equation, was the fact that the Soviet military-scientific establishment could produce what were, under the circumstances on their side, relative miracles of applied science; whereas, the performance of the civilian side of the economy, frankly, stunk, as most learned relevant Soviet publications acknowledged to the degree political discretion permitted. The peace-making objective for the U.S.A., must therefore focus on that irony of the situation. That was my approach in 1982-1983, when I conducted an authorized back-channel dialogue with the Soviet government's representative on behalf of President Reagan's National Security Council.

The U.S. approach to defense, at that time, was based largely on technologically obsolescent junk produced by Wall Street's favorite military contractors. Gen. Daniel Graham's "High Frontier"—not merely "high," but virtually psychedel-

ic—reflected that folly. The object must be to shift the military-hard-ware parameters to a *long-term agreement* on a shift from Bertrand Russell-style, obsolete weapons of mutually assured destruction, to higher order technologies which could become the weapons for escaping that deadly paradox, but, *but, but* would provide a science-driver up shift of the economies participating in the agreement. This up shift must occur in a way consistent with the principle of “the advantage of the other” which produced the miraculous end of a virtual dark age of religious warfare, in the 1648 Treaty of Westphalia.

My view had a certain novelty, but it was completely consistent with the principles of nation-building-based strategic defense which had been developed by Lazare Carnot, Gerhard Scharnhorst, and our own science-engineering-based military professionals, through the service of Generals of the Armies MacArthur and Eisenhower. It was the Christian principle, of give your ostensible adversary bread in exchange for a stone.

This traditionalist implication of my design was widely recognized and supported among leading military-professional and related circles in Europe and elsewhere. That very fact, however, points to the reasons I was so bitterly hated for my role in the matter of SDI. I was threatening to take away the cookies of the fascist babies, merely typified by Vice-President Cheney, buzzards who had their gizzards set for a utopian enterprise of world government achieved through nuclear terror. Hence, the cry: “Eliminate him!”

1.3 ‘The Fishbowl Syndrome’

By “fishbowl” I mean the a state of mind in which the individual’s view of the universe is viciously out of physical, cause-effect correspondence with that real universe in which he is engaged in reciprocal action.

What is recognizable as the “reductionist” form of belief, represents a wide variety of specific sets of belief, which all together, while otherwise differing among themselves, are mental disorders of a common type, mental disorders which, even when otherwise specifically distinct from one another, share a common, specific quality of flawed characteristics. The more readily understandable expressions of such mental disorders, are encountered in the influence of the forms of reductionist pathologies encountered in physical science, but, most emphatically, within the domain of mathematics. In modern European cultures, the bulk of these pathologies afflicting mathematical science are traced,



A bust of Plato, whose dialogues brought to life the principle of Socratic hypothesis.

“The truth is, that the essential difference which separates all men and women absolutely, and equally, from all other living species, is the Platonic principle of Socratic hypothesis. . . .”

as it is said, “hereditarily,” from an overlap of currents rooted in Aristotelianism and empiricism. Today, the best opportunity to gain an overview of the functional characteristics of reductionist disorders in the practice of physical science, is the revolutionary work of Bernhard Riemann.

The truth is, that the essential difference which separates all men and women absolutely, and equally, from all other living species, is the Platonic principle of Socratic hypothesis. Man is able to see, and to prove the existence of objects called “universal physical principles,” which can not be seen as objects of sense-perception. As man accumulates knowledge and mastery of these universal principles, which pre-Euclidean Greek science knew as “powers” (i.e., *dynamis*), mankind’s power in, and over the universe is increased to such effects as increasing society’s potential relative population-density, as measurable per-capita and per-square-kilometer of the Earth’s surface.

Thus, the mind of the human individual expresses a power which is generated for action within the mental processes of a living person, but which can not be identified as a product of the individual’s biology. There is no basis for arbitrary, or otherwise irrational speculation in this distinction. The universe, as recognized by ancient Classical Greek scientists and, in a notable modern case, V.I. Vernadsky, is a manifold of three multiply-connected phase-spaces, which latter we distinguish experimentally as the *abiotic*, the *living*, and, lastly, what is termed the *noëtic*, or *cognitive*. The point to be emphasized, is that the human individual’s acquisition of efficient knowledge of a discovered, experimentally validated, universal physical principle expresses the active presence of a fully efficient universal phase-space, a phase space which requires an experimental method distinct from the methods sufficient for either abiotic phase-space, or a merely living phase-space.

This is the matter of the fraudulent argument which Carl Gauss refuted in his 1799 attack on the hoax of Euler, Lagrange, et al.

Modern studies of the astronomical characteristics of Egyptian astronomy from before the erection of the great pyramids, confirmed the Greek accounts, as by Plato and others, that the notably leading elements of Greek scientific culture came from Egypt. This was expressed by that Pythagorean notion of “spherics,” which served as the basis for pre-Aristotelian, and pre-Euclidean geometry. Four most elementary features of the Pythagorean science of Plato et al., are the construction of the doubling of the line, the construction of the doubling of the square, the construction of the doubling of the

cube, and the Platonic solids. The first three of these four, are the points of reference employed by Gauss to show the fraudulent character of those notions of a fundamental theorem of algebra associated with d'Alembert, Euler, and Lagrange. The action which generates each those three constructions is a *power* as the Pythagoreans and Plato define the meaning of *power* (Gr.: *dynamis*). The doubling of the cube is the simplest and clearest representation of the principle underlying all cases, as the relevant problem was posed by Cardan to his successors. Thus, Gauss's 1799 argument against Euler and Lagrange, implicitly defines the physical significance of the complex domain underlying the general notion of a fundamental theorem of algebra.

These discoveries of universal physical principle, are not merely methods of mathematical description, as if at the blackboard. They represent the discovery, and wielding, by man, of efficiently acting universal physical principles which existed before man's acquaintance with their existence. The principle of experimental proof signifies man's demonstration of his ability to secure willful control over the use of that principle, that in ways which may change the way in which the universe unfolds from that point on. That is to say, that, as Vernadsky emphasized, just as the acting principle of life works in a way which is external to the abiotic processes of Earth, to generate the change known as the transformation of the ostensibly abiotic planet into a Biosphere, man's willful use of discovered universal physical principles, superimposes those qualitative changes which, cumulatively, transform the planet from a Biosphere to define the Noösphere. *A true discovery of any universal physical principle, is a grasp of the power to make a willful change in the ordering of the universe.* The universal physical principle discovered, existed, and functioned in the universe before man first discovered it. Nonetheless, when man not only discovers, but deploys such a principle, man's willful action in using that principle changes the universe. Hence, such discoveries are to be recognized as acting "powers" for changing the world, in the sense of that usage by pre-Euclidean Greeks such as the Pythagoreans, Heraclitus, and Plato.

In physical science, "power," so defined as the desired alternative to the term of superstition named "energy," means either a power by which we willfully change the universe, or a power which bounds the pathway of action of a principle which we are willfully deploying. This notion, and the distinctions it incorporates, have been made qualitatively clearer by the original discoveries of Bernard Riemann.



Bernhard Riemann's revolutionary discoveries in the mid-1800s offered freedom for science from the deductive method of definitions, axioms, and postulates, an empirical system that still imprisons science, especially mathematics, today.

Modern insight into this feature of universal physical science as such, depends upon the revolutionary discovery central to Bernhard Riemann's 1854 habilitation dissertation. This work freed science from all remaining obligation to believe in such "fishbowl"-like substitutes for knowledge as the definitions, axioms, and postulates of a Euclidean deductive system. In place of so-called "self-evident," *a priori* assumptions, competent science now declares that we know nothing except what we know as a relatively unique quality of experimental proof of some Platonic form of hypothesis which serves us efficiently as a man-discovered universal physical principle. Henceforth, from that, man is freed by Riemann's demonstration, beginning his celebrated, 1854 habilitation dissertation, from all definitions, axioms, and postulates, and the kinds of deductive method associated with them.

Not only are the *a priori* kinds of definitions, axioms, and postulates

false, inherently. The acceptance of such a set of beliefs corrupts the mind of the duped believer, to the effect of erecting a mental barrier, within which false universe, the individual's and society's ability to act is self-confined, as we may say of a pet fish ostensibly content to continue swimming out his life within a fishbowl.

Take the example of a currently widespread, popular delusion, the notion of a physical principle of "free trade," as a relevant illustrative case in point.

From the standpoint of physical reality, rather than financial-accounting mythologies, the term "profit" has no rational meaning, except as indicating an anti-entropic form of action which generates more power than is required to generate it. This physical definition of profit may be restated as the portion of the total physical output, when that is expressed in the form of power, which must be allotted, beyond maintaining the existence of the producer and the means the producer employs, to produce the relevant total outcome.

In a modern physical economy, three features of this process are outstanding. The replacement of the family which provided the producer an equal or better functional condition. The replacement of the means of production used, in an equal or better function condition. The replacement of the infrastructure of society, on which the equal or better existence of that society and its means of production depend.

However, in the practice of "free trade," the following insanity occurs.

The price of goods is reduced, by lowering the quality of the labor employed. The price of goods is reduced, by cannibalizing the existing physical capital. The price of goods is

reduced, temporarily, by depletion of the pre-existing natural conditions and standard of life, up to the point of a general state of at least relative collapse of the system.

In the unfortunate case, that a nation, or nations are deluded into believing that "free trade's" changes must necessarily lead to an improvement: On principle, the point at which the depletion of society by cannibalizing populations, means of production, and infrastructure (including nature itself), will approach the condition of a breakdown of the system, defines a boundary of that foolish society's continued existence in that form. That defines a "fishbowl." Either the system is reformed, to eliminate the "free trade" factor, or the society collapses. "Get out of the fishbowl, or die."

Reliance on "free trade" as the factor of social practice whose application must be perfected, as in the case of so-called "globalization" versions of the "free trade" cult today, tends to eliminate all factors of economic-policy-directed activity which might be seen by relevant "free trade" ideological fanatics as exceptions to the perfected, universal application of the "free trade" rule. This is precisely the effect which has been seen as a trend in the Americas and Europe during the post-1987 interval. This trend is the underlying cause of the onrushing general breakdown of the present, U.S.-Britain-dominated, financial-derivatives-rotted-out, world monetary-financial system. So, our incumbent U.S. President, cap-and-bells aroused, hears that "free trade's" effects are ruining the economy; "That means we need a heavier dose of free trade," he replies.

Look at the lunatic's "fishbowl" of "I believe in free trade," as it has shaped the devolution of the U.S. political-economic system since the aftermath of the assassination of President John F. Kennedy by the Nazi-linked interests which the cats, Allen Dulles and James J. Angleton dragged in from their Nazi recruits in Germany, François Genoud's Switzerland, and northern Italy, once President Franklin Roosevelt had died.

There were important flaws in post-Franklin Roosevelt monetary, economic, and foreign policies prior to the



Philip Ulanowsky/NSIPS

"A culture which has adopted even not terribly bad working assumptions, in place of actually universal physical principles, must tend to collapse in the longer term. . . . A state of mind which is both relatively free of false axiomatic assumptions, and also actively seeking new, positive improvements in its roster of assumptions, is a truthful mind."

Here, a typical scene in Harvard Square, Cambridge, 1987, and an abandoned school in Flint, Michigan up for sale.



Steve Carr/NSIPS

removal of the "military-industrial-complex's" obstacle, Kennedy. However, those new policies which have led into the U.S. economic disasters of the past 40 years, were not a product of the FDR legacy which persisted among the economic policies of the 1933-1963 interval. The presently onrushing collapse of the end-phase of the post-Kennedy world monetary-financial system, is the product of an intention to bring about what Henry Kissinger crony, and wild-eyed right-wing utopian Michael Ledeen, has praised as a

“universal fascist” mode of imperial world government.

As I have summarized this point, respecting “fishbowl” ideologies, in sundry earlier locations, we have the following.

Riemann freed mathematical physics from the grip of so-called “self-evident,” *a priori* definitions, axioms, and postulates. After that, not only are they no longer necessary; the continued reliance on such assumptions is specifically pathological in nature, and in ultimate consequences. Assumptions of that type fall among, chiefly, three general classes. (A) A type of assumption which has at least an experimentally grounded, shadowy correspondence to the existence of a lurking principle. (B) A type of assumption, such as “free trade,” which is perniciously false. (C) A failure to keep an active sort of open-mindedness about the existence of actual universal principles beyond present knowledge.

This composition of the essentially reductionist form of axiomatic and kindred assumptions, is otherwise flawed by the general view that these assumptions, the best or worst of them, can be treated as independently axiomatic factors, rather than as part of a Riemannian form of multiply-connected array. Since this may appear strange to those lacking experience on this ground, I must explain this point.

In a Riemannian physical geometry, the only allowed assumptions of an axiomatic implication, are discovered hypotheses which have been validated, as universal physical or subsumed principles, by a quality of experiment which is designated as “unique”: an experiment which, by its nature, shows the principle to be not only valid experimentally, but absolutely, or relatively universal. No other form or quality of assumption is allowed as equivalent to one of axiomatic universality.

That does mean that Euclidean space and time (and the Cartesian outgrowth of that delusion) are to be banned from present and future science. The remedy is elementary: return to the pre-Euclidean notion of *spherics* which the Pythagoreans and Plato adopted from the methods of Egyptian spherical astronomy. All of the great achievements of European science have been rooted in the notions of a physical, rather than formally abstract geometry, as typified by the root of competent modern science in the work of the followers of Thales, the Pythagoreans, and Plato.

The trouble with *a priori* assumptions, even those which are not malicious, is that they incorporate a margin of a polluting kind of practical error, that as a hereditary feature of the practice of that belief. So, a culture which has adopted even not terribly bad working assumptions, in place of actually universal physical principles, must tend to collapse in the longer term, because of the cumulative effect of the margin of error in a practical assumption.

The notion of truth, in the strictly higher sense, presumes a practical correspondence of the image of the universe in the mind of the actor (an actor such as a society), and the real universe. Therefore, we must be occupied by attention to those *systemic* features of a set of axiomatic-like beliefs which are in contradiction to the way in which the universe actually works. By *systemic*, we should intend to point toward a stubbornly vicious practical conflict between the consequences of an axiomatic quality of decision-making,

and the assumed consequences. A case in point, is the way in which lunatic belief in “free trade” has played a leading role as a systemic feature of the 40-year decline of the U.S. economy, from the world’s leading producer nation, to the pile of post-industrial garbage which the economy has become today.

A state of mind which is both relatively free of false axiomatic assumptions, and also actively seeking new, positive improvements in its roster of assumptions, is a truthful mind. A contrary opinion, is a man progressing, step by step, toward doom. The doom is the fruit of the lie. Thus, the imagined intention of strolling toward paradise, turns out, in the end, to be a descent into Hell. That is the “fishbowl” of paranoia which has come to dominate the U.S.A. under the temporary reign of the soon-to-retire Baby Boomer generation today.

2.

Economy and Science

The theme of this report so far has been, that the present world monetary-financial system is presently in the terminal, breakdown phase of a general collapse. The end of the world is by no means inevitable on this account; but there is, in fact, no possible way in which that present system could be revived, as if in something resembling its present form. The present onrush of that general economic collapse, combined with the intersecting onrush toward an ultimately global form of generalized asymmetric warfare, is the principal feature of the present world crisis-situation. Only the replacement of the present monetary-financial system by a new one, a new one organized through the putting of the old into government receivership for reorganization, represents a feasible alternative to onrushing doom.

In the meantime, as noted above, I am not only the most successful long-range forecaster of recent decades, but perhaps the only person presently living who has an at least adequate comprehension of the most urgent issues posed by the economic aspects of this crisis. While my superiority on this account is something which I have earned by a unique and important discovery in the domain of a science of physical economy, it must be emphasized, for practical strategic reasons, that my advantage on this account is much more a result of the general failure of those who might be considered my rivals in this profession, than my own accomplishment. In the world of fools, I am a man.

To understand the topics which I have brought together so far in this report, we must conclude this report by introducing a summary, if simplified representation of the most significant scientific implications of my discovery, and point out those of its implications which are of paramount relevance for the subsuming subject and assigned mission of this report as a whole.

The branch of scientific inquiry which reflects both truthful universal physical principles and also those social principles we may properly associate with principles of Classical artistic composition, is the science of physical economy, as I have improved qualitatively upon the original discoveries of the

founder of this branch of science, Gottfried Leibniz. The history of that discovery of mine has a homely aspect. This aspect touches upon the nature of the distinction between the pompous lecturer whose classroom manner implies that his wisdom jumped from the brow of Minerva, and the homely individual whose impassioned, stubborn will developed a discovery from the grimy dirt up.

Start with the grime.

When I had not yet reached 16, my father, an accomplished consultant in footwear manufacturing, threw me into the pond, so to speak, doing Summer-time factory work in a shoe factory, where I was initially apprenticed as what is known as a "hand-dinker" at the lordly wage of 25 cents per hour. Diocletian be cursed! It is what his father had done to him, and what he was doing to me.

The relevant point is simply my persuasion then, after a few days, that there must be a better way to do this job. Anyone who has actually done meaningful factory labor, and who is not rendered inert by the experience, becomes the kind of person on whom the institution of the factory suggestion-box was focussed: There must be a better way to do this job, to accomplish this result, to improve the product, and to have the gratifying sense of fun with which a useful form of progress rewards its author.

This effect tends to be specific to that sort of employment, as distinct from the generality of "white collar employment."

My father was a strict pacifist, but tended toward rages. (Over the decades since, I have found rage, ironically, but not actually surprisingly, a common characteristic of pacifists.) When he asked me, one day, how is the work going, I replied that I was enjoying it. He darkened. He became furious! I thought he was about to strike me! He had come from a school of thought in which work was fulfilling one's duty to suffer, and a view in which unpaid time which was unoccupied by such suffering was economically and morally worthless. As Shakespeare put the word into the mouth of Cassius, my father's misfortune was that he, although not without a brilliant, and cultivated side to his intellect, and a technical side, too, also had the ideology of an underling. I was already, by that age, a devout Promethean. I thought of work as an opportunity for making useful discoveries, even if of such minor consequence as "hand-dinking," and had a deep moral commitment to saving my time through discovery of better methods, as precious.

That was the homely kind of adolescent experience which was later reflected in my instant, and justified contempt for Professor Norbert Wiener's notion of statistical "information theory." It was that reaction against what I considered the irrationality in Wiener's argument for "information theory," which led me, from early 1948 on, into 1953, to develop and complete my essential discoveries in a science of physical economy.

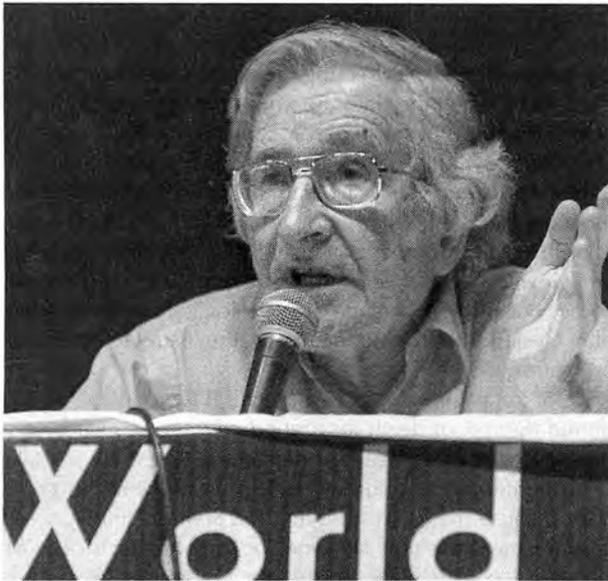
Once one has actually made an original discovery of a scientific quality, as I have done in that matter, life thereafter is changed in a special way. One's discovery of principle becomes, in a meaningful part, one's self. It is, as Kepler showed in his *The New Astronomy*, a discovered physical principle embedded as one's efficient intention. The experience of acting under the efficient governance of that inten-

tion, shapes one's character and related motives in a deep-going way; the principle, as it develops through experience, becomes a characteristic feature of one's personal character. We come to see every experience in terms of the exhibited reflection of the way our now-familiar principle operates universally.

So, when I see a patch of land-area today, I see its expressed relative potential population-density. I see the collective, guilty insanity of the Baby Boomer generation in the collapse of our once productive agricultural and industrial areas, and in the virtual criminality of the asocial effects produced by today's generality of real-estate practices. I see poverty not as personal misfortune of the individual, but as economic folly which is a product of our foolish, current economic policies, for which the nation is now paying dearly in lost real (physical) national income. I also recognize that today's typical Baby Boomers, even presumably well-educated professionals, are simply not capable, in experience, education, or moral conditioning, of recognizing any of the crucial principles on which a successful economy depends. *What a fishbowl mentality they represent! They are, in general, an uncultured generation, of relatively primitive instincts, lacking the characteristics of a culture with economic survival-potential. As the history of legislation and voting shows, they usually prefer bad policies, even very bad policies, over even simply decent ones. Looking back across known history, they represent the cultural potential of a self-doomed culture.* As a qualified economist, with many decades under my belt, this kind of evidence proves conclusively that, unless the trend of our Baby Boomer generation is changed, and that radically, soon, this nation will not continue to exist in a recognizable form. They are living, mentally, in a "fishbowl," and the contents of the fishbowl are about to be dumped, you probably know where.

In a science of physical economy, the apparent division between art and science is dissolved. In physical science, the sovereign powers of hypothesizing of the individual mind, are juxtaposed, experimentally, to nature as represented by the combined abiotic and living domains. In Classical art, and in the politics which is properly informed by Classical art, the individual's sovereign powers of hypothesizing are focussed upon the subject of task-oriented relations among the individual members of a society considered more or less as a whole. In physical economy, these two departments are united, in practice, as one. The science of physical economy is both a physical science and a science of art.

For example, in Classical drama, such as the tragedies of Aeschylus, Shakespeare, and Schiller, the competent author is definable as one who has always re-created a specific page of history to be performed and observed on the stage of the audience's imagination. Any drama must be costumed—if anything other than ordinary street-clothes of today are worn—according to the actual costuming of the period and place of history referenced, and must never be represented as anything but as a true representation of the historically specific characteristics of the culture of that time and place. Any different treatment of a Classical drama is a Romantic's fraud. All Classical art, like drama, communicates by ironi-



Marcello Júnior/Agencia Brasil



NASA/JSC

The empiricists deny "the knowable existence of categorical difference between a man and an ape." At right, the chimpanzee Ham, who was able to make a successful suborbital flight in 1961, but who could not conceive of the Project Mercury of which he was a part. At left, MIT's Noam Chomsky, who claims the "possibility of building a human mind out of virtual Erector Set parts."

cal inference, never by symbolism. That is to say, that Classical art, such as a J.S. Bach fugue, or a late Beethoven quartet, is always based on creating a thought-object for which no term exists in the previously established vocabulary. The artist's composition, and its appropriate performance, forces the mind of the audience (and the performer) to generate a definite thought-object (e.g., *Geistesmasse*) which did not previously exist in the vocabulary. The name of the artistic composition then becomes the speakable name for the newly created idea.

The inability to grasp the notion of ideas which function as the equivalent of universal physical principles within the domain of Classical artistic composition, and of statecraft, has the same root as the empiricist corruption which Carl Gauss addressed, in 1799, in his attack on Euler, Lagrange, et al. The denial of the existence of an efficient form of hypothesis, which is the burden of Euler's fraud on the matter of the complex domain, can be, and, in fact, must be traced in European civilization to the attacks on the Pythagoreans by the Eleatics and Sophists, and the attacks on Plato by Aristotle.¹³ The empiricists deny the existence of that principle of hypothesis, by means of which, and no other, the experience of a stubborn apparent paradox leads to the discovery of a universal physical principle. Instead of

13. While many pro-Aristotelian theologians would be angered by hearing me say this, it is a true fact of epistemology, that Aristotle denies the actually knowable existence of either God or a human soul. The result of Aristotle's method, is to transform the word "God" or "soul" from the status of an actuality, to a matter of induced (e.g., taught) belief, to a fantastic sort of Romantic fantasy. This is the same problem expressed by Claudius Ptolemy's Aristotelian fraud against previously known astronomy, and the kindred folly of Copernicus and Tycho Brahe.

14. For example, Euler's denial of Nicholas of Cusa's and Leibniz's proofs

cognition, empiricists insist that all that is knowable must be known by deduction from an appropriate choice of *a priori* assumptions.

Thus, the empiricist, like Thomas Huxley and Frederick Engels, denies the knowable existence of categorical difference between a man and an ape.¹⁴ So, a man from Sun Systems joins the pack of wild-eyed hyenas who insist, as foolish Minsky and Chomsky have followed the clever, but maliciously silly hoaxsters Wiener and von Neumann, in claiming the possibility of building a human mind out of virtual Erector Set parts.

The same fallacy is the root-origin of the notions of thermodynamical entropy introduced by Clausius, Grassmann, Kelvin, Helmholtz, Maxwell, and the Machian Boltzmann. At the least worst of the work-product of those reductionists, they commit two cardinal acts of scientific incompetence. First, their argument assumes that the universe is primarily, axiomatically abiotic, as the social thought of Bertrand Russell acolytes Norbert Wiener and John von Neumann does. This is the source of their definition of "entropy." They insist on ignoring the fact that the universe is Riemannian, composed of multiply-connected phase-spaces, of which the intrinsically anti-entropic principles of life and *noësis* are included, efficient intentions (motives). Second, they attempt to measure general

of the existence of a well-defined transcendental, and Felix Klein's fraudulent attribution of the discovery of the transcendental to Hermite and Lindemann, are an expression of the insistence of Euler that nothing will be considered to exist unless it is deductively derivable, essentially, from arithmetic. What Euler thus does, as did the Eleatics, sophists, and Aristotelians before him, is the same central argument which Kant, in his *Critiques*, derives from the work of Euler and Lagrange, committing the same error which Gauss, in 1799, points out in the work of the Martinist d'Alembert, as well as Euler and Lagrange.

thermodynamic processes in terms of Aristotle's impotent concept of "energy," rather than the Pythagorean concept of "power" (*dynamis*). As I have written above, "energy," to the extent it is a meaningful term, points to an effect, not a motive, not an intention. "Energy" is an effect, not a universal physical principle.

In the case of the strictly physical aspect of economy, it is the discovery and application of a universal physical principle, or its technological derivative, which is the only physical source of real profit in the economy as a whole. Furthermore, the real profit of an economy is never competently defined as the sum-total of the profits attributed to local enterprises. Already, with technology expressed at the work-place, we have human passion, human motives. This is the passion associated with the intention to introduce a discovered principle to a physical process.

The silent ("shut up and do your work!") man is never the exemplar of productivity. It is the transmission of motive among people, which is the means by which a principle, discovered by a person, becomes the efficiently motivated practice of many. This motivation depends upon universal principles, which are different than the physical principles of abiotic and living processes *per se*, but are universal principles of the *noëtic* domain.

Take language, for example. Grammar, and, sometimes, even dictionaries, have their uses, but the most important aspects of communication intrinsically violate any fixed doctrines of grammar and dictionaries alike. The generation and communication of ideas respecting principle occurs in the paradoxical features of statements, as the ideas of a Bach fugue illustrate the same point (nothing is more hideously inhuman, than hearing a Bach fugue performed without creative insight into the function of irony). Just as an apparent anomaly in the orbit of Mars led Kepler to a uniquely original discovery of universal gravitation, all communication of ideas involves the comprehension of an experienced paradox as a thought-object of the quality of *Geistesmasse*. It is in the psychological tension of experiencing a meaning which exists only as a mocking irony lurking among the cracks of a grammarian's funeral service, that efficient ideas are communicated. It is only in the shared experience of such forms of irony, that discoveries of universal physical principles are communicated among persons.

Hence, as four decades of experience has shown, "programmed learning" is the direct road to intellectual failure, and, often bankruptcy. "Programmed learning" in schools, produces students who pass multiple-choice, computer-scored examinations, without the pains of coming to actually know anything. "Power Point" lectures, thus, spread nothing so efficiently and broadly as intellectual, or, probably, also financial bankruptcy. Communicating only "information," is imparting ignorance, and, sometimes worse, very bad taste.

With those considerations now taken into account, consider the task of measuring the performance of an economy.

The Reign of Baby Boomer Terror

The Baby Boomer should not be blamed for having been reared to become a Baby Boomer. Our intent should not be to

kill him, but to cure him of a condition largely not of his own making. I know, and was watching how and why it happened, while he or she was still young. The real trouble for today's society starts, when the Baby Boomer refuses to admit that he is sick in the relevant sense of that term.

The proper definition of the Baby Boomer, is one born about the time President Harry Truman dropped the bombs and launched a fascist-like right-wing turn in U.S. affairs. The parents of this Baby Boomer had usually been transformed into what I viewed, at the time, as the "stinking cowards" they had become, out of their personal, psychological underling's fear of the Gestapo-like deployments of the Federal Bureau of Investigation (FBI).

For me, for as far back as I can recall, I would have always preferred the risk of death for a good cause, to cowardly dishonor. My policy has been; in dangerous times, always take steps to be certain that you are living, as efficiently as possible, for a cause that is worth dying for. Some regular-guy sort of businessman, the golf fan type, or the late fascist Roy M. Cohn's slimy cousin, Dick Morris—for a case in point—would shudder at the thought that they might be caught dead while visiting a house of prostitution; the idea that their death at the place might appear in the local press, would surely unnerve most of them, as it did Dick Morris. I suspect many of that type have reason to suffer such fears. For me, to be "knocked off" while I might be pursuing a dumb career, has been among my habitual aversions.

Most of the veterans of the war I knew from the late 1940s, were of a different temper. They "adjusted," in the course of time, especially those who drifted into what were ideologically "White Collar" communities, where mothers, especially, taught their children to lie as a matter of policy. "Don't associate with. . . ." "Don't be caught saying. . . ." "Remember, your father could lose his nice job. . . ." These conditions of the parental households and the relevant sort of (especially) "White Collar" communities of the 1950s, produced the likely university-entrant of the middle to late 1960s, who has become the pace-setter core of the Baby Boomer generation, in their late fifties, or early sixties today. A parallel, if somewhat differently colored phenomenon is found in Western Europe. Globally extended contemporary European culture has been polluted by this relatively hegemonic pattern.

The crystallizing factor in the experience of the Baby Boomer generation, has been the relevant events of the first half of the 1960s: the utopians' launching of the Bay of Pigs once Eisenhower was safely out of the Presidency; the utopians' promotion of the hoax known as Rachel Carson's fraudulent *Silent Spring*; the utopians' missile-crisis of 1962; the utopians' assassination of President Kennedy; the utopians' use of the murder of Kennedy as the opportunity to launch the death-trap of what became asymmetric warfare in Indo-China; the utopians' assassinations of the Rev. Martin Luther King and Robert Kennedy in 1968.

These events were situated within the previously prepared context associated with essentially-fascist Fabians H.G. Wells's and Bertrand Russell's launching of a counter-cultural movement associated with the London Tavistock Clinic; the psychoto-mimetic experiences, under Satanist

Aleister Crowley, of the Huxley brothers, Aldous and Julian, and Bertrand Russell's and Robert Hutchins's launching of the Unification of Sciences project, out of which the creators of the doctrine of "preventive nuclear warfare" launched the pilot forms, during the 1930s and 1940s, of the rock-drug-sex counterculture, "information society," "environmentalism," and similar modes of systemic self-degradation of youth which exploded during the middle to late 1960s.

The combined effect of the induced cowardice, and practiced, immoral sophistry of the "White Collar" climate of the late 1940s and 1950s, intersected the shock of the terror unleashed during the early 1960s, to produce what appeared from the outside to be curiously kaleidoscopic, *Island of Dr. Moreau*-like transmogrifications of the (especially) university-campus-situated Baby Boomers of the period from the middle 1960s through early 1970s. Above all, they were conditioned to hate the blue-collar industrial worker and technologically progressive farmer, and the "industrial society" which that producer represented in their opinion.

Those and related effects on that degeneration of a generation, produced a present-day, ruined, and now bankrupt form of national and (largely) world economy, which has reached the point of disintegrating as before your eyes. The Baby Boomer generation, especially the university graduate who entered what he or she viewed as professional life, was, first, conditioned to, and then became an instrument of the policies which not only caused the collapse of the U.S. and other economies, but have conditioned the Baby Boomer generation of the post-1987 period, into using their rise to top-ranking, or nearly-top-ranking positions of influence, to defend the policies causing the growing catastrophe, rather than correcting them.

With the concomitantly ongoing ruin of the conditions of life of the lower 80 percentiles of family-income groups, and the attrition by death, illnesses, and physical-economic circumstances of the World War II generation of young adults, the stratum of Baby Boomers has risen, which sees itself as "The We Are Wonderful" set, as the necessarily reigning upper 20 percent, the so-called "suburbanite" voter. While their own conditions of life become increasingly precarious, they have generally adopted a device, sometimes referred to as "comfort zones," fantasies into which they flee, in the effort to block out the pains and anxieties caused by the terrible world which they themselves have largely built.

This flight into lunatic "comfort zones" has taken a special form in the Democratic Party, in particular, through the affinity developed with the Fabian fascists of London, gathered around a Cheney-ally Prime Minister Tony Blair, who is, in his own way, not only quite as nasty as Cheney, but actually outranks Cheney in evil on the imperial scale. The indecent union between Blair and the Democratic Leadership Council set, explains much about the way in which the Democratic National Committee has developed a hateful sort of disregard for the welfare of the lower 80 percentiles of the nation's family households, as if to block the view of the world which might be seen from the parapets of the upper 20-percentiles' "comfort zone" fantasies.

What is shocking in the sheer ugliness of widespread such

fantasy-ridden Baby Boomer decadence today, is the indifference to the highly visible rot and doom their generation's hegemony itself has contributed, through its pathetic ideology, to the conditions of life of even those Baby Boomers themselves.

On this account, we need a rejection of monetarism, in favor of my science of physical economy, not only for saving our nation's economy from collapse, but to provide the ideologized Baby Boomer "suburbanite" himself an image of the reality which he must come to accept, if he is not to go over, suddenly and whole hog, into something like Nazism, as happened in Germany over the course of the Weimar period.

The Specter of Desolation

Think of the map of the U.S.A. Imagine yourself looking downward from about 10,000 feet above the surface of the land, as you criss-cross the nation's territory, in your imagination. Make a series of such surveys. Make such a trip back to 1933. Try 1940, then 1945, then 1954, then 1963, then 1970, 1975, 1982, 1987, 1992, 1996, 2000, and today. Build up a simulation of a lapsed-time image of the unfolding process of change.

Concentrate on several subject-matters. The condition of forests, fields, and so on generally. Where does the population live? What sectors of the economy are dying, such as the once mighty industrial and agricultural regions? What about the shifting percentiles of relative concentration of the population as a whole?

The image you have, which becomes clearer since about the aftermath of 1971-1972, is a destruction of the national economy of the U.S.A., as, now, entire areas have become something like ghost towns, with the population packed, more and more, into more and more densely populated zones of hyperactive futility.

From the standpoint of sanity, which the science of physical economy represents, there are two ratios (think of them as like angular ratios, as in astronomy) which are the paramount parameters of first-approximation physical assessment of a national economy as a whole: physically, what is the state of the economy, and its physical productivity, by area, and as a whole, per square kilometer, and per capita?

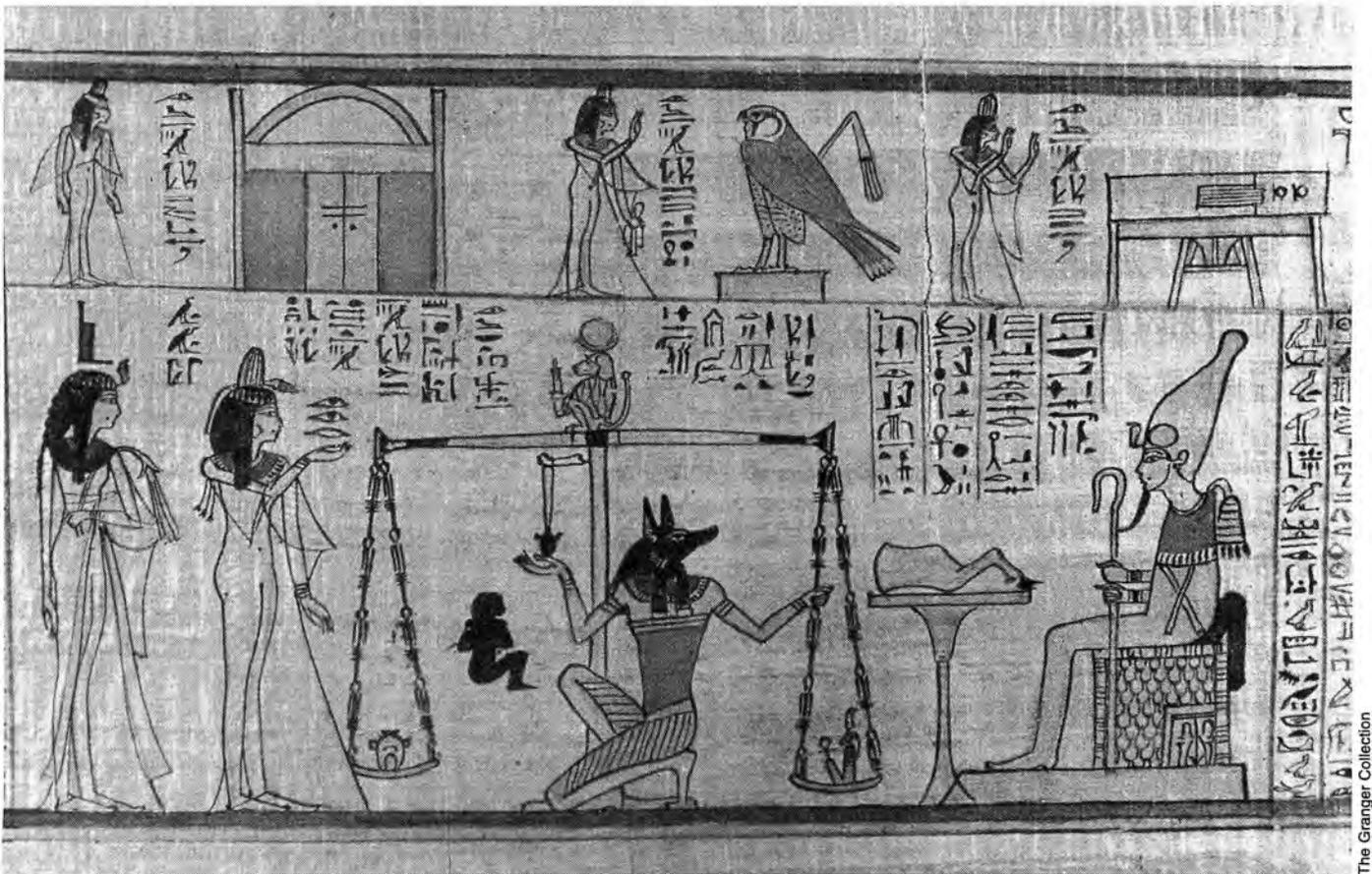
Brothers and sisters, our country is dying; it is dying, more and more, and now more and more rapidly, of what has been done to it by our people themselves, over the course of the recent four decades. You, mostly you, above all, have done this to our nation; we have, thus, done it to ourselves.

See what is broke. Fix what is needed and useful which has been broken. Above all, diagnose and uproot those changes in values and mental habits which have misgoverned our nation, and its future, more and more, during the recent 40 years. If enough of you disagree with me about this matter, your worries are soon over; you will fairly soon not be around much longer to complain. Perhaps that latter condition is comfort for some our citizens; it will certainly cause them to cease to complain.

Economist Lyndon H. LaRouche is a member of the 21st Century Scientific Advisory Board and a Democratic Presidential candidate in the 2004 election.

THE SCIENCE OF THE ADVANTAGE OF THE OTHER

Pythagorean Spherics: The



The Granger Collection

Egyptian funerary papyrus depicting the judging of the dead and the weighing of souls (21st Dynasty). By the Ma'at principle, the heart which is as light as feather (freed of rage and envy) will achieve immortality.

There is no mystery or "secret knowledge" of the pyramid, as centuries of cultists and pyramidiotis have alleged. Only the open secret of the science of the "Advantage of the other" lies behind its construction and use.

Missing Link Between Egypt and Greece

by Pierre Beaudry

It was during his stay in Egypt that Pythagoras of Samos (circa 580-504) made the most important scientific discovery of constructive geometry since the construction of the Egyptian pyramids. Pythagoras discovered the application of the principle of divine proportionality, expressed as an ecumenical principle of balance of social justice among human beings. Later, Plato called this principle, *agapē*, in his *Republic*. In ancient Egypt, however, this principle of the common good was called *Ma'at*, or the *Feather of Truth*, and it was expressed as a principle of social fairness that said: *Do unto one as you do unto another*. In Christianity the principle of *Do unto others as you would have done unto yourself* became the expression of the same idea.

During more ancient times, a similar principle, called *Paramatman* in the Sanskrit language, had taken root in India. Later, Saint Paul adopted this same principle of love of mankind, in *I Corinthians, 13*, and also called it *agapē*, a principle for governing both personal and public life.

That principle expressed the capacity of an individual to discover that his true self-interest lay not in himself, but in the interest of others, that is, in their general welfare. The great Indian philosopher, Bal Gangadhar Tilak (1856-1920), had shown, in his book *Gita-Rahasya*, that the ability of the individual self (Atman) to integrate the totality of all other human beings into himself gave access to the absolute universal self (Paramatman): a condition that Mohandas Gandhi had advocated in his own *Gita*, and which can be recognized today in the character of two unique individuals in the world, Pope Jean Paul II, and Lyndon LaRouche. Tilak said that this higher principle required only one condition:

A man must only become ready to achieve the good of others with a desireless frame of Reason. When once

the idea, that all persons are in him and that he is in all persons, has been fixed in a person's mind, the question of whether self-interest is distinct from the interest of others, does not arise at all.¹

The Chinese Analects of Confucius expressed the same principle, and the Golden Rule was translated into the fundamental notions of *ren* and *li*. Thus, the principle of the *common good*, which had become, in ancient times, an ecumenical principle informing ancient Egypt, ancient Israel, ancient Greece, ancient India, and ancient China, became the source of social justice for five great religions, Hinduism, Islam, Judaism, Confucianism, and Christianity.

During the 17th Century, the great French Cardinal de Mazarin introduced this principle in the process of the Peace of Westphalia (1648), under the form of the *Advantage of the other* and instituted it as the principle of diplomacy between sovereign European governments. It was based on this same living principle that the modern form of the Republican nation state had been founded by Gottfried Leibniz, under the appellation of *charity of the wise*, and from which Benjamin Franklin erected the sovereign Constitutional Republic of the United States expressed by the unalienable principle of life, liberty, and pursuit of happiness for the *general welfare* of all the people and its posterity.

This filiation of principle alone demonstrates that the central political issue of mankind throughout history has always been to determine whether man will treat himself and his fellow man as an animal, or whether he will treat himself, and others, as being created in the image of God, that is, in the image of the Creator who loves all of mankind, and promotes its growth. That is all that history is about, and the reason for rediscovering past history is nothing else but to

purposefully rediscover how mankind has been revealing, or has been hiding, that central political issue for the last 2 million years.

1

The Science of the Advantage of The Other: Reconstructing The Pythagorean Missing Link

In the Fall 1992 issue of *Fidelio* magazine, Lyndon LaRouche made an extraordinary conceptual breakthrough in constructive geometry, by establishing a pedagogy of metaphorical thought-objects, that is, a Riemannian *Geistesmasse* for the purpose of political organizing with *agapē*. At the center of his paper, entitled *On The Subject of Metaphor*, LaRouche initiated a re-examination of the nature of the five regular Platonic solids from the standpoint of their Pythagorean spherical origins, and in so doing, raised and provoked a number of questions which remain open to this day. Some of these questions we will attempt to address here. For example:

Why have the Pythagorean spherics been kept secret by the cult of freemasonry for over 2,400 years? Why are the five Platonic solids constructible only from Egyptian Astronomy? Why are there only five regular solids, and why is it impossible to have more than five? Why are three different spheres required to generate the five regular solids? Could there not exist a unique integral sphere generating the five regular solids?

These questions have led us to re-examine Pythagoras and to discover how the Pythagorean method of spherical nesting of the regular solids, represented the actual "missing link" between the ancient Egyptian knowledge of the pyramids and the Greeks, as well as the link between the astronomy of transoceanic-navigators, the Astronauts, and the European legacy of science which was later established by Plato, Nicholas of Cusa, Kepler, Leibniz, Gauss, and Riemann.

Thus, our immediate objective, here, is to revive the Pythagorean method of constructive geometry, and to reconstruct the nesting of the Pythagorean spherical regular solids from the standpoint of their Egyptian principle of proportionality, as expressed by Plato in his *Timaeus*, under the form of a correlation between the *orbits of the intelligence in the heavens* and the *orbits of our reason*.

From the standpoint of this higher hypothesis, the constructive geometry of *Spherics* represents a fresh attempt at rediscovering the very beginning of science, and demonstrates that the principle of proportionality was the founding principle of scientific knowledge itself: that is, the science of the improvement of mankind, the science of the *Advantage of the other*. Such was the underlying ordering principle of the universe, as it was understood by the ancient wisemen of Europe, Africa, and Asia, and by means of which the astronomical sphere of the heavens represented the noblest exemplar of a unique relationship between man the discoverer, and God his creator.

We were led to examine the works of Pythagoras as the

missing link between the Egyptians and the Greeks, after recognizing the massive historical evidence of subversion and bowdlerization of the Pythagorean and Platonic doctrines, both by the Aristotelians, and by the neo-Platonic, Gnostic secret societies of Cabalist-Orphic flavor from the Renaissance period until today. That Satanic tradition, coming out of Marcellus Ficino, Pico della Mirandola, and Jean Reuchlin, represented the most significant element of subversion of Plato's doctrine. It formed the basis for the reconstitution of an esoteric, pagan religion based on the Mithra cult of the Roman Empire, whose purpose was to reconcile the mysticism of the Hermes Trismegistus school of Alexandria, the cosmological Cabalistic tradition of Jewish mysticism of early Christianity, and the renegade Benedictine form of mysticism in the Roman Catholic Church, during the first quarter of the 16th Century.

This satanic tradition is represented in modern times by Fabre d'Olivet and his *Golden Verses of Pythagoras*, which follow in direct satanic lineage from the *Harmony of the World* (1525), written by the Venetian Franciscan monk, Francois Georges de Venise, better known as, Francesco Zorzi or Giorgi (1460-1540). Zorzi's *Harmony of the World* was a most extravagant collage of neo-Platonic-neo-Pythagorean-Rabbinical-Cabalistic-pseudo ecumenical concoction. It was Zorzi, who, as the main advisor to the Doge of Venice and the instigator of wars of religion by self-fulfilling prophecies, had sabotaged the anti-Venetian League of Cambrai of 1508 and triggered the so-called wars of religion that lasted from 1511 until the Peace of Westphalia of 1648.²

It was a similar Gnostic cult that not only destroyed Pythagoras' writings and his Italian schools in Crotona and Metaponte, at about 450 B.C., but also totally mystified his doctrine by turning it into a satan-worshiping secret society for the purpose of training an oligarchical elite to rule over human beings like animals, and herd them like cattle.

One thing is certain about Pythagoras, and about the "Pythagorean missing link": Just so much as the power of Greek science is reflected in the original spherics of those five Platonic solids (which are known today as the spherical Octahedron, the spherical Cuboctahedron, and the spherical Icosidodecahedron), in a similar proportion can they be said to reflect the construction principle underlying the Great Pyramid of Egypt.

2

Man in the Image of God: The Original Egyptian Source Of Pythagorean Proportionality

An ancient Egyptian Rhind Papyrus, dated at about 1700 B.C., demonstrates how the Egyptians applied this principle to a method of counting and measuring, which was probably in application during the reign of the first Egyptian dynasties, as early as 3000 B.C. The document revealed a very unique Egyptian method for determining proportionality between entities that were both commensurable and incommensurable. Although the ancient papyrus dealt mostly with practical calculations of determining quantita-

A page from the Rhind Mathematical Papyrus, discovered in the ruins of a small building near the mortuary temple of Ramses II at Thebes. The papyrus shows a highly developed system of arithmetic calculation based on the principle of proportion. The papyrus is named after the original owner, Alexander Henry Rhind; it was purchased by the British Museum in 1865.



tive proportions of tangible goods, in terms of weights and size, the method underlying their calculations showed that their practical use was derived from a higher moral principle of qualitative proportionality, thus, demonstrating that science began with a moral principle, not an accounting one.

In Rhind Nos. 44-46, 49, 51-60,³ for example, the scribe, Ahmose, explained how to determine areas of triangles, how to measure slopes of pyramids and their heights, given the area of their base, etc. One can easily see how Thales and Pythagoras would have been inspired by this contact with Egyptian constructive geometry. For instance, Rhind No. 52 shows how you can transform an irregular truncated triangle into a rectangle by constructing, proportionately, a number of self-similar triangles.⁴ It was the Egyptians who had established that the area of a triangle corresponded to half the rectangle of the same base, and same height. This is the sort of study in proportionality, and similarity, that led directly to the discovery of the Thales Theorem, the Pythagorean Theorem, and the Pythagorean Spherics generating the Platonic Solids. The principle of the Rhind Papyrus revealed the existence of a fundamental underlying process of cognitive thinking, the result of which could be identified simply as a method of just proportionality; that is, a method that *assigns a just apportioning to one as to another*.

It is with such an idea of assigning a proportional, as opposed to an equal share, that the Egyptians developed their sense of social truth and justice, which was echoed in the meaning of *agapē* that Plato discussed in his *Republic*. This had nothing in common with the phony democratic principle of equality, which is so abusively misunderstood nowadays. The Egyptians conceived of it as the principle of a balance, in which, for example, the deceased's heart was

weighed against the *Feather of Truth*, which represented divine justice. If the deceased, whose heart was being weighed, had been devoid of rage and envy, then his heart was as light as a feather. Such a social practice was established for the promotion of the virtue of a person who had internalized, and applied to his actions, during his lifetime, the universal ordering principle of love of mankind, which was represented by the *Feather of Truth*, or the balance of *Ma'at*.

Such a metaphorical characterization of the human heart, being weighed against the lightest physical object, a feather, shows a profound understanding of inverse proportionality, as the German poet Friedrich Schiller demonstrated on the "moral convenience of the heart" in the domain of the sublime. This was, for the Egyptians, the most noble means of measuring truth and justice. It was then reflected in elementary exercises of basic geometric teaching for children, and provided the technology for building the pyramids, which took the form of the *Shadoof* principle.

3

The Egyptian Method Of Apportioning

The Egyptians applied their method of proportionality to the specific case of multiplication, because it revealed, in a metaphorical way, how they thought of the relationship between God, Nature, and Man. Multiplication was made to show how things grow, and how to relate the small to the large. For instance, multiply two numbers such as $33 \times 47 = 1,551$. How do you get to that result by using your mind as opposed to a calculator or blind faith? The Egyptians applied a longhand process of successively growing by self-similarity, that is, by doubling a unit until the first number, 33, was obtained. Next, they applied the same process to the second number, 47 until they reached the sought-for result of 1,551. This process represented the initial means of determining the doubling of any magnitudes, such as the doubling of a line, of an area, and of a volume.

The papyrus showed the following two sets of numbers: *Do unto one as you do unto another*.

/1	/47	or	/1	/47
2	94		/10	/470
4	188		/20	/940
8	376		/2	/94
16	752			
/32	/1,504			
Total 33	1,551		Total 33	1,551

The underlying principle involved here is very simple. Multiplication is nothing but an abridged form of addition, of



Imhotep, whose name means "he who comes in peace," was Chancellor of King Zoser around 3400 B.C. His Step Pyramid Complex was the model and inspiration for all Egyptian pyramids.

weighing more with less. The forward slash (/) represents, in ancient Egyptian notation, the two proportional values that must be added to one another in order to reach the desired total. If you apply a lawful process of transformation to one series of numbers (i.e., doubling), the same apportioning must also be applied to the other series of numbers.

The scribe, Ahmose, applied the same principle to decimals. Then, he added the different columns. In other words, the two series were made to be proportional, within the same order of magnitude; that is, 2 is to 8, as 94 is to 376. The next question then became: Can such a proportionality also be made to exist between two different magnitudes, that is, can you create nonlinear proportionality, say, between a circle and a polygon, between a sphere and a polyhedron, or between God and man? Of course you can. That is what the intention of building the Egyptian Pyramids was all about.

Take a circle and inscribe into it an equilateral triangle. Project from the center of the circle a series of radii, which

divide successively one of the sides of the triangle into 2, 4, 8, 16, 32 parts. Compare the segments of the circle with the segments of the polygon. They are not equal, but they are proportional, although the circle and the polygon are two different and incommensurable species. You have assigned to one the same portions, or shares, as you assigned to the other. That is the Egyptian means of apportioning two different manifolds, or of determining proportionality between two qualitatively different domains. Apportioning between two or more human beings functioned similarly.

It is this process of proportionality that Pythagoras had applied to the principle of man created in the image of God, and that he discovered in the form that became known as the *Harmony of the Spheres*. Just to illustrate the simplicity of the process, examine the following *Pythagorean Table*. Pythagoras transposed the Egyptian method of proportionality to an elementary table of multiplication. The table is made up of a double entry, which gives the product of any two numbers between 1 and 9. As the reader can see, the table could be made as large as one could wish.

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	6	9	12	15	18	21	24	27
4	8	12	16	20	24	28	32	36
5	10	15	20	25	30	35	40	45
6	12	18	24	30	36	42	48	54
7	14	21	28	35	42	49	56	63
8	16	24	32	40	48	56	64	72
9	18	27	36	45	54	63	72	81

This Pythagorean method was merely a practical improvement of the Egyptian principle of multiplication. The product of any two numbers, say $6 \times 8 = 48$, is found at the intersection of the vertical and horizontal lines beginning with 6 and 8. Here, the proportionality follows the simple addition of the initial number of each series.

4

The Proportionality between the Sphere and the Polyhedron: The Anomaly of the Great Pyramid

The discovery of Precession Astronomy can be traced back, in an architectural documented form, to the construction of the Step Pyramid of Zoser at Saqqara (circa 3400 B.C.). This pyramidal complex was the first stone architecture in the world. It was built by Imhotep who was later made the god of medicine, and was remembered as initiating a *golden age of wisdom*. Imhotep, whose name means *he who comes in peace*, was the Chancellor of King Zoser (Djoser, around 3400 B.C.) during the 3rd dynasty and was known to have been a scribe/educator, a vase maker, a sculptor, a physician, a water engineer, a pyramid builder, and the administrator of the Great Palace of the Pharaoh. Imhotep's Step Pyramid Complex was the model and the inspiration for

Divine Proportion

The height of the Great Pyramid (OP) is to the perimeter of its base (ABCD) as the radius (OP) is to the circumference of the circle

Meridian Circle of the Great Pyramid

Side of Pyramid = 762.24 ft
Height of Pyramid = 485.5 ft = radius
Twice the height of Pyramid = 971 ft = diameter
 $971 \times \pi (3.14) = 3,048.94$ ft = circumference of circle
 $762.24 \times 4 = 3,048.96$ ft = perimeter of base (ABCD)

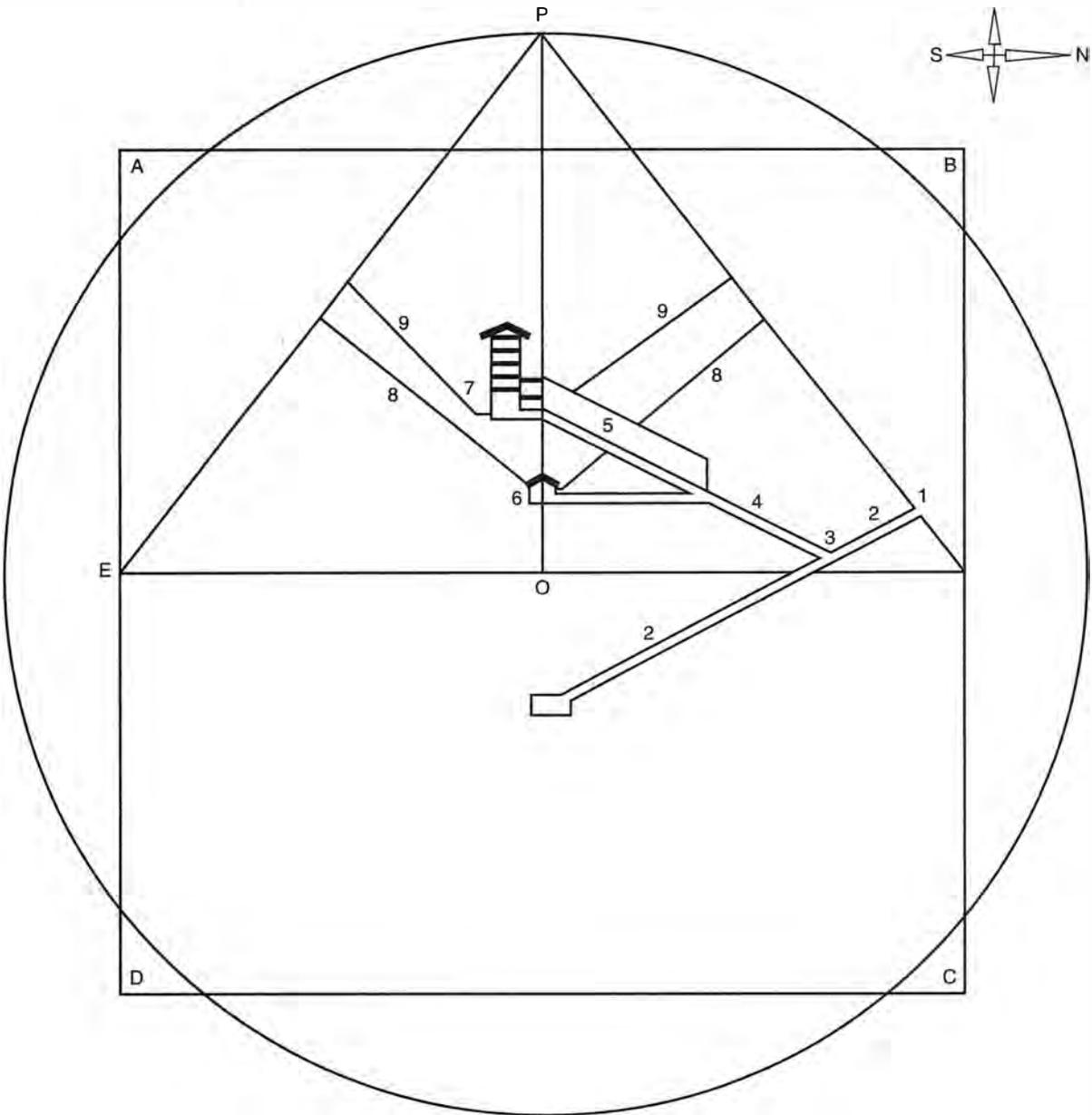


Figure 1
GREAT PYRAMID PARADOX OF SQUARING THE CIRCLE

- | | | |
|--------------------------------|--------------------------------|-------------------------------|
| 1. Entrance of Great Pyramid | 4. Ascending Passage | 7. King's Observation Chamber |
| 2. Descending Passage | 5. Grand Gallery Observatory | 8. Queen's Observation Shafts |
| 3. Location of Reflecting Pool | 6. Queen's Observation Chamber | 9. King's Observation Shafts |

Source: Adapted from J. P. Lepre, *The Egyptian Pyramids, A Comprehensive, Illustrated Reference* (Jefferson, North Carolina and London: McFarland & Company, Inc., 1990)

the construction of all of the Egyptian pyramids, and especially the building of the Great Horizon Pyramid of Khufu (Cheops), circa 3300 B.C.

Between the years 495 and 491 B.C., water-engineer and architect, Khnum-Ab-R'a, who was chief minister of works in Egypt, had left an inscription on a public monument of the valley of Wadi Hammamat, which put on record his 24 architect-predecessors, leading back to Imhotep and his father, Kanufer. This amazing pedigree covered about 2,000 years of Egyptian culture, and encompassed the entirety of known Egyptian civilization.

Since Imhotep was the founding father of all of the Egyptian pyramid builders, it is only fitting and proper that we attribute to him the authorship of the Egyptian principle of proportionality, which may be stated as follows:

The height of the pyramid is to the perimeter of its base as a radius of the same height is to the circumference of its circle. (See Figure 1.)

What this astronomical proportion implies, is that the monument of Khufu, properly understood, represents a metaphor, which identifies and establishes a crucial historical singularity by which the human mind is made proportional to the image of God. The significance of this discovery by Imhotep, corresponds to what Plato later called his higher hypothesis of ordering the *orbits of intelligence in the heavens* with the *orbits of our reason*.

The significance of this Great Pyramid paradox is that it expresses the very foundation of scientific knowledge 5,000 years ago. Its intended purpose was to establish an incommensurable proportionality between God and man, a form of proportionality which was later re-introduced by Nicholas of Cusa, during the 15th Century Golden Renaissance, with the idea that God is to man as a sphere is to a polyhedron. This represents the earliest case study of the significance of the discovery of the principle embodied in the relationship between the nonlinearity of the sphere and the linearity of a polyhedron.

The reader should examine closely the fact that the apex of the Great Pyramid is formed by an angle of 76 degrees (twice 38 degrees). This angular measurement of 38 degrees is also found in the two observation shafts of the Queen's Chamber, which form a 90-degree right angle with the 52-degree angle of the pyramid slopes, two of which form an angle of 104 degrees.

This is quite perplexing, because the uniqueness of this angular arrangement is such that no other combination of angles will establish a proportionality between the height of the pyramid and its perimeter, with the radius of a circle and its circumference. The irony of this paradox resides in the fact that the solution, known as squaring the circle, is incorporated in the very architecture of this pyramid, and yet its explanation cannot be found in the pyramid itself. The solution can only be found in the Pythagorean Spherics which produce the five Platonic solids. This means that the Great Pyramid of Egypt and the Five Platonic Solids are historically bound together, and can never be separated from their common generative principle. Thus, the Great Pyramid casts its historical shadow over Greek and European science and civilization as a whole.

The Pyramidiots

Because of the revolutionary nature of such a singularity, the great majority of Egyptologists have made systematic efforts to obfuscate it by making the claim that the pyramid of Khufu was the magical replica of a hemisphere. Since its original erection, British pyramidiots have attempted to legitimize that view by interpreting the role of the Great Pyramid as the center of a magician cult. This is done by obfuscating the scientific knowledge of astronomy, and then lying that only the initiates of that occult fraternity could have access to the so-called magical secrets of the pyramid.

Khufu holds no such secrets. Do not be fooled. The ancient Egyptian priests presided over the first known scientific discoveries in astronomy and constructive geometry in recorded history. That is the crucial point to make here. From this standpoint, everything about the Great Pyramid of Egypt has a scientific explanation, that even your children will be able to grasp.

The false underlying assumption behind the Masonic cult of the pyramid is that it is in man's nature to become a God. The purpose for such an outrageous satanic claim is population control. That is, the belief that only a small group of elite families (oligarchies) has been chosen, throughout the span of history, to assume the role of treating the rest of humanity like animals: to herd them like cattle, and cull them once in a while. Those families are said to be chosen, by God, to become the ruling divinities on Earth. This is a lie, and this is why the *principle of proportionality* between man and God, had to be kept hidden, and has been replaced by a linear mapping of the sphere unto the plane, raising the fraudulent idea that the Egyptians had discovered the nature of π , and that they could cube the sphere. In other words, the Great Pyramid is not, as claimed, a mathematical model of the Northern Hemisphere of the Earth. That is total nonsense.

The real problem here, is that the Masonic cults assume that only esoteric knowledge for the initiates is possible, and that such "knowledge" is based on pure belief in magic. As a result, the false claim was made to the effect that the so-called *secret of the pyramid* lay in one's ability to translate linearly a spherical quadrant onto a flat pyramidal triangle, and thus, the area of a plane triangle can be magically made equal to the area of a spherical triangle. In other words, the mathemagicians used this trick for the purpose of eliminating the fundamental issue of proportionality, and showing that man can become equal to God. This war against proportionality is the typical trademark of the satanist Zorzi.

Those two distinct species, the sphere and the polyhedron, are absolutely incommensurable, must remain so, and cannot rigorously be considered as equals—in numbers or otherwise. Those two species represent the most crucial paradox of *cognition*, the very basis upon which one can successfully fight against the satanic credulity of the *gnosis*. This is why both Nicholas of Cusa and Johannes Kepler had insisted that the means of comparing curvedness and straightness was truly the fundamental criterion of human cognition, and the precondition for understanding the difference between God and man. The sphere reflects the divine, as a metaphor of the per-

fection of the Holy Trinity, where the Father is the center, the surface is the Son, and the harmony between the two is the Spirit.

On the other hand, the polyhedron reflects the human mind as seen through the same metaphor of the Trinity, but as if his knowledge were projected on the dimly lit wall of Plato's cave. Man stands, in the image of God, proportionately, as is shown by the projection of a gap of imperfection between the spherical curvature and the plane of the polyhedron. It is that incommensurable gap between the polyhedron and the sphere, which can offer the best metaphor of the condition of the human mind with respect to the Creator. If that gap upsets you, if that *inadequacy function* bothers you, then you are ripe for a Martinist séance.

The Greeks learned that from the Egyptians, and the Italian Renaissance learned that from the Greeks: You cannot square the circle, any more than you can cube the sphere. However, you can make them proportional. The way that Imhotep solved this anomaly, was by extending the proportionality to the calendar cycles of precession which he had discovered, and applying it to human life.

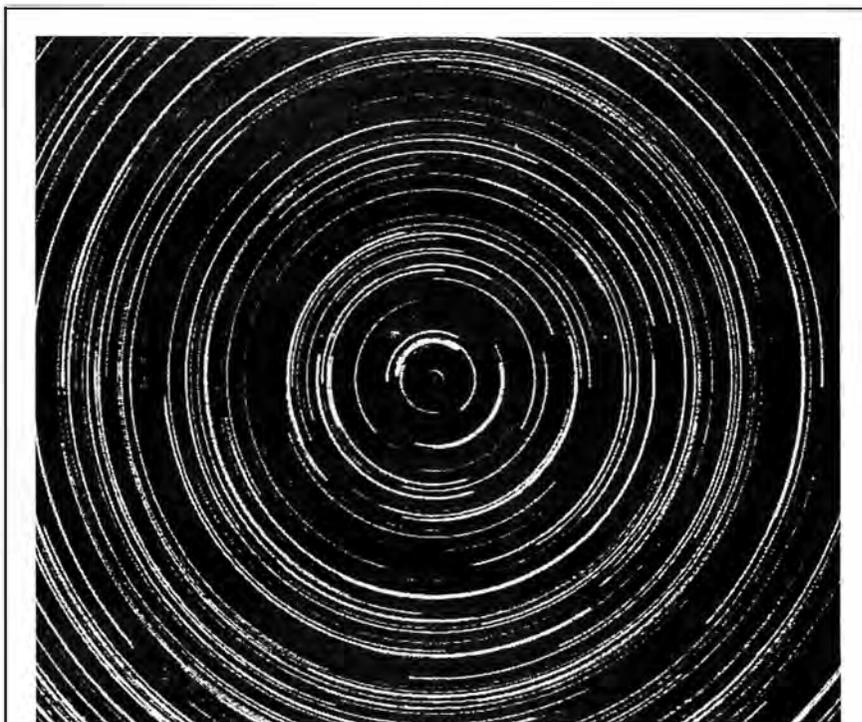


Figure 2

TRANSIT OF STARS AROUND THE CELESTIAL NORTH POLE

Time-delay photograph showing how stars appear to be carried around the north pole of the celestial sphere. Pole stars are any bright star revolving in small circles around the empty center.

Source: Photograph by Richard Anthony Proctor in Peter Tompkins, *Secrets of the Great Pyramid* (New York: Harper Colophon Books, 1971)

5

The Angular Determination of The Great Pyramid

In ancient Egypt, an astronomer once asked an architect: "If you were an astronomer, how would you start building an astronomical observatory which would be perfectly in line with a meridian circle, from which one could observe and teach young people how to determine the transit of all of the stars in the heavens?" In a dialogue with members of his youth movement in Los Angeles recently, Lyndon LaRouche answered that question by saying: "You'd build a deep pit, a deep well, and if the well is narrowly fixed, you can actually see stars during the daytime, and particularly in areas which are fairly arid. And that's when a lot of astronomy was done. They had the nighttime sky, which they were able to survey this way, and also the daytime sky. Motions of the planets and so forth, they could see, in the dusk."⁵

What LaRouche was referring to by his answer is that, during ancient times, the study of angular motions of stars based on spherics led to the discovery of physical principles that went into the construction of the Great Pyramid of Egypt. That is to say, there existed no way to know how far away these celestial objects which rotated around a fixed point in the sky,

as if from the inside of an immense Sphere of the Heavens, were located. Thus, the only way to understand the underlying principle of celestial objects was to determine their regular appearance in the night sky, or in the day sky, and to note the significance of their angular positions when they passed across the narrow slit opening of an observatory, which was in line with the meridian circle of the Celestial Sphere. This required that the observatory be oriented, as perfectly as possible, to the Celestial North Pole of such a sphere (Figure 2).

Thus began the passionate adventure of building Egypt's Great Pyramid of Khufu. Once the location of the bedrock for the Great Pyramid of Egypt was chosen at Giza, the very first step taken was to determine the center of the square floor plan of the pyramid, by establishing the north-south direction of a meridian circle centered at the 30th parallel of latitude. According to Egyptologist Zbinek Zaba, an ancient Egyptian inscription described the ceremony of the "stretching of the cord" to establish the orientation of a pyramid. The inscription said: "Looking up at the sky at the course of the rising stars, recognizing the *ak* [culmination] of the Bull's Thigh Constellation [our Great Bear], I establish the corners of the temple."⁶

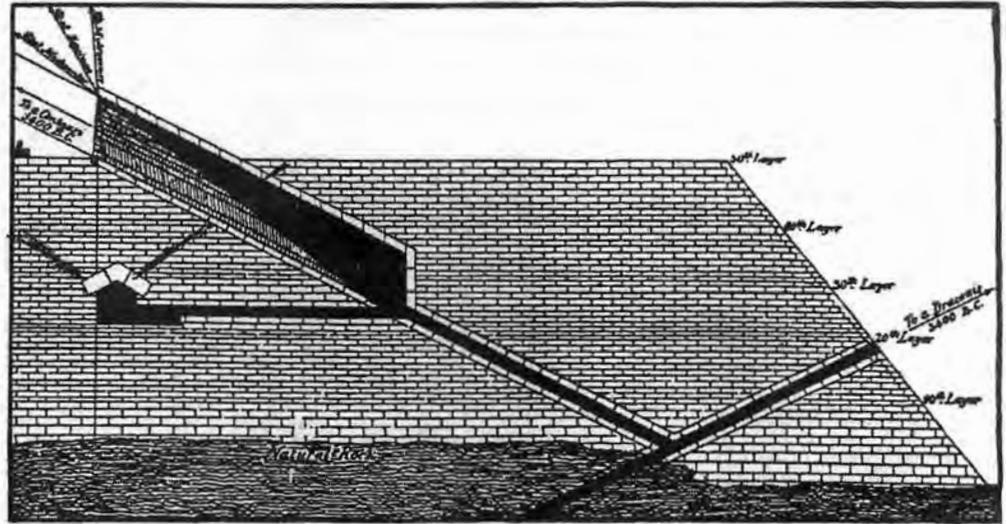
Orientation of the Meridian Circle

The Meridian Circle is the great circle of the Heavenly Sphere, which passes through the Earth's True North and cen-

**Figure 3
THE POLE STAR
ORIENTATION
OF THE
GREAT PYRAMID**

Proctor's drawing shows how the rays of the midday Sun would strike the grand Gallery, during mid-summer, mid-winter, and at the equinoxes.

Source: Peter Tompkins, *Secrets of the Great Pyramid* (New York: Harper Colophon Books, 1971)



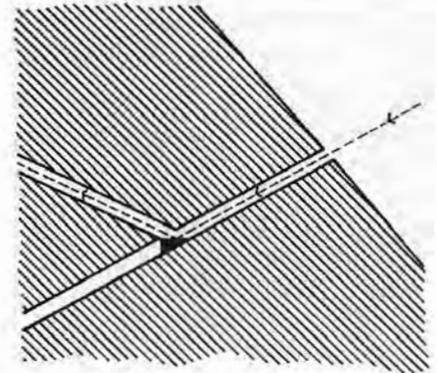
ter, and in whose plane all of the stars culminate at night, that is, reach their highest point of transit (*ak*), between the Eastern horizon and the Western horizon, as seen from Earth. The transferring of the true meridian from the heaven to the ground, however, required more than a ceremony of drawing lines in the sand. It required the consolidation of an alignment with the Celestial North Pole by digging, as LaRouche indicated, a deep descending passage into the bedrock at the same angle that the chosen North Star projected its ray down to Earth. Since *Alpha Draconis* was the circumpolar star, which was located, at that time, at 3 degrees, 43 minutes south of the Celestial North Pole, the first descending passage of the Great Pyramid was chosen to be in the inclination of its ray, that is, at 26 degrees, 17 minutes.

Midnight would locate *Alpha Draconis* at the floor level of the passage. Thus, the choice of digging a tunnel-like passageway, as opposed to an external ramp, should be obvious: An observer located at the bottom of a deep tunnel can see that star much more clearly, even during the day, than he would at the base of an above-ground ramp of the same length. This initial underground descending passageway was built with such precision that its mean variation from its central axis, along the entire length of 350 feet, is a mere 0.1 inch of latitude and less than 1/4 inch of longitude, with an extraordinary 1/50 of an inch discrepancy near the entrance. The celestial Pole Star was projected directly down that passageway. This meridian alignment was so precise that it is within 3/60 of a degree of True North, a greater precision than that found at the Greenwich Observatory of London, which is off

**Figure 4
REFLECTING POOL AT THE JUNCTURE OF THE
DESCENDING AND ASCENDING PASSAGES**

By plugging the junction and placing water in it, light could be reflected upward. By looking down the Descending Passage into the reflecting pool, an ancient observer could have noted the exact moment of a star's transit. The same system is used today at the U.S. Naval Observatory, where the daily transit of stars is noted by their reflection in a pool of mercury.

Source: Peter Tompkins, *Secrets of the Great Pyramid* (New York: Harper Colophon Books, 1971)



by an error of 9/60 of a degree.

Before the digging ever begins, two things must be known to construct this first observation passage. First, that the same circumpolar stars would come across the meridian at regular intervals of time and would draw small circles around the Celestial North Pole. Second, that this permitted the observer to map the precise timing of stars at their upper or lower culmination, which could be calculated by clepsydras (water clocks). Thus was established, in Egypt, the precise study of marking regular angular periodicity of the heavenly bodies, and the variations in periodicity for longer periods of time. The only way to establish such a universal determination was to have two fixed points around which everything else moved: one on Earth, and one in the heavens. Once these two points were fixed in stone, the building of the pyramid could begin.

Building the Great Astronomy Pyramid

To begin laying the first five courses of stones, the builders had to assure that the ground base was both made absolutely level, and correctly oriented. This was assured by the guiding ascending passageway, which required the fitting of stones precisely in the same inclination of 26 degrees, 17 minutes, and



Figure 5
THE GRAND GALLERY OF THE GREAT PYRAMID
Interior of the Grand Gallery (about one-quarter of its length), showing how it could have been used to observe the stars circling in the southern sky. The illustration is showing the southern section of the meridian.

Source: From an illustration by Richard Anthony Proctor in Peter Tompkins, *Secrets of the Great Pyramid* (New York: Harper Colophon Books, 1971)

necessitated their positioning in the same northern orientation. Above the fifth course of masonry, a new ascending passage was erected at the same angle of 26 degrees, 17 minutes, but was oriented along the southern meridian. This is the key feature around which was built the rest of the pyramid, up to the 50th course. Those passageways define the axis around which the entire pyramid is built, and provide the only rigorous means of maintaining the constant orientation of the building with respect to the Celestial North Pole (Figure 3). Since the erection of the upper part of the pyramid also required that the same orientation be fixed to True North, it is highly probable that another observation chamber exists, which has not yet been discovered, and which is located in the center of the meridian, at about the 150th course level.

The southern passageway leads to the Great Gallery, to the

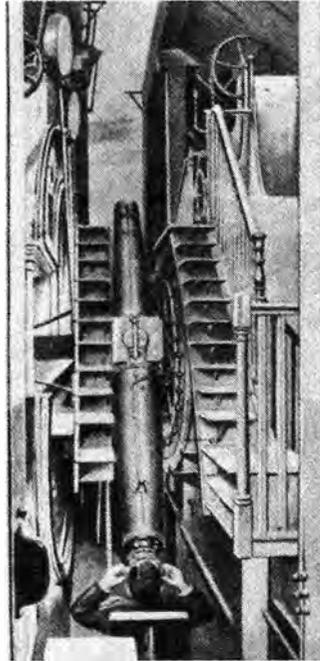


Figure 6
THE TRANSIT CIRCLE AT THE ROYAL OBSERVATORY IN GREENWICH, ENGLAND

The meridian alignment of the Great Pyramid was found to be more precisely aligned to true North than the instrumentation of the Royal Observatory in Greenwich, built 5,000 years later.

Source: Peter Tompkins, *Secrets of the Great Pyramid* (New York: Harper Colophon Books, 1971)

Queen's Chamber, and to the King's Chamber. It was obvious that, once the truncated pyramid reached about the 20th course, which is the level at which the descending passage reached the outside of the growing pyramid, the architects required another way to maintain the orientation of the building in line with the Celestial North Pole. This is when the change of orientation required a reflecting pool, which was located precisely at the juncture of the descending and the ascending passages. At that moment, the builders had to plug the descending passage and fill the upper part of the plug with water so that it could reflect the Pole Star back into the new ascending southward passage. This represented an extremely important moment for the history of science.

The function of this reflecting pool does not merely represent an extraordinary achievement in architectural alignment by means of a reflected ray of the North Star, but implies an understanding of the properties of light and of liquids, at a very early period in time. In fact, the ancient Egyptians were able to discover and apply an early form of the principle of reflection; that is, the principle by which a ray of incidence and a ray of reflection form the same angle with the horizontal plane (Figure 4).

At the level of the 25th course, this passageway opens up into a 28-foot-high Grand Gallery, a feature which maintains an absolute accuracy of orientation with True North for another 25 courses. In other words, the first 50 courses of this giant pyramid had, so far, become a perfect instrument for astronomy, the greatest observatory window on the universe, during ancient times. For all intents and purposes, the Grand Gallery cannot be of any use but for astronomy, and there could never be any satisfactory explanation for its erection, outside of the purpose of astronomy. Modern Egyptologist Peter Tompkins, was forced to concede that the 19th Century British astronomer,

used as bench holders. On the next day, a new group of 15 to 25 daytime students would replace the night class and, with the roof taken off, they would be able to study the shadows of the Sun on the eastern and western walls at different times of the day.

Proctor further suggested that movable horizontal bars, with vertical bars attached to them and marked horizontally, could have been used as a pedagogical device to locate the transit of stars or to locate hourly shadows, at different positions, along the long grooves (6 inches wide and 3/4 inch deep) that appear along the entire length of both walls just above the third overlap. This might have been a way to put on record, with a simple color or numbered code system, the precise angular positions of all of the heavenly bodies traveling through the night sky, from day to day, year after year (Figure 7).

In his article on Proctor, Tompkins concluded:

Proctor adds that for a greater knowledge of the Sun's motion, the Grand Gallery slot could have been used to better effect than an obelisk or a sundial by noting the Sun's shadow cast by the edges of the upper opening against the walls, sides and floor of the long Gallery. To make observations of the Sun more exact, Proctor envisaged the use of screens: by placing an opaque screen at the upper end of the Gallery with a small aperture to receive the Sun's light upon a smooth, white surface at right angles to the Sun's direction, a much magnified image of the Sun would be formed on which any sun spot could hardly have failed to appear. The movements of the spots would have indicated the Sun's rotation on its axis.

The Moon's monthly path and all its changes could have been dealt with in the same effective way, as indeed the geocentric paths of the planets or their true orbits around the Sun: These could have been determined very accurately by combining the use of tubes or ring-carrying rods with the direction lines determined from the Gallery's sides, floor, etc.⁹

At the moment of equinox, each year, the students observed that the entire panoply of stars was returning to its original position, but with a slight delay, thus discovering that each year the vernal equinox itself was moving in the opposite direction. This caused astronomers to note the difference between the sidereal year and the solar year. A finer observation and accounting of this inverse clockwise motion of the entire visible universe, and of the Northern axis of the pyramid itself, permitted the measurement of the greatest angle ever recorded in ancient astronomy, the Angle of Precession, which corresponded to about 1 degree every 72 years, thus covering a full cycle of 360 degrees over a period of 25,920 years.

We can thus conclude, that once the astronomer-architect of the Great Pyramid had located the apparent pathway of the wandering Planets with respect to the Meridian instrument, it was well within the grasp of intelligent pyramid builders, to determine their irregular and retrogressive behavior employing only angular measurements. Only by using such angular proportionality were the Egyptian pyramid builders able to develop (as all People of the Sea before them probably had), a com-

plete understanding of the Solar Hypothesis, and to pass that knowledge along to the Greeks—most emphatically to Thales and Pythagoras.

6

'The Day of the Gods is The Year of the Mortals'

How did Imhotep determine the proportionality of the great solar year cycle in accordance with a millennium tradition? First of all, after studying the record of secular observations of the precession of the equinoxes, which were provided to him by his father Kanufer (a record that historian Herodotus later estimated to be no less than 40,000 years long), Imhotep projected a proportionality between man and the Celestial Sphere as a whole; that is, he established an incommensurable correlation between immortality and mortality. Herodotus reported: "During this time, they [the priests of Heliopolis in Egypt] said, there were four occasions when the Sun rose out of his wonted place: twice rising where he now sets, and twice setting where he now rises."¹⁰

That period of time of about 40,000 years can easily be calculated on the 12 partitions of a zodiac band. Moreover, thousands of years before Herodotus, the Indian Puranas beautifully expressed this same projection, by saying: "*The Day of the Gods is the Year of the Mortals.*"

It was that poetical expression which became the first scientific expression of the partitioning of the circle into 360 degrees! One degree of change on the circle of the ecliptic was made to correspond to 72 years of an average, healthy human life. Then, on account of the fact that this motion was not a real motion, but rather a resting motion of the earth's axis being reflected on the circular path of the celestial pole, at an angle of approximately 23.5 degrees, Imhotep saw in the precession of the equinoxes a measure of infinity, which Plato later called the *moving image of eternity*.

Thus, Imhotep constructed the fixed division of the circle based on a partitioning of 360 years, and applied it to precession; that is, $72 \times 360 = 25,920$. For that purpose, he established the following series of apportioning in which the lifetime of man was made proportional to the cycle of the great year of precession.

1	360
2	720
4	1,440
/8	/2,880
16	5,760
32	11,520
/64	/23,040
Total = 72 years	Total = 25,920 years

The forward slashes / represent, in ancient Egyptian notation, the two proportional values that must be added to one another in order to obtain the desired total. The values of $8 + 64 = 72$ are proportional to $2,880 + 23,040 = 25,920$. Thus, the multiplication of $72 \times 360 = 25,920$ becomes the metaphor of the proportionality of the two different mani-

folds, in which one lifetime of man 1/360 is made proportional to the great solar year, or the day of the gods, 72/25,920.

Look at the four shafts and the two rooms of the pyramid, not as the remnants of some mystical cult of the dead, as British pyramidists like to make believe (no body of a dead person has ever been found in any of the Egyptian pyramids), but as components of an ancient astronomical observatory, the great Star Clock of ancient time. Such observation components related to the yearly cycle of 12 months of 30 days each, plus 5 and 1/4 additional god-given days, corresponding with the birthdays of Osiris, Isis, Horus, Set, and Nephthys. Thus, the Egyptian calendar of $12 \times 30 + 5$ and $1/4 = 365.25$ days. This yearly calendar was regulated on the fixed and non-apparent motion of the axis of the universe as a whole, that is, with the return of *Alpha Draconis* to its original position, 25,920 years later.

The seasons of the living were established from the heliacal rising of Sothis (Sirius), thus marking the beginning of the New Year at the summer solstice each year, and dividing the year into three seasons of four months each ($3 \times 120 = 360$). Each year was partitioned into 12 months of 30 days each ($12 \times 30 = 360$). In other words, what these simple determinations of time indicated by the Egyptian Calendar was closure: They reflected the existence of knowledge, going back thousands of years, about an ordering principle of the universe which was not arbitrary, nor mystical, but which was defined by boundary conditions set by the spherical nesting of the five regular solids, which were held together in the simultaneity of eternity by a proportionality between the *orbits of the intelligence in the heavens* and the *orbits of our reason*.

That is the key to understanding Pythagorean spherics, and the necessity of deriving the five regular solids from this Egyptian solar calendar astronomy. Thus, the proportionality principle provided an answer to the question of the uneducated peasant, or the credulous believer, who wondered what kind of hooks were holding the heavens and prevented them from falling.

Lastly, think of the pyramid of Khufu as being the Great Clock of ancient astronomy. Nowadays, when people no longer have time for great ideas, a timepiece is reduced to having merely three pointers; the second, the minute, and the hour. That is the timepiece of the stock market in which, every second counts. Ironically, for real human beings, the longer waves of history are truly the most important, because they partake of simultaneity of temporal eternity. From that vantage point, consider that the timepiece of Khufu had five different markers: (1) The daily cycle of 24 hours; (2) the yearly Sothis (Sirius) cycle of 360 days (plus 5.25 god-given holy days); (3) the Sothis (Sirius) cycle of 1,440 years (plus 21 god-given years); (4) the period where "the Sun sets once where it now rises," 12,960 years; and (5) the period of the Great Solar Year of precession, 25,920 years.

In that time frame, the Great Clock of the Khufu pyramid was, and shall continue to be, in harmony with the simultaneity of eternity, because Imhotep and his associates had acquired knowledge of the Great Proportion as a higher hypothesis; that is, the proportion in which the year of the mortals is coherent with the day of the gods. This is how true

time, or simultaneity of eternity, became identified with the axis of the moving sphere of the heavens.

These were the numbers that the ancient Egyptians derived from astronomical observations to determine the proportionality of human life with the great solar year. Compare these ancient figures with those of the Greek, Hipparchus, during the 2nd Century B.C., and note the closeness of Imhotep's record with today's figures, calculated in degrees around the circle of the Ecliptic North Pole:

Estimates	Imhotep	Hipparchus	Today
1 Degree	72 years	78.26 years	71.6 years
30 Degrees	2,160 years	2,347.8 years	2,148 years
360 Degrees	25,920 years	28,173.6 years	25,776 years

I have to caution, however, that this simple Egyptian arithmetic construction has nothing to do with numerology. This is the simple higher hypothesis of proportionality exemplified, as we shall see, by the spherics of the five Platonic solids. There are no secret numbers written in the sky, or in the Pyramids, for that matter. These calendar numbers are merely shadows, indicating that solar astronomy is proportional with the human mind. As Nicholas of Cusa pointed out in *The Layman on Mind*:

Rather, they [Pythagoreans] were speaking symbolically and plausibly about the number that proceeds from the Divine Mind of which number, a mathematical number is an image. For just as our mind is to the infinite Eternal Mind, so number that proceeds from our mind is to number that proceeds from the Divine Mind.¹¹

These cycles are like the clock pointers reminding us that the cosmos is governed by an ordering principle which Plato called *hylozoic monism*, and which expresses itself in the triple self-reflexive harmonic ordering of both the cosmic design of the physical universe, and of the human mind created in the image of God. Thus, are connected the three primary orbs of the day, the year, and the motion of the universe as a whole.

7

The Spherical Means of The Five Platonic Solids

The spherical system that was used in the construction of the Khufu (Cheops) pyramid was the first approximation of what became known in modern astronomy as the horizontal system of coordinates. It is composed of the following three great circles:

(1) A Horizontal Great Circle was made concentric with the center of the pyramid, and intersected the celestial sphere with a very large radius pointing to true north at the intersection of a meridian circle.

(2) A Meridian Great Circle cutting the base of the pyramid and the horizon circle in half, from south to north and at right angles, intersecting the north star, *Alpha Draconis* at 26 degrees, 17 minutes, visible through the descending passage of the north face of the pyramid.

(3) A Zenith Great Circle cutting the pyramid and the horizon circle in half, from east to west, which was made to rotate downward to intersect Sothis (Sirius) star on the meridian circle at the elevation of 38 degrees from the center of the pyramid, through the observation shaft on the southern face of the Pyramid. (See Figure 8.)

This construction of three great circles can be made to intersect different azimuth circles (*almucantars*) describing different positions of all of the stars of the northern celestial hemisphere, including the ecliptic trajectory of the Sun on the equinox, during their daily motions, and determine the altitude and azimuth position of any star at any moment of the night. If one intersects those three great circles of hoops, as described initially, the respective circumferences will mutually divide each other into four equal parts, producing eight quadrants formed by eight regular spherical triangles held together by a total of twelve arcs, forming an octahedron.

If a similar construction is attempted with the use of four and six hoops, the results will be astonishing. Four hoops will generate the spherical Cuboctahedron (the edge mid-point truncation of both the Cube and the Octahedron, which will display eight regular spherical triangles and six spherical squares, a total of 14 figures, 12 intersections, and 24 circular arcs. All four circles divide each other into six equal parts. The Tetrahedron is also derived from this spherical combination.

This astronomical construction corresponds to the *nycthemeron* division of the 24-hour day of 12 hours of nighttime, and 12 hours of daytime.

When you construct a sphere with six great circles, you generate the spherical Icosidodecahedron (the edge mid-point truncation of the Icosahedron and of the Dodecahedron). This construction will display the partitioning of the sphere into 20 regular spherical triangles and 12 regular spherical pentagons. The total number of intersections is 30, and the number of spherical arc segments is 60. All 6 circles divide each other into 10 equal parts. (See Figure 9.)

These were the three primary spheres that Kepler referenced for the construction of the Pythagorean model of the Solar

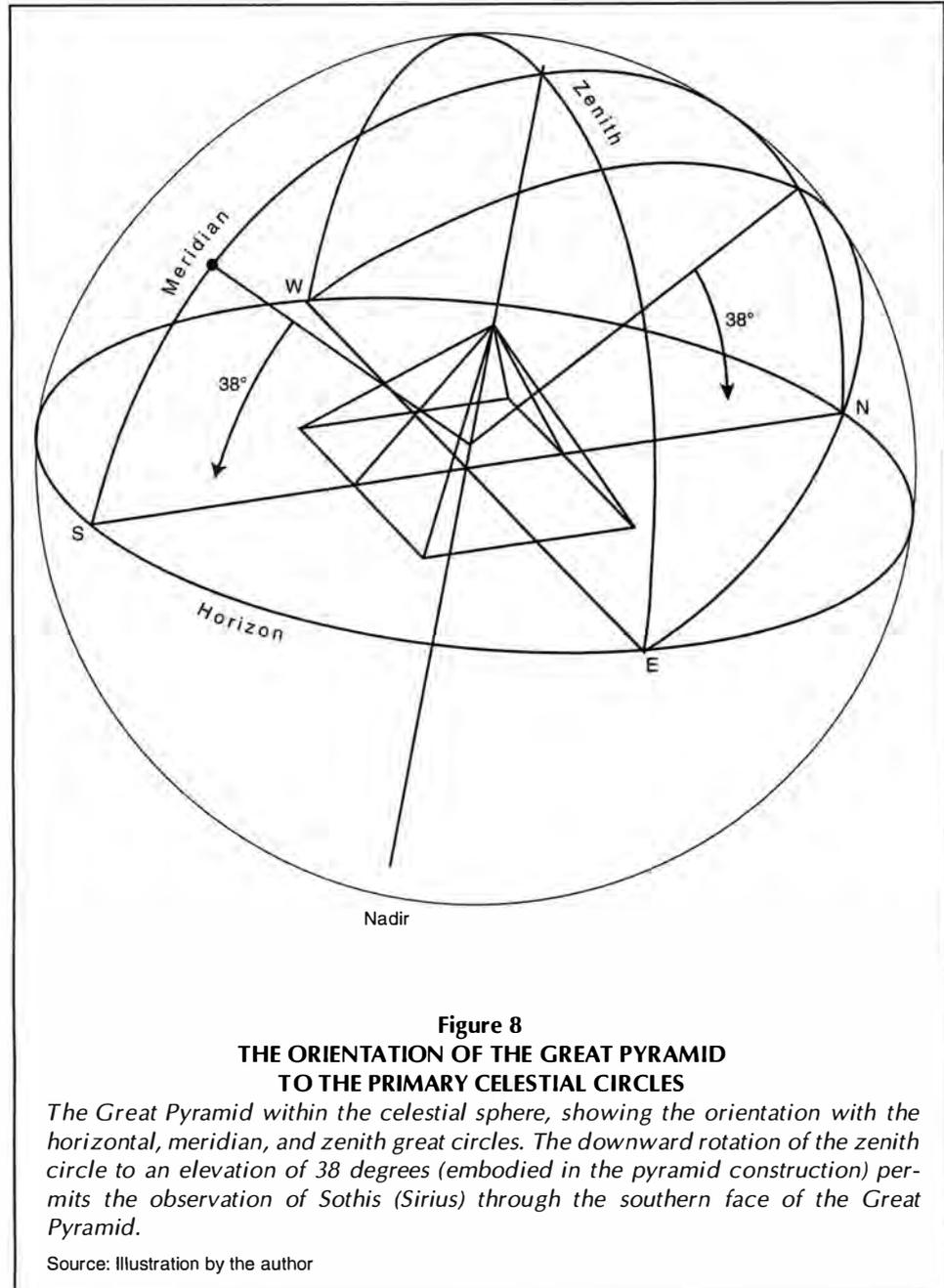


Figure 8
THE ORIENTATION OF THE GREAT PYRAMID
TO THE PRIMARY CELESTIAL CIRCLES

The Great Pyramid within the celestial sphere, showing the orientation with the horizontal, meridian, and zenith great circles. The downward rotation of the zenith circle to an elevation of 38 degrees (embodied in the pyramid construction) permits the observation of Sothis (Sirius) through the southern face of the Great Pyramid.

Source: Illustration by the author

System. However, Kepler introduced a crucial anomaly by mentioning a fourth sphere of 10 circles. Let us examine the Pythagorean spheres again, a little more closely.

8

The Kepler-Pythagorean Hypothesis

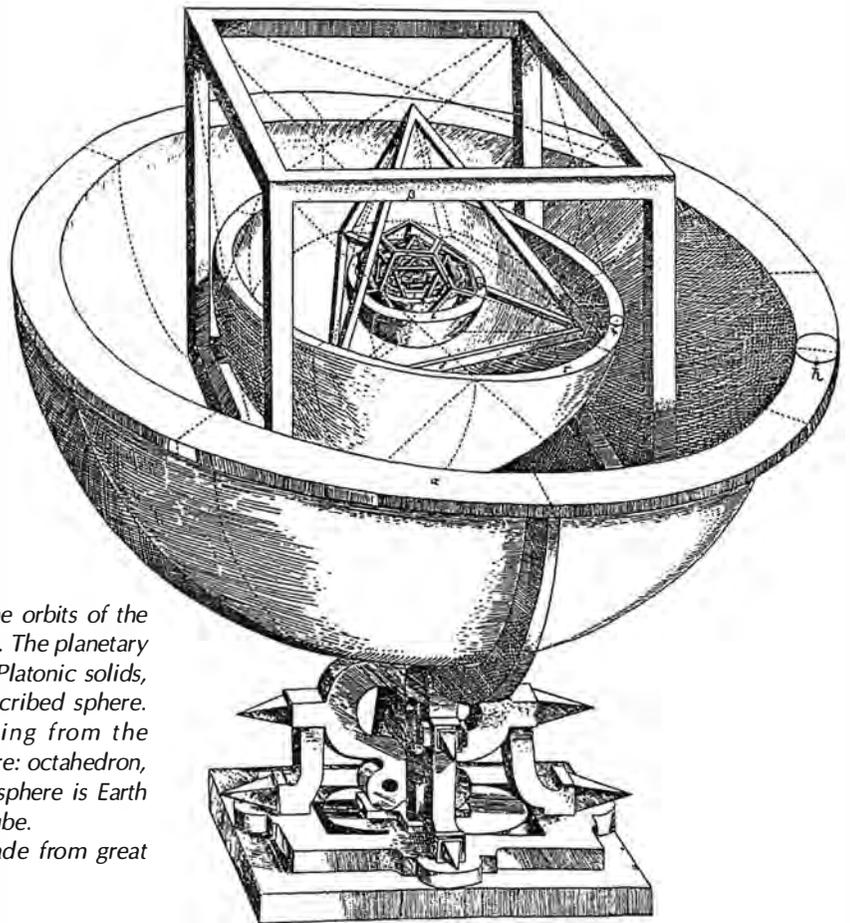
According to Kepler, Pythagoras had established the spheres of the heavens following the spherical arrangements from which were generated the five regular Platonic solids. It was from that initial Pythagorean spherics construction that Kepler wrote his book *Mysterium Cosmographicum*. He expressed his finding of the Pythagorean constructive geometry as follows:



Johannes Kepler (1571-1630), founder of modern astrophysics.

An engraving of Kepler's determination of the orbits of the planets, from his *Mysterium Cosmographicum*. The planetary radii are determined by a nesting of the five Platonic solids, each solid having an inscribed and circumscribed sphere. Kepler's ordering of the solids, beginning from the circumsphere defining the orbit of Mercury, are: octahedron, icosahedron, dodecahedron (of which the insphere is Earth and the circumsphere is Mars), tetrahedron, cube.

The model which Kepler describes as made from great circles, has been lost.



I alluded to the sphere of the planetary system, constructed of the planetary spheres, and the five regular Pythagorean solids, each distinguished from the others by their own colors, the orbits sky-blue, and the bands in which it was implied that the planets ran round, white; all transparent, so that the Sun could be seen suspended in the center. The sphere of Saturn was represented by six circles, which by their common intersections, three at a time, signified the position for the vertex of the cube, but intersected two at a time over the position of the center of a face of the cube. The outermost of the spheres of Jupiter was shown by three circles, its innermost by six circles, and the outermost of Mars again by six; but the innermost of Mars, just as were both those of the Earth, and the outermost of Venus, were each sketched out by ten circles, of which five met 12 times, every three 20 times, and each pair 30 times. The innermost sphere of Venus coincided with the outermost of Jupiter, that of Mercury with the innermost of Jupiter. It was a not unpleasing spectacle, of which the elements, though not an exact likeness, may be seen in the third engraved figure which follows.¹² (See illustration.)

For Pythagoras, the spherical composition of the five Platonic solids was the ultimate expression of the proportionality between the "orbits of our reason" and the "orbits of intelligence in the heavens." Thus, the only way to recast the set-

tings of the five regular Platonic solids from astronomy, is to proceed in light of what Kepler had investigated in his *Mysterium Cosmographicum* with respect to this original Pythagorean higher hypothesis of proportionality. Recall, here, that Kepler explicitly described another Pythagorean sphere made of 10 disks:

*...but the innermost of Mars, just as were both those of the Earth, and the outermost of Venus, were each sketched out by ten circles, of which five met 12 times, every three 20 times, and each pair 30 times.*¹³

This alone creates a formidable anomaly that did not escape Kepler.

On the one hand, this does not represent a problem in terms of astronomy. The relationships of 12, 30, and 60 refer explicitly to the determination of the zodiac of the celestial sphere spread out in 360 degrees, divided into 12 equal portions of 30 degrees each. Thus, the simple arithmetic $5 \times 12 = 60$, $3 \times 20 = 60$, and $2 \times 30 = 60$ is coherent with precession solar astronomy. These relationships also reflect the minute, the hour, the day, and the annual orbit, as well as the great year of precession. Furthermore, the relationship of 5 circles and 12 figures is an obvious expression of the dodecahedron, just as the 3 circles and 20 figures are an expression of the icosahedron.

But a sphere of 10 circles merely reproduces the dodecahe-

dron, which has already been generated by 6 circles. Moreover, the great circles of the 10-circle sphere are not equally divided. This is a very perplexing anomaly. Also, the four-circle Cuboctasphere (which is made up of great circles partitioned into equal parts), is inscribed into the 10-circle sphere, whose great circles are no longer partitioned into equal parts. Why would Pythagoras do that?¹⁴

Recall what LaRouche had pointed out in his paper "On the Subject of Metaphor," cited earlier:

It can be proven that there are no other partitions of the sphere resulting in the division of the great circles into equal parts. From the limiting case of six hoops, which permits the construction of twelve pentagonal faces, is demonstrated the primacy of the dodecahedron and relative uniqueness of the five Platonic solids. From the six-hooped figure containing dodecahedron and icosahedron, the cube, octahedron, and tetrahedron may be readily derived.

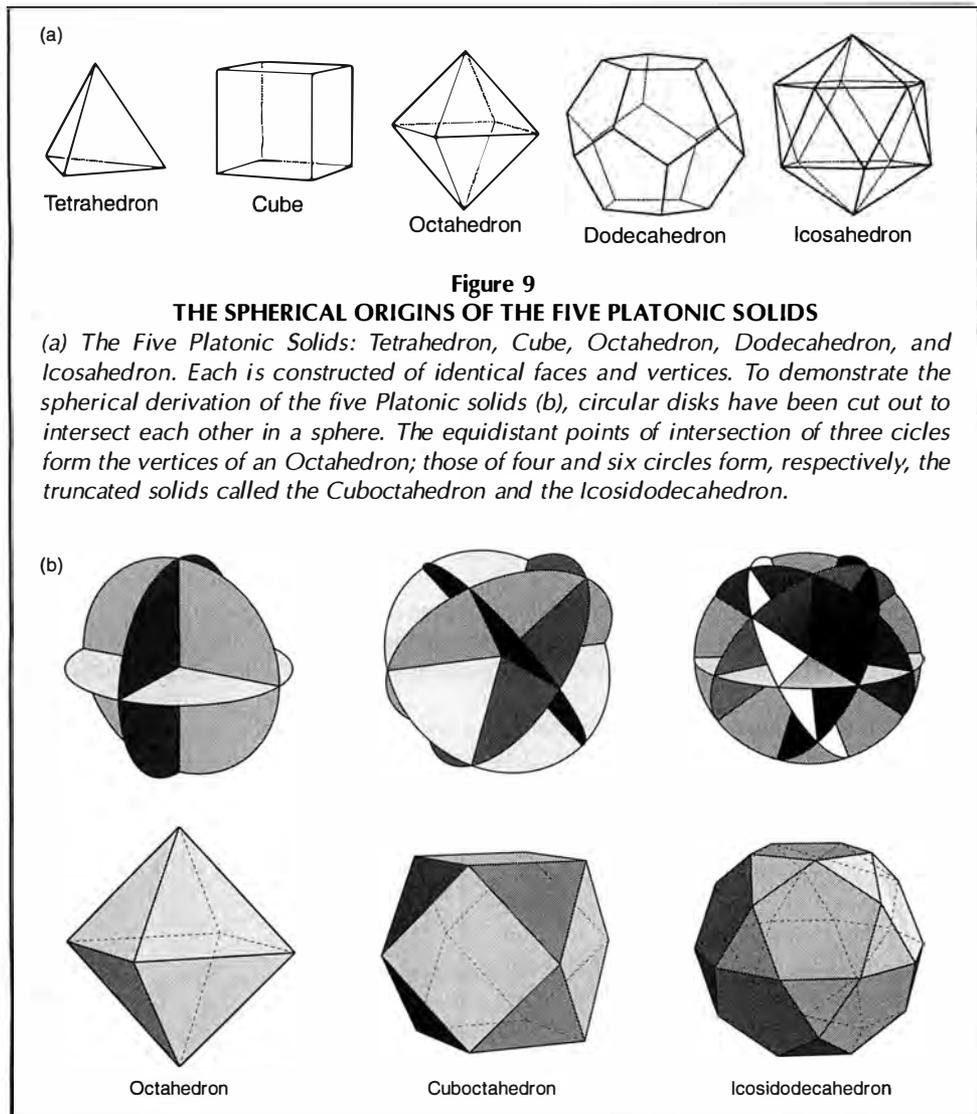


Figure 9
THE SPHERICAL ORIGINS OF THE FIVE PLATONIC SOLIDS

(a) *The Five Platonic Solids: Tetrahedron, Cube, Octahedron, Dodecahedron, and Icosahedron. Each is constructed of identical faces and vertices. To demonstrate the spherical derivation of the five Platonic solids (b), circular disks have been cut out to intersect each other in a sphere. The equidistant points of intersection of three circles form the vertices of an Octahedron; those of four and six circles form, respectively, the truncated solids called the Cuboctahedron and the Icosidodecahedron.*

Since it can be proven by construction that all of the Platonic solids can be derived from the single dodecahedron, the statement of LaRouche holds true, absolutely. However, why did Pythagoras introduce a new sphere of 10 circles?

9

The Golden Section as the Limit of Packing for the Five Platonic Solids within Positive Curvature

Restate the conclusive argument of LaRouche to the effect that 6 hoops is the limit of partitioning of the sphere into equal parts. No other sphere can be constructed on the principle of equal partitioning. That is absolutely the case, which will be proven herewith. The characteristics of all of the five regular solids are such that each has the same size face, formed with either equilateral triangles, squares, or pentagons, and each is provided with the same solid angles. Although the requirement for the existence of each and all of the five Platonic

solids, taken individually, is equality, this condition is not the primary feature of their generative principle. Equality may well be the condition for their existence, but it is not the condition for their being generated. Equality is merely an illusion of the linear manifold of sense perception. In fact, equality is the shadow of a higher principle of proportionality, which is its generative principle.

Let us restate this differently. The principle that generates the line cannot be found in the line, but in the surface. Similarly, the principle generating the surface cannot be found in the surface, but can only be derived from the solid. For the same reason, the principle for generating the solid cannot be found in the solid, and must be generated from the sphere. In this generative manner, the surface is to the line as the sphere is to the solid.

Thus, it is in that manner only that we must seek to discover the sphere that generates all of the five Platonic solids as their final cause which has been informing their equality from the beginning. As LaRouche has taught us, the whole is never the sum of its parts; the existence of each part is dependent on the whole, which is primary and exists outside of its parts. Just as the

whole is primary to its parts, lives outside of its parts, and cannot be generated from its parts, so divine proportionality is primary, lives outside of equality, and cannot be generated by equality.

That is the required proof demonstrating that the five Platonic solids cannot be constructed from a principle of equality found within each of the five solids. In fact, their "equality" is but a shadow of the inequality of the Divine Proportion. Thus, in living processes, as in non-living processes, Kepler insisted that equality in numbers or in solids, was "the result of geometric necessity, which follows after they have been constituted." Before their separate existence, however, the law of their mutual transformation expresses a higher power, which is derived from their divine proportionality as primary.

This divine proportionality produces, here, a special kind of ambiguity in which six-sidedness is mixed with ten-sidedness. Bear that in mind for a little while. That is the anomaly to be resolved. What does that mean? It means that during their pre-existing condition, or during their generative phase of existence, the Five Platonic Solids did not exist separately, and could only be thought of as existing in a form of a special ambiguous mixture; that is, in the form of *this is to that, as that is to this*, and being neither this or that, within the divine creative process of their formation, which also pertains to the nature of metaphor.

Consider, for example, that the Cuboctahedron is the mean proportional between the Cube and the Octahedron, just as the Icosidodecahedron is the mean proportional between the Icosahedron and the Dodecahedron. This proportional process of formation can even produce intermediary proportional forms or means, which are called "semi-regular solids," and which differ from Platonic solids by having a number of additional hexagonal or other polygonal faces. Moreover, their condition of existence within their spherical formation is also divine, in the sense that they are all proportional means of each other.

This is what it means to be social. When this is developed in a republican form of society, it produces such harmonic beauty that Leibniz called it the most excellent state of social existence in the universe, the best of all possible worlds. It is this condition of proportionality that Leibniz emphasized in his *Outline of a Memorandum: On the Establishment of a Society in Germany for the Promotion of the Arts and Sciences*, and applied to the government of a Constitutional Republic:

All beauty consists in harmony and proportion; the beauty of minds, or of creatures who possess reason, is a proportion between reason and power, which in this life is also the foundation of the justice, the order, and the merits and even the form of the Republic, that each may understand of what he is capable, and be capable of as much as he understands.¹⁵

All human beings are born equal. However, human beings do not develop equally. Each is given a unique talent, to be discovered and to be developed, not for one's own sake but for the *Advantage of the other*. That is the republican form of justice, as opposed to democratic equality. Without this principle of *agapē*, there is only the barbaric condition of cattle-like victims and predators under the universal fascism of an oligarchy.

Under the guidance of the same principle, Kepler discarded the so-called "counting numbers" as having no existence in and of themselves. Kepler insisted that there be a geometric necessity to "counting numbers." The underlying principles of the universe must therefore primarily apply to a geometric principle, from whose arrangements, numbers are to be considered as merely derived, as shadows cast on the dimly lit wall of Plato's cave. By relating the four elements (air, fire, water, earth), and the heavens to the five regular solids, Plato created a thought-object that he called the phase space of change.

This is how, according to Plato, God used the generative function of divine proportionality to create different things—crystals, plants, human beings—which express, each according to its own powers, and more or less remotely, their original divine proportional mixture. Plato attributed this function to a nurse of generation that he named *chora*, the divine phase space of change, which organized the physical universe. As Plato put it in his *Timaeus*:

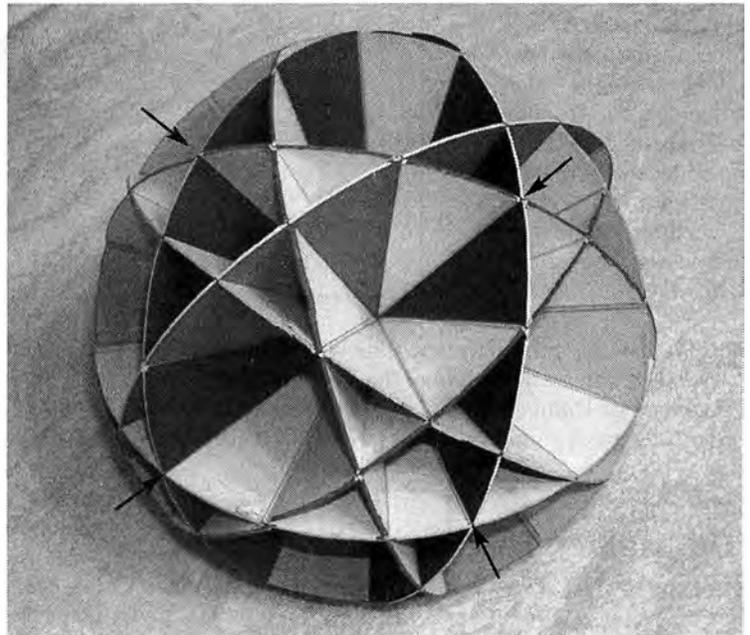


Figure 10
THE 10-CIRCLE SPHERE

The author's construction of a 10-circle sphere, showing one of the square faces (the four corners are marked by arrows). Three of the 12 pentagonal stars can be seen by examining the pentagons and their star-like triangular extensions.

This identifies the crucial singularity in the construction of the Great Pyramid.

Thus, have I concisely given the result of my thoughts, and my verdict is that being and space (*choran*), and generation, these three existed in their three ways before the heaven, and that the nurse of generation (phase space), moistened by water and inflamed by fire, and receiving the forms of earth and air, and experiencing all the affections which accompany these, presented a strange variety of appearances and being, full of powers, which were neither similar nor equally balanced, was never in any part in a state of equipoise, but swaying unevenly hither and thither, was shaken by them, and by its motion, again, shook them, and the elements when moved, were separated and carried continually, some one way, some another.¹⁶

The result of this creative mixture is expressed in the creation of exemplars, which are metaphorically expressed by the five regular solids as they come into formation from the multiple-connectedness of the spherical generation.

This brings us to the more profound question relative to the uniqueness of the Platonic solids, which is: "Why are there only five regular solids, and why is it not possible to have more than five?" When you consider the solids in themselves, in their individual existence, you cannot help but notice that the minimal solid angle is the three-sided Tetrahedron, and the maximum solid angle is the five-angular grouping of the Icosahedron. These are the limiting conditions of their existence, but not for their spherical generation. (We shall examine later that the axiomatic flaw of Leonhard Euler with respect to generating solids lay precisely in not having understood the following generative principle of the sphere.) Now, we are ready to solve the anomaly of the 10-circle sphere. (See Figure 10.)

My first thought had been to build the 10-circle sphere of Pythagoras by adding the Cuboctasphere of 4 circles with the Icosidodecasphere of 6 circles. After all, 4 plus 6 makes 10. However, it did not work. This perplexed me for a long time. Why is it that this 10-circle sphere did not integrate all of the Five Platonic Solids? The spherical Golden Section was present, and so was the Cuboctasphere, but the Icosidodecasphere was no longer there? Whoever has attempted to construct the 10-circle sphere of Pythagoras, will find that the results can only be perplexing and disappointing. You can actually attempt to visualize the difficulty by putting 10 rubber bands around the 10 hexagonal planes cutting a Dodecahedron. This

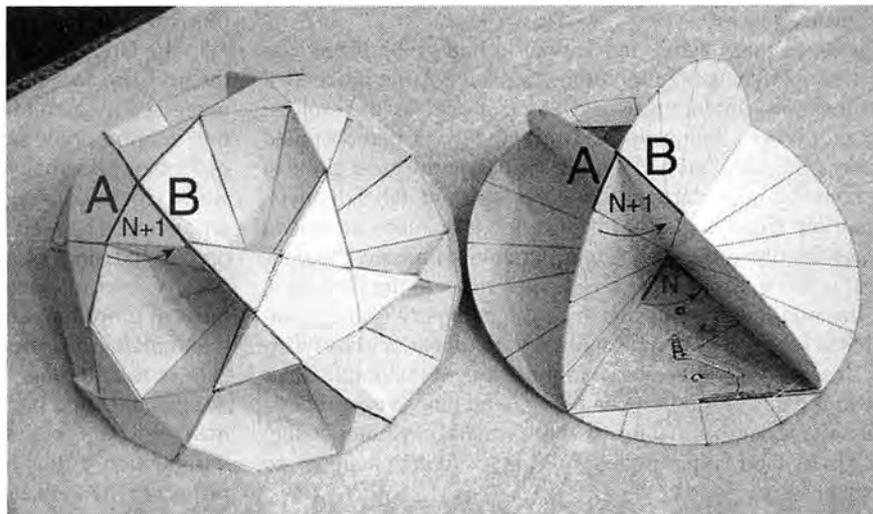


Figure 11

THE GREAT PYRAMID APEX ANGLE PROJECTED ON THE GREAT CIRCLE FROM THE HIGHER MANIFOLD OF THE 10-CIRCLE SPHERE

The shadow of the Great Pyramid's apex (marked N), established at 76 degrees, comes from the angle of projection onto the center of its hemispherical great circle by a starred pentagon located on the surface of the sphere (marked N + 1).

If you were to project a light source from outside the 10-circle sphere onto the curved edges of one of its spherical starred pentagons, the shadow angle formed by the side of the pentagon and its triangular extension, would project onto the center of that great circle, not a curved angle, but the apex angle of the Great Pyramid at 76 degrees.

seemingly useless effort, however, should not stop you from persisting in your obstinate quest.

10

The Multiply Connected Manifold Of the 10-Circle Sphere

In 1509, Luca Pacioli of Borgo San Sepulcro, published with Leonardo da Vinci, a book entitled *Divine Proportion*, in which they established an improved form of generation of the Golden Section, which provided the key to our problem. They had derived the Golden Section from the Pythagorean partitioning of the sphere, as opposed to deriving it from the plane. In other words, as they were looking for a generative form of *Divine Proportion*, they discovered that the Golden Section was primarily a reflection of living processes, as opposed to non-living processes. This higher integration of living processes caused an extraordinary reaction among the Gnostic-Cabalistic fraternities of Europe, at that time.

Pacioli and Leonardo, like Kepler after them, came under massive attack by the Venetian school of the Satanist Franciscan monk, Francesco Zorzi, whose cabalistic mysticism was aimed at destroying the Golden Renaissance and its influence in England, France, Italy, and Spain, primarily. This was the time when the pentagram, and its derived forms of linear Golden Section, began to be claimed by Gnostic secret societies as a satanic symbol, and the hexagram became the

symbol of the Jewish Cabala, and later the emblem of Martinism.

The point that Pacioli and Leonardo had emphasized was that the spherical generation of the Golden Section proceeded from the same intention as did living processes themselves; their proportions being derived principally, as demonstrated by Leonardo's depiction of man, inscribed in the great circle of a sphere by a mixture of six-sidedness and ten-sidedness. Leonardo's "Man Squaring the Circle" is a more advanced form of the paradox of the Great Pyramid. Similarly, the derivation of living processes from the geometry of the pentagon, and the non-living processes from the geometry of the hexagon, was rejected as being totally wrong, linear, and misleading. This was well illustrated by the treatment that Kepler later gave to the differences between living and non-living processes, in his admirable paper on the *Snowflake*. Kepler stated, "For just as God is the model and rule for living creatures, so the sphere is for solids."

A simple shadow-mapping of the Great Pyramid meridian triangle, projected on any circle of the 10-circle sphere (see Figure 11), shows how the pyramid slope angle of 52 degrees was chosen to determine the height of the Great Pyramid from such a sphere (Figure 12a). If the apex angle of the pyramid is 76 degrees, then it follows that the height of the pyramid must be to the perimeter of its base as a radius of the same height is to a circle.

This apex angle of 76 degrees, divided into two, then defines the 38-degree angle of the two observation shafts projected from the Queen's Chamber, both of which form right angles with the 52-degree slope of the Great Pyramid.

It should be further noted, that the six different 16-degree angle singularities of each circle represent the musical register-shifts of the six human voices, properly situated according to

their respective passing tones, within the natural 12-tone musical system. (See Figure 12b.)

In the Great Pyramid, the timing of the rising of stars above the horizon, and their precise passing at the meridian, were all expressed by a chiming system, orchestrated by observers sitting in appropriate positions on top of the truncated pyramid, as Proctor had imagined. Every hour marked on the clepsydra water clocks corresponded, very precisely, to the 12 tones of an ancient Egyptian musical chime system. In this way, the precise passing of stars was registered inside the Grand Gallery, and mapped onto a series of spheres. This was the musical proportionality that was later to become the basis for the Keplerian *Harmony of the Spheres*.

In musical terms, this meant that harmonic ordering could not be generated by the simple monochord, but by the higher manifold of register shifts of the six human voices. It was the introduction of this higher manifold of living processes, with respect to the Pythagorean spherics, that acted as a solution to the anomaly of the 10-circle sphere.

Thus, in summation, the angle of 60 degrees generates the Cube, the Octahedron, and the Tetrahedron; the spherical cross-circle angle of 36 degrees generates the Icosahedron and the Dodecahedron; and the angle of 76 degrees generates the Great Pyramid meridian triangle. Finally, the minimum angular determination of 16 degrees of the six-voice register shifts, mixed with the maximum of 16 great circles, pertains to the C-256 musical tuning, and also determines the integral angular composition of the *Icosa-dodeca-cubocta-khufu-sphere* of Pythagoras.

In geometrical terms, it is the spherical golden section mix of six-sidedness and ten-sidedness, which stands as the limit of packing of the Five Platonic Solids, within this single 16-circle integral sphere of positive curvature, and which also provides

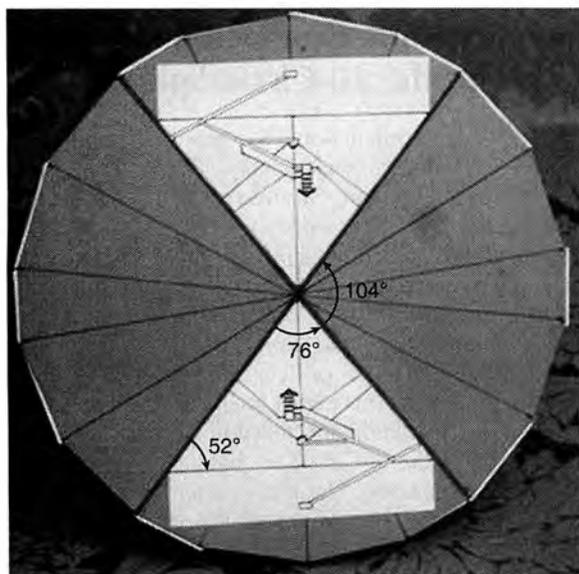


Figure 12(a)
GREAT PYRAMID TRIANGLE WITHIN THE ANGLES
OF THE 10-CIRCLE SPHERE

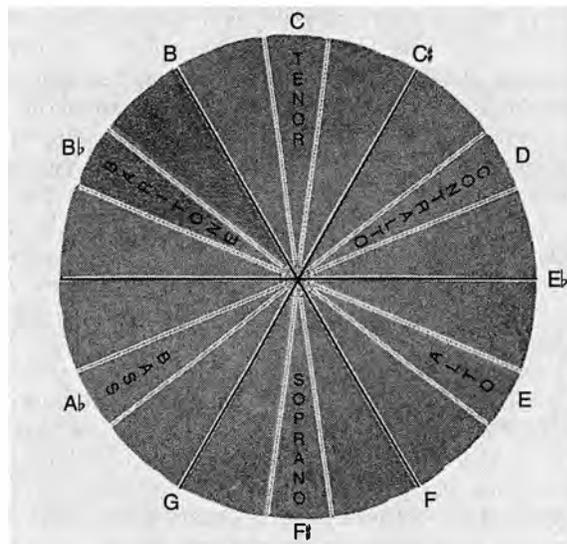


Figure 12(b)
THE REGISTER-SHIFTS OF THE SIX HUMAN VOICES
AT C-256 WITHIN THE ANGLES OF THE
10-CIRCLE SPHERE

the measure for the Egyptian Great Pyramid calendar. A higher geometric construction was therefore required by the proportionality of 10 circles partitioning each other into 6 unequal parts, added to 6 circles partitioning each other into 10 equal parts. Thus, a single sphere of 16 great circles, entirely formed with Golden Sections, generates the five regular Platonic solids and creates the Great Pyramid Paradox from the higher power of the complex domain (Figure 13.)¹⁷

As a result, if we apply the calculations initiated by Kepler in the *Mysterium Cosmographicum*, we obtain the following:

10-circle sphere: Every 5 circles meet 12 times = 60
 Every 3 circles meet 60 times = 180
 Total = 240

6-circle sphere: Every 5 circles meet 12 times = 60
 Every 3 circles meet 20 times = 60
 Total = 120

Grand Total = 360 circular intersections

This makes a grand total of 360 multiply connected spherical intersections, a total corresponding to Imhotep's partitioning of the Egyptian Celestial Sphere for his great precession proportionality calendar that he partitioned into 360 days of the gods, and into 360 degrees.

Thus, 50 centuries ago, the *science of the Advantage of the other* was built by ancient Egyptians, to establish a relationship between man and God that would become a standard for scientific thinking. This was the link between the Egyptian and the Greek civilizations. The great proportionality between the sphere of the heavens and the Great Pyramid of Khufu (Cheops), stands not merely as a test of time, but as a living testament to the genius of the wisemen of ancient Egypt and ancient Greece—to their mutual applications of the principle of proportionality, and to the immortal collabora-

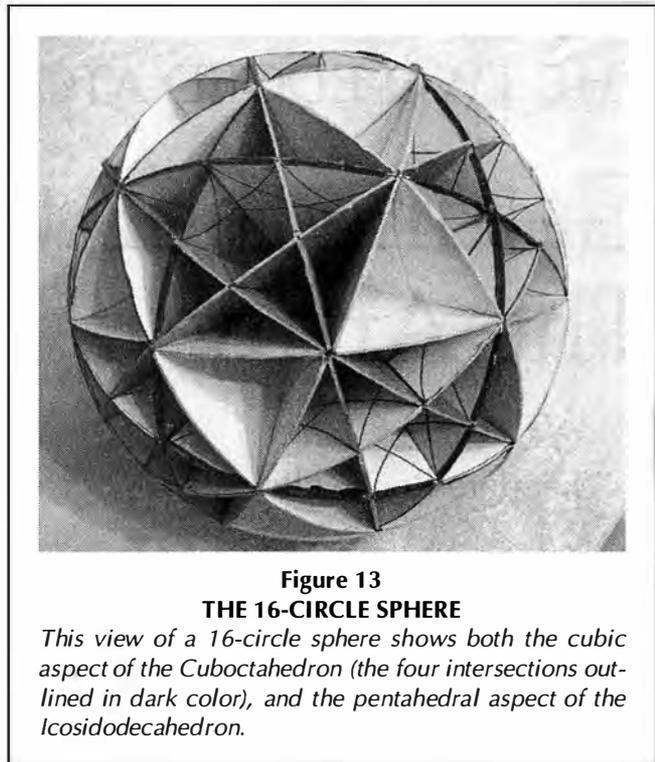


Figure 13

THE 16-CIRCLE SPHERE

This view of a 16-circle sphere shows both the cubic aspect of the Cuboctahedron (the four intersections outlined in dark color), and the pentahedral aspect of the Icosidodecahedron.

tion they have shared for the *Advantage of the other*, that is, for the benefit of all humanity, past, present, and future.

Pierre Beaudry is a geometer and political troublemaker. He has been associated with Lyndon LaRouche for the past 30 years.

Notes

1. Bal Gangadhar Tilak, *Gita-Rahasya* (Bombay: Vaibhav Press, 1935) Vol. 1, p. 536.
2. As documented in EIR's Special Report (Dec. 2000), "Who Is Sparking a Religious War in the Middle East?," this same Zorzi plan is the source of the current drive by the British *Quatuor Coronati* freemasons to fuel religious war in the Middle East, under the pretext of restoring the Temple of Solomon on the Temple Mount in Jerusalem. Current Israeli Prime Minister Ariel Sharon and U.S. Vice President Dick Cheney serve as accomplices in this satanic, synarchist effort. This is the same Straussian Beast-Man of the Synarchy International, which controls both U.S. Vice-President Dick Cheney and the British Fabian Society, and has been spreading its fascist outlook around the world, sometimes under the guise of Socialism, sometimes under the guise of an Integrist fascism, such as was spewed out at the time of the French Revolution by Joseph de Maistre and his pseudo-Catholic secret society called Martinism.
3. Gay Robins and Charles Shute, *The Rhind Mathematical Papyrus* (British Museum Publications, 1987).
4. Gay Robins and Charles Shute, *op. cit.*
5. Lyndon H. LaRouche, Jr., (transcript): "LaRouche to West Coast Cadre School: Only Man Can Discover Universal Principles," *New Federalist*, Vol. XVII, No. 6, Feb. 9, 2004, p. 5.
6. Zbynek Zaba, as quoted in Peter Tompkins, *Secrets of the Great Pyramid* (New York: Harper Colophon Books, 1971).
7. Peter Tompkins, *Secrets of the Great Pyramid* (New York: Harper Colophon Books, 1971), p. 152.
8. Reference is to: Richard Anthony Proctor, *The Great Pyramid, Observatory, Tomb, and Temple* (London: Chatto & Windus, 1883).
9. Peter Tompkins, *op. cit.*, pp. 155-156.
10. Herodotus, *The History*, David Green, translator (Chicago: University of

- Chicago Press, 1987), 2.124, p.193.
11. Nicholas of Cusa, *The Layman: About Mind* (New York: Abaris Books, 1979), p. 57.
12. Johannes Kepler, *Mysterium Cosmographicum, The Secret of the Universe* (New York: Abaris Books, 1981), p. 61.
13. Johannes Kepler, *op. cit.*
14. Since I wrote this, Larry Hecht pointed out to me that there are two 10-circle spheres. In the one Kepler describes, the great circles intersect two-at-a-time over 30 vertices, three-at-a-time over 20 vertices, and five-at-a-time over 12 vertices. In the other 10-circle sphere, of which I built a model, there are 90 two-fold intersections, and the surface is partitioned into pentagonal stars (pentagons and isosceles triangles) and hexagons. In both cases, however, the same paradox arises: The great circles forming the figure are not divided into equal parts.
15. Gottfried Wilhelm Leibniz, *Outline of a Memorandum: On the Establishment of a Society In Germany for the Promotion of The Arts and Sciences (1671)*, in Nancy Spannaus and Christopher White (eds.), *The Political Economy of the American Revolution*, (Washington D.C.: Executive Intelligence Review, 1996), p. 215.
16. Platon, *Le Timee*, in *Oevres Completes, Society d'Edition* (Paris: Les Belles Lettres, 1970), p. 52.d. Rendered into English by the author.
17. Pythagoras added two more spheres to this unique Celestial Sphere: a sphere of 4 circles partitioning each other into 6 equal parts, and a sphere of 3 circles partitioning each other into 4 equal parts. Thus, the complete system of planetary spheres of Pythagoras had no less than a total of 4 spheres and 23 great circles. We will develop, at another time, the significance of the Pythagorean sphere of 16 great circles with respect to the musical tuning at C-256. Furthermore, we also leave for another occasion the study of how the limiting Golden Section of spherical close packing is necessarily bounded by the constraint of the catenary and its characteristic negative curvature.

THE TWO-EDGED ATOMIC SWORD

Getting the Atom Away from The Army

by Theodore Rockwell

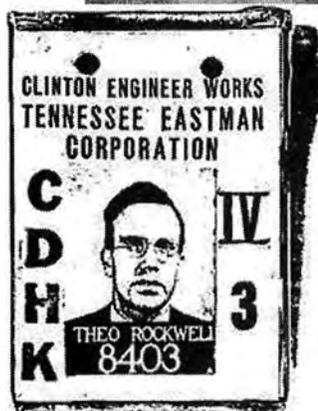
The anti-nuclear movement is generally viewed as coming from the political left, and thus nuclear power advocates are often assumed to be protecting the military-industrial status quo. This strikes me as bitterly ironic as I recall the massive grass-roots effort we nuclear scientists and engineers mounted 50 years ago to wrest control of the atom from the Army and "give it to The People." It's a story that would warm the heart of Jane Fonda.

In 1945, when the reality of the war's end finally sank in and the celebrations died down, we were left with a feeling of optimism and confidence. I was in Germany in 1989 when the Berlin Wall was coming down. The great Brandenburg Gate was being opened, and the pulse of the people there was much the same as I experienced in Oak Ridge in August 1945. In both instances there was a feeling that the forces of oppression had been overcome, the People had triumphed, and we were about to enter a new era where common sense, good will, and the voice of the individual citizen would prevail. We had finally learned to overcome war and tyranny, and we were going to see that they never again established a foothold.

At Oak Ridge, we felt we couldn't count on the characters who had been running the world up to now, and we decided we were going to have to do something about it ourselves. Why not? Hadn't we ended the war in a matter of days? Hadn't we harnessed the mightiest force in the universe? We were



DOE



As part of the extraordinary security at Oak Ridge, military guards routinely searched cars at the entrance to the residential area. Inset is the author's identification badge. The letters indicate what fenced-in work areas he could enter, the Roman numeral IV refers to the level of classification, and the Arabic numeral 3 shows his work phase.

ready for the next chore. With the brash arrogance of youth, we gave little thought or credit to the people who had envisioned and managed the mighty effort that created the Bomb; we saw only the technical efforts of the working level scientists and engineers.

To us, the rest was merely office work.

The papers and the radio were full of talk about the implications of the fissioned atom for the future, how important it was to protect "the secret," to develop a defense . . . and we knew they were talking nonsense. There was no secret a spy could steal that would enable a foreign power to build an A-bomb. We knew that any industrialized nation willing to put the effort and the resources into it could learn to build a Bomb, no matter how hard we tried to protect "the secret." The most

How a youth movement of scientists in 1945 fought the Establishment to win civilian control of nuclear power, as told by an eager participant.

important secret had been revealed at Hiroshima: It could be done. The *Smyth Report* described how. There was little else to protect.

As for defenses, we were concerned that while the United States developed more and more sophisticated anti-missile devices, a determined enemy could smuggle in bombs in moving vans or even small delivery trucks. If we continued to build bombs, we would only provide a greater incentive for another nation to attack us before we got more. The only answer, we were convinced, was to get the Bomb and atomic energy research and development away from the Army, and give it to The People—conceive some civilian agency working out in the open, where it could be monitored and controlled by an international agency that had the confidence of all the people on the planet. What a wonderful world we envisioned! We summed it all up in the slogan: “NO SECRET. NO DEFENSE. THEREFORE: INTERNATIONAL CONTROL.”

The Quixotic Lobbyists

At every site associated with the Manhattan Project, and then with other interested parties outside the project, scientists and engineers spontaneously got together and talked earnestly about what they could do to steer national and international events in the right direction. They formed groups, the most active and effective of which were at Chicago (where the very first nuclear chain reaction was demonstrated) and, to a lesser extent, Los Alamos, New Mexico (where the bomb design and fabrication were carried out). Even in those days of limited communication, this rapidly became a nationwide phenomenon. Although my part in the unfolding events was minor, I was keenly involved and was in a good position to see what was going on and who the key players were.

Very late one night in my dormitory room [at Oak Ridge], a few weeks after the war's end, a few of us were going over, for

the umpteenth time, how we, in our naiveté and isolation could influence this global situation. In addition to me, there were two physicists, one chemist, a chemical engineer, and a student from Princeton's famed School of Public and International Affairs. Average age 23, all were employees of the electro-magnetic separation plant at Y-12.

“This United Nations Organization isn't even officially in business yet, and people are already trying to kill it,” said Dave Wehmeyer, 22-year old physicist from Detroit. “I think we'd better support it, or we may never get another international organization.” “Wavy Davey” had started work a few weeks before I did, so he was my first boss at the plant. “From what I've read, it's got some serious weaknesses,” said Jack Balderston, 23-year old chemical engineer. “It may not be able to do the job.”

“Then I suggest we send for a copy of the UNO Charter and find out what's wrong with it,” said Dieter Gruen, chemist, in his faintly European accent. (Foreign accents were not unusual in Oak Ridge; many of the leading scientists were fugitives from Hitler's Europe. A Congressman once complained, “Aren't there any scientists with American names?”)

Bill McLean, 23-year old chemist, burst in impatiently: “Aw, let's just write to the key guys in this thing—say the President's Interim Committee, Vannevar Bush, ‘Satchel-ass’ Groves, and the rest of them—tell 'em what we want to do, and ask 'em how to go about it. The straightforward approach. That'll confuse 'em.”

Of course, at that point we weren't yet clear ourselves on what we wanted to do. We did get a copy of the draft United Nations Charter, and after many hours of heated debate, we developed a list of amendments we felt were needed. We sent these off to the Interim Committee and a few others and received various non-committal responses.

Some weeks later, Dr. Harry Pearlman, a brilliant young

Ted Rockwell and *The Dawn of the Atomic Age*

“Getting the Atom Away from the Army” is a slightly abridged chapter from nuclear engineer Ted Rockwell's engaging book, *Creating the New World: Stories and Images from the Dawn of the Atomic Age*.

Rockwell started work on what later became known as the Manhattan Project in 1943, when he was a young graduate student in chemical engineering. At the time he was interviewed for the job, he could only guess at what the work entailed, because the interviewer couldn't tell him—for security reasons!

Rockwell gives a lively first-hand account of what it was like for a young engineer in the early days of the Manhattan Project, the civilianizing of the nuclear program, designing the first nuclear plants, working with Admiral Rickover on the first nuclear submarines, and the lessons learned along the way. With a sense of humor and flair for story-telling, Rockwell also covers the basics of radiation, nuclear safety, regulatory procedures, the hoax of the linear-no-threshold model, environmentalism, and many other technical

topics. His images and jokes enable even a self-defined technically-challenged person to understand the science and engineering of the atomic age.

Dr. Rockwell has worked in nuclear energy for 60 years, on the Manhattan Project at Oak Ridge, Tenn.; as Technical Director of Admiral Hyman Rickover's Nuclear Navy Program; as a founding officer of the engineering firm MPR Associates; and a founding officer of Radiation, Science, and Health, an international organization of scientists and policy experts. He has Distinguished Service Medals from both the Navy and the Atomic Energy Commission, and is a member of the National Academy of Engineering. He is also the author of *The Rickover Effect*.

Creating the New World (373 pages)—with a foreword by Dr. Glenn Seaborg, discoverer of plutonium—is available from book stores at \$22.50 (paperback) and \$28.95 (hardcover), or from the publisher, AuthorHouse (Bloomington, Indiana).

—Marjorie Mazel Hecht

MIT-trained chemical engineer who had joined the group, asked, "How do we get this from a bull-session to some sort of political action?" We agreed that we had to get more people into it, to somehow develop a grassroots movement. But then Pearlman raised a critical question: "Do we state our ideas and then sign up those who agree with us, or do we pull in everyone who claims to be interested in peace, and see what ideas come out?"

That really started a donnybrook. One side argued, "We've battled this thing out, several hours a day for nearly a month, and we all agree that world government and international civilian control of atomic energy are the only rational answers. I can't see abandoning that carefully arrived-at conclusion to the first rabble-rousing nationalist we sign up, nor can I see spending a month convincing each new member of the wisdom of this conclusion. We need to speak with one clear voice." The other side responded, "Who are we to tell a group of hundreds—maybe thousands—what to think? Are we the only thinkers in Y-12? I say sign 'em up and see what comes out. That's the only way everyone will be behind this."

The question was settled in an unexpected and exciting way. It turned out that most of the technical people in the plant had already been thinking and talking together about these things. They had individually embraced as foregone conclusions the ideas we considered too radical for ready acceptance. When our statement of intent was presented at the first mass meeting, it was quickly passed unanimously. A line of thought held by less than a quarter of the American population at large was the spontaneous unanimous opinion of these atomic scientists and engineers!

Meanwhile, at X-10

Dr. Joseph H. Rush, who had been a physics professor at Denison University in Ohio and was very active in the postwar action, recalls how this spontaneous mobilization process started at X-10, where he worked. Clinton Laboratories, as it was then called, owned the facility doing pilot plant and development work in support of the production and separation of plutonium, the alternative approach to atomic fission. "We were all annoyed at the announcement after Hiroshima that there would be no holiday in the event of an armistice. We were told to continue regular wartime work hours until VJ Day, the formal surrender ceremonies. But by that time, nobody was interested in celebrating."

In the July 2, 1960 *Saturday Review*, Joe Rush recalled that day as follows:

On the day of the armistice, nearly everyone in Clinton Laboratories came to the plant as ordered. In the



The author and fellow youthful members of the Y-12 Process Improvement Team at play. Rockwell is in the back row, fourth from left and his future wife, then Mary Compton, is seated at the piano.

Physics Division, we drifted into the library and began to talk. Little conversational nuclei took shape, men sitting on chairs or tables or just standing. The driving purpose that had ordered our energies was gone, and I think everyone felt to some extent a sense of disorientation, of slackness, of loss of direction. The evolution of that day's discussion was remarkable. Certainly everyone had given some thought to the long-range consequences of the bomb and the problems it would raise after the war. . . . Yet on this day of armistice we did not talk immediately of these larger issues. We griped about the denial of a holiday, and the poor food in the plant cafeteria, and the inadequate bus service. As these common irritations were aired, the little knots of conversation melted and flowed into a more general participation, and the discussion began to find direction. It was as if we had to recapitulate consciously the frustrations and vexations that had been denied outlet, to bring ourselves up to date emotionally, before we could look into the uncertain future.

Even then, our first concerns were for our own professional prospects, and for the future of Clinton Laboratories and other atomic enterprises. . . . Especially we wondered what role the military would play in postwar atomic developments. We knew as did few others that the bomb represented not merely a weapon but a radical new technology, and we felt strongly that atomic energy and the problems it would create needed to be dealt with through open, democratic processes. Near the end of that holiday in the physics library, we found ourselves confronting gingerly and

with only rudimentary awareness the key questions that were to engage us so intensely in the times ahead. People would need to be informed, educated to the potentialities of this new frontier. They would have to be warned of its terrible threat, assured of its hidden promise.

Trying to Convey the Message

This unanimity of feeling among ourselves, and a great suspicion on the part of most of the public that yielding to international control was somehow "giving in to the Russians," made for a lot of letters home and letters to editors. As an example of this dialogue, I quote from a letter I wrote to my father on September 30, 1945:

Everyone will soon be arguing about sharing or not sharing the "secret" of atomic energy and I thought you might be interested in hearing my two cents' worth. In the first place, there is no secret that we can hide or share, any more than there is a secret of how to make Fords which no country ever duplicated. It is really not possible to keep the secret. If we attempt to do so, it will mean stifling information here and there, greatly slowing down development on the biggest field since fire was discovered. . . . I don't see how there could ever be a defense against the bomb. What I mean by that is that the bomb can be smuggled into any city by agents, and the best plane detectors in the world would be useless. We all feel here that the only course is completely unrestricted publication; even if some countries don't play fair, we still come out ahead. . . .

As the months passed, the tone grew more emotional. I wrote home on July 1, 1946:

If half the effort that is being put into plans to make the next war last days instead of hours were put into eliminating it altogether, it could be done. World government carries no implications of bowing down to Russia or anybody else; it merely means that you are tired of being a sucker for treaties and are determined to set up a government with enforceable laws. Is that idealistic? Is it less realistic to say that we are not ready for world brotherly love, where a treaty means something, than it is to try to establish a two-fisted government with the purpose of maintaining law and order?

Does it make you happy to know that the Army is planning to disburse and bury cities and make more atom bombs, so that after our cities are wiped out we can wipe out everybody else's, and that dispersal will make the destruction of our cities take days instead of minutes? Thus we "win" the war. That is more realistic than preventing! Who wants to prevent

it? That's leftwing talk.

Pardon the soap-boxing, but I get pretty disgusted some-times with the way that people refuse to face the obvious.

The proposals we drew up were sufficiently detailed and sufficiently different that they led to a lot of reading, research, and discussion. They also led us to some nationally known speakers who could guide us in further town meeting discussions. We argued a lot and learned a lot, but the result of all this was mostly an increase in our own knowledge and sophistication in matters political. We did not produce any startling new political insights or proposals.

So we argued with the folks at home, and we argued with the people in Washington. I've been asked how the local Tennesseans felt about the issues. My answer is: I really don't know. One effect of compartmentalization and long workdays was that we didn't have much political or technical discussion with people outside the circle of our professional colleagues. The red-fearing chauvinism often attributed to the rural south may have contributed to the hostility that sometimes surfaced between Ridgers and Locals, but we tended to attribute it mostly to an insensitive elitism we often unthinkingly projected. Even today, when a cultural event such as a concert by a world-class musician or entertainer takes place in Oak Ridge, the Knoxville papers generally ignore it.

The Snowball Grows

This compartmentalization also made it difficult to reach beyond the Y-12 group to include more of the atomic community. We didn't even know people who worked at other sites. Even the adult education classes in physics, chemistry,



Mud—red muck—was everywhere at the Oak Ridge site, and presented a formidable obstacle to construction of the first roads and houses.

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math, and the like, were segregated by companies. The obvious way to reach others was through public announcements, but such announcements would normally be cleared through the Army's censorship and public relations people. It would be nice to get their blessing, but if they turned us down, we didn't want to stop there. Would we be better off to go around them?

This question, too, was answered simply and unexpectedly. In October, the *Knoxville News-Sentinel* carried a two-column story on page one, reporting the existence of a group calling itself the Association of Oak Ridge Scientists at Clinton Laboratories. This group had written a Statement of Intent that read as if it had been written by our group. The similarity was astonishing. This event taught us that one could publish such an article without getting Army clearance. Luckily, the Army Public Relations Officer, genial Lieutenant George O. "Gus" Robinson, Jr., took no retaliatory action, other than rubbing his balding head with the heel of his left hand and wrinkling his tired brow. We learned later that he was working on a book of his own about life in Oak Ridge.

The X-10 group was way ahead of us. They had already signed up 96 percent of the scientific personnel at their lab and had contacted important personages in Washington. Their conclusions about the crisis and their approach to doing something about it were so nearly identical to our own that we felt a great boost to our morale. The third largest Oak Ridge installation, the gaseous diffusion plant at the K-25 site, soon announced its own organization with similar purposes, the Atomic Engineers of Oak Ridge. This group actually got Colonel Parsons, the chief security officer, to address them about the Army's attitude toward such groups. This action went a long way to clearing away some of our fears and misgivings.

Two tasks now faced us, both of which were less fun than discoursing on world politics. First was the tedious chore of drawing up by-laws, appointing committees, electing officers, and all the other bureaucratic chores that technical people usually dodge. Second was the need to consolidate the various Oak Ridge groups, each of which was used to acting as if it was the spokesman for atomic scientists. The Y-12 group and the K-25 group merged rather easily to form ORES (Oak Ridge Engineers and Scientists). The X-10 group, the Association of Oak Ridge Scientists at Clinton Laboratories had dropped the laboratory name at the request of management and become AORS (Association of Oak Ridge Scientists). They had polled their group extensively and knew they had near-unanimity on the key issues. Understandably, they were concerned about joining our group, which was something of an unknown to them. It was already clear, if ironic, that the supposedly ivory-towered physicists were studying the particulars of specific legislative proposals, with the intent of influencing them in detail, while the pragmatic engineers tended toward educating



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An Oak Ridge billboard reminds workers of their mission.

themselves on various long-range proposals for international control, and even world government.

By November 1945, only three months after Hiroshima, ORES had 600 members, the X-10 group had 170, Los Alamos 300, and the Chicago group 200. Scientists at other war projects had sprung up, bringing the total nationally to about 3,000.

The League of Frightened Men

The question of consolidation was again unexpectedly resolved, this time by a phone call from Washington. Dr. John A. Simpson, a 29-year old physicist from the Manhattan Project's Metallurgical Laboratory in Chicago, was calling to say that the Chicago group had been caught off-guard by the sudden introduction of the Army's May-Johnson bill in the Senate. This bill would establish a commission outside the Army to carry on all atomic work, but the Army would still exercise considerable control over all atomic research and development. The hearings were forced through in one day, less than a week after its introduction, and the House Military Affairs Committee was already meeting in executive session to consider it. It might soon be law.

We were stunned. None of us was familiar with the details of the bill and the rumors we had heard about it bothered us. A month before, the Chicago group had held a public meeting in which the brash young physicist Samuel Allison quipped that if the Army insisted on continuing its onerous security restrictions, its scientists might all go off and study butterflies. This resulted in a sharp rebuke from Colonel Nichols, head of the Army's Manhattan District, who said that such talk might interfere with the administration's legislative proposals. The scientists replied that no one had informed us about the specifics of these proposals, and we were, therefore, not in a position to be concerned about that.

Simpson went on to urge that it was now clear we all had to upgrade both the magnitude and the effectiveness of our effort. To that end, he and others were setting up a Federation of Atomic Scientists (FAS), with which all the other groups could be affiliated. He was a bachelor and figured that his meager

personal funds would support him for about a year, long enough to get the organization started. The FAS would be the eyes, ears, and voice in Washington of all the atomic scientists and engineers.

A tiny office on the top floor of the building at 1016 Vermont Avenue in Washington was quickly set up with a phone, some desks piled high with hand-outs, speeches, and news clips, a file cabinet, a mimeograph, and a secretary. Scientists from the other groups could drop in any time, be briefed as to status and urgently needed action, and would be sent off to proselytize policymakers and bring back notes of interviews for the office records. Score was kept by listing key players as "scared" or "unscared"; the purpose of the visits being to convert them from the second category to the first. These quixotic crusaders became known among more sophisticated Washington operatives as The Quiz Kids, The Friends of the Atom, The Reluctant Lobby, or The League of Frightened Men—sobriquets that did not hurt their image or their cause.

The Press found them a novelty. In a city where lobbyists were nearly always hired guns, speaking for whomever happened to be their client at the moment, these people were speaking for themselves. They were the genuine article, a primary source. Yet they weren't fighting for something for themselves; they were fighting to save the world. Beirne Lay of *Life* magazine described the operation as

a test-tube of unadulterated democracy.

The organization had no president or chairman, because nobody wanted to be czar. The members came to Washington, not to get something, but to give something—to give the most precious commodity in existence: knowledge.

Historian Alice Kimball Smith, dean emerita of Radcliffe, wrote in *A Peril and a Hope: The Scientists' Movement in America, 1945-47*:

Without salary, without a publicity director, without political know-how, without staff or office equipment, without Pullman reservations, and without arrogance, they had come, bringing knowledge, sincerity, patience, humility, and a desire to perform a public service.

Visitors marveled at how junior scientists would argue as equals with Nobel laureates on any question that came up for discussion. This was the way of science, but it was rare in politics. Later, when the organization had moved to a fifth-floor walk-up at 1621 K Street, between two Chinese restaurants, Mike Amrine, a savvy reporter came aboard to help with public relations. He wrote: "As they told the world what the bomb could do to civilization, I saw what the bomb had done to these professors." But when one of the members in their endless discussions suggested that the world would be better off if scientists were in charge, Amrine pounded his fist on the table and yelled, "I'd rather be bombed!"

The various atomic groups made use of the Washington office, but the matter didn't stop there. The bold agenda of the atomic scientists attracted other socially active groups outside

the atomic fraternity, including women's groups, labor and religious organizations, and others of various stripe. There were 49 such groups with a constituency of over 10 million members, but the FAS was extremely leery of affiliation of any kind. The FAS leadership felt their effectiveness depended on a perception of political naiveté and purity that could be tarnished by association with more experienced political groups with particular agendas and historical baggage of their own. To maintain that position and avoid any appearance of being a tool for any other group or agenda, the FAS turned down a potentially lucrative offer from Metro-Goldwyn-Mayer (MGM) Studio to use the FAS name as technical advisor for a motion picture account of their work. They returned a \$5,000 advance check from MGM. That was serious money in those days (more than a year's salary for most of us), and the decision took considerable moral courage. Similarly, the organization rejected another offer from a radio producer to accept a retainer to supply information on an exclusive basis.

The FAS handled relationships with other interested parties adroitly by setting up a National Committee on Atomic Information (NCAI), which it controlled. The NCAI put out newsletters and information kits on atomic energy but took no stands on political issues. By keeping a loose connection with the other groups, FAS was able to some extent to have it both ways. To accommodate the interests of other scientists, with whom the members felt more at ease on political matters, FAS agreed to establishment of a Federation of American Scientists. Under the able leadership of William A. Higinbotham of the Association of Los Alamos Scientists; Melba Phillips, Secretary; Joseph H. Rush, Treasurer; and with reporter Mike Amrine as Publications Editor, this "other FAS" worked closely with, and finally supplanted the Federation of Atomic Scientists.

These were not your typical office clerks. Willy Higinbotham was a Ph.D. physicist, widely admired for his innovative designs of nuclear instrumentation and the inventor of "Pong," the first video game (in 1958!). Dr. Melba Phillips had been a Fellow at the famed Institute for Advanced Study at Princeton, and later was fired from Brooklyn College and Columbia Radiation Laboratory for refusing to name names for the McCarran Committee. Joe Rush had a Ph.D. in physics from Duke, and spent most of the rest of his life at the National Center for Atmospheric Research, from which he was called to assist the Condon Committee with preparation of the Blue Book report on Unidentified Flying Objects. His primary scholarly interest in those years was in "exploring the boundaries of human capability," the subtitle of his monumental *Foundations of Parapsychology*. Mike Amrine was a freelance investigative reporter who was one of the first to publicize the Navy's unwillingness to promote Captain Rickover, publicity that led to Rickover's ending his 63-year naval career 30 years later as a four-star admiral.

A book—or many books—could be written about the political actions of the next few months. Led by the Chicago group, an intensive educational program was set up to inform important decision-makers about the facts of nuclear energy. (We could start with how to pronounce it properly!) Trips were arranged to Oak Ridge and Los Alamos, and informal technical seminars were hastily put together. An ambitious freshman

senator from Connecticut, Brien McMahon, seemed most receptive, and the young scientists enjoyed playing teacher for such illustrious students. We were awed by the politicians, but Jack Kyger commented to me that he was surprised how impressed, and even deferential, many of the Congressmen were with regard to *us*. It was a new experience for *all* of us.

Earlier Efforts

Even before the end of the war, although we in Oak Ridge were unaware of it, some of the top-level scientists on the project had already been lobbying on their own, and not always toward the same end. As early as January 1944, the eminent physicist Leo Szilard wrote to Vannevar Bush, the President's science advisor, urging that work on the bomb be expedited. He argued that unless full-sized atomic bombs were actually used in the war, the public would not understand the magnitude of their destructive power and would not be willing to pay the price of peace. Then on June 12, 1945, seven Chicago scientists led by Professor James Franck delivered a memo to Bush with quite a different message: that a demonstration detonation of the bomb should be given for U.N. officials at some remote, uninhabited location, prior to any military use. Shortly thereafter, a similar recommendation, signed by 64 scientists at the laboratory, was sent directly to President Truman. Truman gave the Franck proposal to a panel of four eminent scientists: Arthur H. Compton, Ernest Lawrence, J. Robert Oppenheimer, and Enrico Fermi. After anguished consideration, the four scientists unanimously concluded that direct military use, without warning, seemed to be the only feasible option. Navy Undersecretary Ralph A. Bard disagreed, arguing for further attempts to negotiate with the Japanese. But Secretary of War Stimson concurred with the panel, and

Truman accepted this recommendation.

Even among the Chicago group, the scientists were not all of like mind. A multiple-choice poll by Compton of 150 project scientists taken shortly before Hiroshima showed that nearly half favored "a military demonstration in Japan." (It is not clear whether the respondents would have considered Hiroshima, which was an Army headquarters site, a port of embarkation, and a convoy assembly point, as well as a manufacturing center, to be in this category.) About a quarter of the respondents preferred "an experimental demonstration," and 15 percent chose "use in whatever manner the military believed would end the war with the least loss of American lives." Eleven percent asked for a public demonstration but no military use, and 2 percent asked that the technology be kept "as secret as possible."

In our naiveté we didn't even consider the extensive time and planning required for any of these operations. Unbeknownst to us, the personnel and special equipment required for the A-bomb runs over Japan had already been selected more than a year before. The military had long been in training to carry and drop the large and clumsy weapon and to execute the special evasive maneuver developed to get the aircraft out of harm's way after the bomb was released.

We Post Our Theses

Trying to put our own views into words that were both clear and rational on the one hand, yet sufficiently passionate and persuasive to arouse others to action, was a new type of challenge for us. In August 1946, as spokesman for the Federation of American Scientists, I wrote a piece called "Credo of an American Engineer" for *This Week*, the national Sunday newspaper supplement. The article was accepted for later publication but never actually printed. In it I listed a number of brief statements, each followed by a paragraph or two of amplification, summarizing the principles that guided our political action groups. Excerpts from this credo follow:

1. I believe there can be no order without law, no law without government, and that this is as true on a world scale as it is for your city.

2. I believe that a treaty between nations is as uselessly idealistic without world government as a written agreement to stop crime in your city would be without city government. Law must reach the individual.

3. I believe a peace enforced by an alliance of two or three strong nations will last about as long as the "thousand year peace" of the Berlin-Rome-Tokyo Axis.

4. I believe disarmament and appeasement alone will prevent World War III about as well as it prevented World War II.

5. I believe nuclear energy is as fun-



National Archives

In a serious blunder, U.S. Army personnel destroyed five Japanese cyclotrons at research laboratories in November 1945, under orders to eliminate anything that could contribute to Japan's war-making potential.

damental as fire, and that it cannot be kept secret or controlled by the military.

6. I do not believe that the military is as capable of handling science as are scientists.

7. I believe that when we are "ready" for world government, we will no longer need it; this "unreadiness" is the surest sign of our crying need for it.

The question of whether we should push for world government, as argued above, or call merely for "international control" of the atom, was always a bone of contention. The engineers tended to believe that only world government would work, whereas the scientists tended to focus on less radical goals. The FAS encouraged the site groups to study and discuss various long-range plans for international control, but it steadfastly refused to comment publicly on any proposals for partial or complete world government such as Harold Stassen's, Ely Culbertson's or Clarence Streit's.

Inspection and Detection

A key factor in evaluating any mechanism for control was the question of inspection and verification: What steps could an inspection agency take to ensure that material was not being diverted clandestinely for military purposes? This question occurred to the Congressmen early in their deliberations, and scientists and engineers could help in addressing it. At the request of Congress, a number of detailed technical reports were prepared describing how an agency might carry out an inspection and auditing operation of ostensibly peaceful atomic facilities to detect illicit diversion. These reports were indeed helpful in clarifying what could and could not be accomplished in monitoring a non-proliferation agreement. Unfortunately, they were highly classified and thus, not available to the public or to anyone

else outside the small circle of people authorized to read such reports.

As late as 1965, I was asked to co-author a report that was carried out with access to top-secret documents but was finally published as a hard-cover unclassified book, *Arms Control Agreements: Designs for Verification and Organization* (D.W. Wainwright, et al., Johns Hopkins Press, 1968). We concluded that a modest number of trained technicians, sampling various process streams in the plant and using customized statistical procedures and accounting concepts of comparing numbers, which should have known relationships, could probably do an acceptable job of detecting any significant diversion of fissionable material. The large numbers of senior scientists called for in some of the other verification studies did not seem necessary to us. Our book never received much public attention, but I was asked to make a draft of the section on nuclear facilities available on short notice for a breakfast meeting between President Johnson and Soviet officials. I have no idea whether it had any impact, or whether it was even used, but it made me feel good at the time.

We Win One

The first significant victory for the scientists' lobby was getting the House hearings on the Army's May-Johnson bill reopened for a second day, but it was a victory short-lived. What we in the various scientist/engineer groups were after was, first, that atomic energy be seen as more than a weapon. Second, that the security measures that would impose severe penalties for vaguely defined offenses be loosened and clarified. Finally, no policies or actions should be implemented domestically that would impede efforts to ultimately internationalize control over atomic weaponry. We thought there was virtually unanimous agreement among us on those points, which had been stated in numerous proclamations. And we were convinced that the May-Johnson bill worked against these goals. We were about to learn one of our first political lessons.

Some of the top scientists of the project testified but, surprisingly, were little help. Leo Szilard's testimony was seen as rambling and unfocused. Herbert Anderson came across as hostile and dogmatic. Arthur Compton and J. Robert Oppenheimer testified that the May-Johnson bill, which we were fighting, was acceptable. Harold Urey was to testify last, but the hour was late and he could not be found. Chairman May remarked, "The War Department discovered the weapon. Why can they not keep the secret?" and closed the hearings.

Our optimism surged and ebbed as events both onstage and off alternatively brightened and then dimmed our hopes. In November 1945, U.S. Army engineers and ordnance men with cutting torches and demolition charges

Government groups and their allies who considered the idea of taking atomic research away from the Army to be "un-American," mounted a crusade against suspected "communists" in the atomic research program. One of the leading attackers was New Jersey Congressman J. Parnell Thomas, chairman of the House Un-American Activities Committee, who authored this unsupported charge against Oak Ridge scientists in June 1946.



raided research laboratories in Osaka, Kyoto, and Tokyo. They destroyed five cyclotrons and all experimental data obtained with those devices, under Army orders to eliminate anything that could contribute to Japan's war-making potential. In response to public uproar, General Groves admitted that this was a serious blunder, and the scientists played it up as an example of the Army's inability to understand scientific matters. Three months later, the Canadian atomic spy case broke just as Congress was debating how stringent to make the security requirements projecting atomic energy information. The Army and their Congressional allies used this episode to strengthen their case.

Somehow, despite all these distractions, things kept moving in the Congress. Senator McMahon had introduced a bill to create a special Senate committee on atomic energy, and on October 23 that committee was created. McMahon was appointed chairman—quite a prize for a freshman senator—but his influence was tempered considerably by the conservatism of the other 10 appointees to the committee. After further fieldwork, President Truman was persuaded to privately withdraw his support for the May-Johnson bill, leaving it up to others to create an alternative proposal. By the end of the year, McMahon was ready to introduce his own bill, and on June 1, 1946, McMahon's bill was passed. Truman signed it into law as the Atomic Energy Act of 1946.

We had scored a significant victory. The atom was to come under a fully civilian agency, the U.S. Atomic Energy Commission. The new law was designed to emphasize research and the development of peaceful uses of atomic energy; provide "free dissemination of basic scientific information;" "maximum liberality in dissemination of related technical information;" and "Government control of the production, ownership and use of fissionable materials." It was clearly a good launching pad for working toward international control.

On June 14, 1946, Bernard Baruch presented to the opening session of the United Nations Atomic Energy Commission the American proposal for controlling the atom:

We are here to make a choice between the quick and the dead.

That is our business.

Behind the black portent of the new atomic age lies a hope which, seized upon with faith, can work our salvation. If we fail, then we have damned every man to be the slave of Fear. Let us not deceive ourselves: We must elect World Peace or World Destruction. . . .



The author (circled) and other Oak Ridgers celebrate the end of the war.

Science, which gave us this dread power, shows that it can be made a giant help to humanity, but science does not show us how to prevent its baleful use. So we have been appointed to obviate that peril by finding a meeting of the minds and the hearts of our peoples. Only in the will of mankind lies the answer.

The scientists were pleased with much of the proposal, but many felt Baruch had sabotaged the attempt to find accord with the Soviet Union. And then came Bikini. Since October 1945, the Army and the Navy had been talking about running a test of the bomb against naval vessels. These discussions quickly became a replay of the parochial arguments and issues raised by Billy Mitchell's demonstration of air power against naval vessels after World War I. The scientists were concerned about many aspects of these tests, carried out near the Bikini atoll in the far Pacific. We feared that America's credibility would be damaged, by urging peace and restraint on others while we carried out military demonstrations of negligible scientific value. There was also concern that little attention was being given to ensure radiological safety for the participants. But foremost, we knew that the bomb would probably not directly sink many of the heavily armored warships, spread out over miles of ocean, and the public would suddenly conclude that the bomb's destructive power had been overblown.

Just two weeks after Baruch's stirring challenge, the Army dropped the first bomb at Bikini. Gabriel Heatter's soothing voice assured radio listeners: "The palm trees are still standing on Bikini tonight." And the respected *New York Times* writer William L. Laurence wrote of "the profound change in the public attitude" caused by the demonstration:

Before Bikini the world stood in awe of this new cos-

mic force. . . . Since Bikini this feeling of awe has largely evaporated.

And so the national and the international politicians fell back into familiar channels, and few bold new measures were undertaken. Nonetheless, in America, a civilian Atomic Energy Commission began business, and in Vienna, an International Atomic Energy Agency was ultimately brought into being (1957). At this writing, bureaucracy as usual seems to be the order of the day, but the atomic warfare we all feared has not yet broken out. . . .

Shifting into Educational Mode

We had wrested the atom away from the Army and given it to the People (so we thought), but we had made little progress toward our goal of promoting international control. The next step, we decided, was one of public education—a big job and a necessarily slow one. The National Committee on Atomic Information, which the FAS had set up, was largely a firefighting outfit, rebutting charges of communism, straightening out gross errors of fact, and supplying basic information on nuclear science. For the broader issues we set up an Association of Scientists for Atomic Education (ASAE). We divided the country into regions, and local chapters of the ASAE were established under various regional councils. Naturally, close working relations were maintained with the FAS.

Illustrating the depth and specificity of ASAE's intentions, the following were the topics suggested by the Board of Directors to each Region for discussion and preparation of regional resolutions. Each of these proposals, which we evaluated in lengthy discussions, studies and correspondence, was a particular plan for achieving an enforceable world peace:

1. The Szilard "Call for a Crusade."
2. Urey's "Alternate Course for Control of Atomic Energy."
3. Osborne's Popular Convention to Frame a Constitution for a Federal World Government.
4. The Montreux Declaration on World Government.
5. The Squires-Daniels-Cavers proposal for a moratorium on atomic production.
6. The Gromyko proposal on atomic energy control.
7. The British Association of Scientific Workers' proposal for atomic energy control.
8. The Marshall Plan (European Recovery Program).
9. The Szilard "Letter to Stalin" proposals.

The memorandum was signed by Jack Balderston, who had participated in that early discussion in my dormitory a year before.

In addition to the work of scientists and engineers to study and to educate themselves in these matters, a series of town meetings led by noted speakers was held in the high school auditorium, the only such facility in town. These were stereotypical American town meetings in that each citizen who wished to comment on the subject at hand was given respectful attention and time to do so. The meetings were unique, however, in the global sweep of the issues covered. They were memorable affairs, and each had its own tone and power. Ely Culbertson, for example, surprised most of us by

saying he had spent much of his early life in foreign jails as a political prisoner, and that he had devoted much of that time to studying possible forms of world government. He said he had created the card game "bridge" as a bet with a psychologist friend that he could invent a game that would sweep the world. To him it was an experiment in mass psychology, nothing more, but now it no longer occupied his mind. When asked long and rambling questions, he would repeat them verbatim, then paraphrase them into crisply worded questions, pause a moment, and answer with similar brisk clarity. He had a detailed plan of action, and specific answers to every question. It was a dazzling demonstration of a powerful mind at work, and the entire hall was entranced.

The next meeting featured the noted writer and editor Norman Cousins, a totally different phenomenon. My main recollection from that meeting was the emotional intensity that he built up, in stark contrast to the Culbertson meeting. I remember a woman stepping out into the aisle and walking toward him, her arms outstretched, tears running down her cheeks, sobbing, "But what can I do, Mr. Cousins? What can I do?" He replied, with equal fervor, "Shout it in the streets! Knock on doors! Storm the Capitol!"

Charles D. Coryell, a radiochemist from X-10 and a student of Glenn Seaborg, gave a talk to the high school students, and they were sufficiently moved to organize the Youth Council on the Atomic Crisis (known as "Yak-Ack" among the irreverent). In short order they managed to get themselves heard over national radio, had articles in the national press, and were invited by the U.N. Council of Philadelphia to address groups there with a total audience estimated at 21,000.

These and other political actions were effective. When the House tried to load the McMahon bill with onerous amendments, 70,000 letters of protest were received at a time in history when public participation in the political process was otherwise at a low ebb. And the process continued for another decade. *The Bulletin of the Atomic Scientists* continues publication to this day as a widely read journal of opinion and information. However, I share the disappointment of Alvin Weinberg, former director of Oak Ridge National Laboratory, who wrote in *The First Nuclear Era* (AIP Press, 1994):

As so often happens with such organizations, FAS and the *Bulletin* were gradually captured by anti-nuclear activists. . . . I am particularly chagrined that the *Bulletin*, which under its first editor, Eugene Rabinowitch, saw nuclear energy as a powerful agent for creating material abundance, now seems to view nuclear energy as an abomination.

One of the lessons we learned from lobbying was that the most effective motivator was a message of impending doom. We were willing to use this tactic to get people's attention in the effort to achieve civilian control of the atomic bomb. But we were quite unprepared for the same tactic to be used against nuclear power in the 1970s and beyond. Perhaps we had it coming to us.

'Ideas That Will Change the World' Presented at Moscow Conference

We present here a summary of some of the most interesting of the 115 accepted papers at a three-day international conference in Moscow, titled "Science and Our Future: Ideas That Will Change the World." The selection begins with the first, second, and third-prize winners.

The conference was held at the V.I. Vernadsky State Geological Museum of the Russian Academy of Sciences, April 14-16, 2004, and was sponsored by the Vernadsky Museum, the Schiller Institute, and several private companies.

The conference organizing committee had appealed to the scientific community to share ideas that might have a significant impact on the future of our civilization. They received 142 entries, from people as young as 13 and as old as 85. One of the main achievements of the conference was its interdisciplinary scientific discussion.

Keynoting the event was U.S. economist and statesman Lyndon H. LaRouche, Jr., whose theme was Russia's mission as "Eurasia's Keystone Economy" in making mankind's way out of a looming Dark Age. Academician Dmitri V. Rundkvist, the senior scientist at the Vernadsky Museum, spoke about fostering new ideas and intellectual creativity, and the need to study "the laws of development of the Biosphere and the Noosphere," the realm of the infinite mental resources of Man.

This summary was compiled by Dr.



*The Vernadsky Museum,
Moscow*

population can only be maintained through the use of resources from space. An important example is the extraction of the rare helium isotope Helium-3 from lunar soil, to be used as a fuel for fusion reactors on the Earth. Another important example is the recovery of raw materials from asteroids.

The author notes: "From more than 200 known NEAs [near-Earth asteroids], the largest one has a diameter of 40 km, and the smallest known bodies have diameters about 10 m. About 50 NEAs have been studied photometrically to determine their compositional types. . . .

Because of their nearby orbits and their small size, many of the NEAs are energetically more accessible than the Moon. . .

"According to the data, the iron asteroid with a diameter of about 1 km, contains 3.8 billion tons of iron, 0.2 billion tons of nickel, and 0.04 billion tons of cobalt. That amount of the asteroidal iron is equal to the total world production of steel during a 5-year period."



Jonathan Tennenbaum. For additional information, see: <http://www.scienceandfuture.sgm.ru>.

* * *

(First Prize)
Inevitability of the Extraterrestrial Resources Utilization in the 21st Century

V.V.Shevchenko, Sternberg State Astronomical Institute, Moscow University

This paper puts forward the thesis, that the future growth of energy and raw materials consumption of the human

(Second Prize)
Levitation (Anti-gravitation) of Material Bodies, Its Physical Essence And Application

V.I. Kopytov and V.S. Ivanova, Tomsk Polytechnic University

The paper presents a continuation of ideas first put forward by the Nobel-Prize winning Russian physicist Pyotr

Kapitza in the late 1940s and 1950s. Kapitza demonstrated by experiments and theoretical analyses, how the behavior of mechanical systems can dramatically change under the influence of vibrational energy.

His discovery is most clearly demonstrated by the "Kapitza pendulum": A rod with a mass at one end is fixed to a pivot, around which it can rotate freely in a vertical plane. Ordinarily, such a pendulum has only one position of stable equilibrium, namely, the one the weight at its lowest point. The opposite position, with the weight at the highest point, is obviously unstable, since any displacement from the vertical will cause the pendulum to swing downward. But if the pivot-point is connected to a vibrator, in such a way that it vibrates rapidly along the vertical axis, then the upward vertical position actually becomes stable, also!

In experiments with sufficient vibrational energy, the weight seems to *defy the laws of gravity*, returning upward toward the highest position after being displaced at an angle to the vertical. In fact, there is no magic: The energy needed to overcome gravity is drawn from the source of the vibration.

However, the principle involved, which relates to the nonlinear interaction of "slow" and "rapid" motions does provide the basis for potential new technologies, including for new types of transport systems.

The authors put forward a general formula for the relationship between the apparent "antigravity" force and the vibrational energy of the system, and hint at some applications to air and ground vehicles and systems for power transformation.

(Third Prize) About Reproducibility of Oil Reservoirs

*V.D. Skaryatin and V.G. Makarova,
Vernadsky State Geological Museum*

The authors challenge the concept, that the oil resources of the Earth are derived uniquely from living material of past epochs, and suggest instead that hydrocarbon material is constantly migrating vertically from deeper layers of the Earth. They present detailed evidence from long-term studies of oil deposits. This would imply a certain rate of natural "replenishing" of overall oil reserves.

An important question, which the authors investigate, is the rate of upward

diffusion of hydrocarbons through rock layers.

Separation of Air

V.V. Belozarov, V.N. Motin, A.A. Novakovich, N.G. Topolsky, of, respectively, Rostov State University, Rostov-on-Don; Research-production company of space devices "Kvant," Rostov-on-Don; and the Academy of State Fire-protection Service of the Ministry of Emergency Situations of Russia, Moscow

This paper describes development of a new technology for the separation of the oxygen and nitrogen components of air, which can revolutionize the efficiency and environmental impact of combustion engines in transportation and combustion processes in other fields.

The technology exploits the paramagnetic properties of oxygen, which contrast with the diamagnetic characteristics of nitrogen and the other main gases in the atmosphere, to carry out a magneto-electric separation of oxygen from a stream of air flowing through a spiral-shaped tube. This device would allow combustion engines in cars, buses, and trucks to be fed directly with oxygen,



Helga Zepp-LaRouche/EIRNS

Participants at the Moscow conference on "Science and Our Future."

instead of air, thereby reducing fuel consumption by as much as two times, and eliminating many of the most toxic combustion products involving nitrogen compounds.

Other applications are the supply of oxygen for industrial processes, as well as for medical patients requiring a high-oxygen environment. At the same time, removing oxygen from an air stream provides a nitrogen-rich gas that can be used to suppress fires.

Discovering the Universal Skeletal Structures in Laboratory Electric Discharges, Severe Weather Phenomena, and Space. Probable Role Of Nanodust and Probable Applications

A.B. Kukushkin and V.A. Rantsev-Kartinov, Russian Research Center, Kurchatov Institute, Moscow

The ideas presented in the paper grew out of investigations by the authors into the nature and origins of filamentary structures, found in electrical discharges and particularly in plasmas generated in magnetic fusion experiments (tokamaks, Z-pinch, plasma focus devices, and so on).

Analyzing extensive data, the authors came to the conclusion, that certain of these, particularly long-lived filaments, are connected to the formation of what they call "rigid skeletal structures," apparently composed from nanoparticles of carbon and possibly other elements, formed from impurities in the plasma, and held together under the influence of strong magnetic fields. These filaments display characteristic geometrical forms, which are also found in filamentary structures in different physical processes and at widely differing length scales, including in electrical storms (tornados) and on the astrophysical scale.

The authors suggest a crucial role of such structures in a wide variety of natural phenomena.

Noosphere Ecosystem in the Context Of Biogeochemical Cycles

G.B. Naumov, Vernadsky State Geological Museum

This paper, by a leading expert in the work of the Russian biogeochemist and pioneer of the biosphere conception, Vladimir Vernadsky, turns many of the popular conceptions of "environmental-

ism" onto their heads. The common approach sees human activities essentially as a kind of negative interference into the biosphere, and particularly seeks to limit the introduction of man-made substances into the ecological system. But this approach is actually counter to the laws of biosphere development, discovered by Vernadsky, and which identify the growing role of human productive activity as a continuation of that process.

"Political, economical, and technical approaches to the ecological problems, which are not based on the natural-scientific laws of biosphere development cannot give effective results," Naumov states. Pointing out the ubiquitous role of symbioses in Nature, he proposes that "the insertion of (human) technosphere products into the natural geochemical cycles can be a cardinal way to solve problems of the relationship between human beings and the Biosphere."

Effects of Atomic Electrons on Nuclear Stability and Radioactive Decay

G. Lochak, Louis de Broglie Foundation, Paris, France; L.I. Urutskoev, D.V. Filippov, RECOM, Kurchatov Institute, Moscow

This paper belongs to an emerging, revolutionary area in physics, dealing with the strong coupling, under certain circumstances, between processes occurring within atomic nuclei, and the chemical and physical environment of the nucleus. These developments hold the promise of new types of nuclear reactors and related technologies, based on novel methods for generating and steering nuclear reactions.

The specific phenomenon dealt with in the paper is the process of beta-decay of a radioactive isotope: the transformation of a neutron in the nucleus into a proton, with the emission of an electron. Normally, the rate of beta-decay is considered a constant of the isotope involved. It has been experimentally shown, however, that the rate of beta-decay changes if there are unfilled electron orbits in the electron shells surrounding the nucleus. In this case, a channel is opened for so-called bound-state beta-decay, where the ejected electron is "captured" by

the shell, filling an unoccupied state.

Experiments have shown, that when atoms of the radioactive isotope Rhenium-187 are fully ionized (all electrons removed), the rate of beta decay increases a *billion times*—from 43 billion years to only 33 years for the fully-stripped Rhenium-187 nucleus—as a result of bound-state beta-decay. Such full ionization requires an enormous expenditure of energy; however, the needed, unoccupied electron states can also be produced, by placing the atom under a strong magnetic field. The authors show, by a theoretical analysis, that the bound-state beta-decay channel can be opened up in this way.

Distant Interactions of Microorganisms and Development of New Methods For Anti-infection Therapy

M.V. Trushin, Kazan Institute of Biochemistry and Biophysics, of the Russian Academy of Sciences, Kazan

This work is a continuation of research into "biophoton" interactions between living processes, begun by the discoveries of the Russian-Ukrainian biologist Alexander Gurwitsch, which has been revived in the recent period, especially thanks to the work of Fritz Popp and his collaborators.

The authors note: "Currently, it is known that chemically and mechanically separated cultures of microorganisms are able to influence the physiological condition of each other, resulting in growth alterations." In particular, the authors demonstrated experimentally, that it is possible to inhibit the growth of a culture of bacteria, by exposing it to optical radiation produced by a second culture, that was either in a stationary stage, or was dying as a result of an injected antibiotic.

A similar phenomenon in interaction of culture tissues of animals—known as the "mirror cytopathic effect"—was discovered by Kaznacheev and Mikhailova in the early 1980s. This effect suggests a new method for treating bacterial infections, which the authors are developing for practical application.

Respiration of Water

V.L. Voeikov, (vvl@soil.msu.ru), Faculty of Biology, Lomonosov Moscow State University, Moscow.

Voeikov, one of the most active

Russian biophysicists, has been using photon detection methods to study high-energy chemical reactions occurring spontaneously in water, and involving the generation and recombination of so-called reactive oxygen species (ROS). These processes lead to an alternative, direct mode of oxidation, in addition to the mitochondria-centered oxidation processes in cells.

Voeikov notes, that "Until recently, this path was considered to be accidental and even harmful for living organisms, as in this way free radicals and other reactive oxygen species (ROS) arise, and they are traditionally considered to be highly pathogenic. However, it turns out that tens of percent of oxygen consumed by animals and plants are directed in this way; thus, it is impossible not to consider single-electron oxygen reduction in the total balance of respiration."

Voeikov's paper focusses on the spontaneous splitting of "free" water and subsequent chains of reactions. He notes that "water is organized in quasi-polymer structures, and polymers are known to transform part of low-density energy absorbed by them to potentials high enough for breaking up of covalent bonds. Water breaks up especially effectively while moving through pores, and/or when it contains dissolved carbonates, silicates, phosphates, or gases, including the noble ones."

This spontaneous splitting of water leads to free radicals and to the possibility of branched chain reactions. "After their initiation by an adequate impulse even of very low intensity, they may start to develop as runaway processes. Such processes may provide for significant and sustained changes in properties of aqueous systems. . . . Based on the evidence obtained by others and on our own experimental data, we suggest a hypothesis of the existence of a respiratory cycle of water."

On the Correlation of Geological And Biological Evolution

S.V. Aplanov, St.Petersburg State University; B.A. Lebedev, TETHYS Geodynamical Research Center, St. Petersburg

The authors point to the close corre-

lation of "global geological events that characterize the Earth's history" with the orbital period of the Solar System round the galactic center—the so-called "cosmic year" of 210 million years. For example, "plate motion and continental collisions result in a supercontinent formation at the end of every cycle, corresponding to the diastrophist phase."

On the other hand, "the greatest evolutionary jumps follow the diastrophism phases that marked the formation of the five main supercontinents in the Earth's history: Saamian (3,600 million years), Kenoran (2,700 million yr), Karelian (1,900 million yr), Grenvillian (1,100 million yr), and Hercynian (260 million yr)."

The authors say that the correlation of "biological jumps" with multiples of the 210-million-year cycle can be most clearly documented in the later phases of evolution.

The Drift Mechanism of Lithosphere Plates

A.V. Sintsov, Institute of the Earth's Crust, Russian Academy of Sciences, Irkutsk

This paper criticizes the standard theory of plate tectonic processes on the basis of heat convection currents, and proposes a new theory that relates the tectonic motion to the magnetohydrodynamic processes that generate the Earth's magnetic field. The author suggests that many features of geodynamic processes can be understood on that basis.

Letters

Continued from page 21
science is dependent on thorough thoughtfulness as well as sound experimental evidence.

Bruce E. Arnold
bruceedwardarnold@earthlink.net

The Editor Replies

Your argumentation is not cogent. There is major error in the first two sentences. First, the Michelson-Morley-Miller experiments did not demonstrate a null effect, as Professor Maurice Allais has exhaustively demonstrated. Second, Einstein did not base his Theory of Relativity on the Michelson-Morley experiment, despite many erroneous popular science accounts to the contrary.

For a thorough account of the experiments and their results, we suggest you study the articles by Dr. Allais and myself in the feature in our Spring 1998 issue, "Michelson-Morley-Miller: The Coverup."

You have made no rigorous case for the proposal that red and blue shifts will account for the results of an experiment which you have inadequately studied.

We appreciate and encourage your interest in this important subject. We agree with you that there is something still to be learned here, and the final word has not been said. However it will take some more thorough work on your part. Don't look for quick answers. Science takes a lifetime.



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Why Hanford's Nuclear Waste Cleanup Wastes Your Money

by Michael Fox, Ph.D.

Hanford: A Conversation about Nuclear Waste Cleanup

By Roy E. Gephart
Columbus, Oh.: Battelle Press, 2003
Hardcover, 388 pp., \$34.95
(available from www.battelle.org/bookstore)

To this day, the history of Hanford, the eastern Washington laboratory of the Manhattan Project, remains largely in the minds of its retirees, and in the highly technical old reports stored in several repositories. Prior to Roy Gephart's book, the histories which have been attempted are largely (but not completely) written either by anti-nuclear critics or newcomers to Hanford. The few attempts which have been written by scientists, are good as far as they go, but they are not nearly as comprehensive as the topic needs and deserves.

Dr. Gephart recognized the glaring need of setting the historical record straight regarding the activities at Hanford, and what has transpired there over the past 60 years. As such, he undertook the extraordinary task, with the support of his current employer, Pacific Northwest National Laboratories, of researching the incredibly complex activities.

I should note here that I have known the author, Roy E. Gephart, for nearly 20 years. I know him to be a knowledgeable scientist (in hydrology), and we worked together on one of the many projects which have come and gone at Hanford, namely, the Basalt Waste Isolation Project (BWIP).¹

Because of Gephart's diligence and attention to detail, this book represents, by far, the best history which has been written to date. He captures much of the technical, engineering, and radiological issues so

Dr. Michael Fox is a nuclear scientist with 37 years experience in the industry, many of them at Hanford. He is a member of the Radiochemistry Society, the American Nuclear Society, and the Health Physics Society.

often garbled or exaggerated by less qualified historians. For these reasons alone, I recommend his book for anyone curious to learn what actually transpired. The book is immensely readable, complete with helpful highlights in the margins.

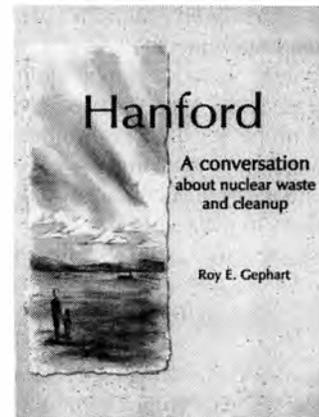
I have a number of criticisms of the book, however. I'll start with his subtitle, "A Conversation About Nuclear Waste Cleanup." Conversations are fine, but what do comments of the critics of Hanford, which the author provides in many places, add to the conversation? Introducing the negative comments of Hanford critics may appeal to some, but it adds nothing to the understanding of Hanford, detracts from the overall presentation of important history, and reduces the rigor needed for such an important document.

Further, the critics' comments are well known for being predictable, judgmental, and relatively free of scientific insight. A hint of this emerges as early as in the book's Foreword, where the judgmental margin comments were disappointing, and continues in too many places throughout the book.

In fact, Gephart seems to join the Hanford critics in the *presumption* that the risks from Hanford radioactivity are unacceptably high. Thus, Gephart introduces an aspect of Hanford history which has little to do with science and engineering, and a lot to do with unsupported criticism of Hanford. Unfortunately, these quotes, apparently intended to show deference to critics (however unscientific and motivated with political agendas), weakens the book. If we wanted such criticisms, we could read the local and regional newspapers, where they get wide coverage.

Exaggerated Risks

What does not come across in Gephart's chosen format is the fact that the clean-up activities and the \$2 billion a year being spent on them are completely out of proportion to the actual Hanford



risks involved. To this day, the quantified risks to the public from Hanford (as demonstrated in all appropriate Environmental Impact Statements) are *statistically indistinguishable from zero!*

These risk analyses are not secret, but have been performed, and the risks quantified and published a number of times for many Hanford activities. For example, every Environmental Impact Statement (EIS) is required by law to include a study of the risks that would be incurred by doing nothing—the so-called "No Action" options. In the matter of the Interim Storage of Hanford Tank Wastes, the "No Action" option would produce estimated collective doses at the Hanford boundary that range between 2.6×10^{-4} to 1.6×10^{-2} person-rem. These are extremely small collective doses. (In comparison, the natural background radiation is 360 millirem per year, individual dose.)

And for latent cancer fatalities (using the Linear No-Threshold conversion methodology) the "No Action" option would result in 2×10^{-7} deaths per year to 8×10^{-6} deaths per year. Again, these are very small numbers, so small as to be completely unmeasurable. In other words, even with this flawed methodology of considering any radiation above zero to be dangerous, the predicted risks are less than one death per 200,000 people per year.

Thus the huge expenditures for cleanup are protecting the public from tiny to zero risks. The members of the taxpaying public are entitled to know what are the actual annual risks, deaths, injuries, and so on. They are also entitled to be told what the expected benefits of

spending an estimated \$50 billion will be. Further, they are entitled to be told when these benefits will occur—now, or 10,000 years from now. And they need to be told how flimsy the science is underlying the decisions to spend \$50 billion in the pursuit of zero risk.

Spending Billions on Nothing

For the record, based upon numerous risk analysis and safety analysis results, the expected health benefits from this huge investment will be so small as to be *unobservable*. This absence of health effects is the direct result of the many safety programs implemented at Hanford over the years. Overall, the historical safety record at Hanford has been excellent. Simple comparisons of the Hanford safety data with the safety data of other more common industries (agricultural, lumbering, logging, fishing, manufacturing, and so on) show the Hanford health risks to be impressively small.

As thousands of health records and epidemiology studies show, worker monitoring was extensive and diligent, and millions of taxpayer dollars have already gone into this effort. The excellent health and safety data of Hanford are consistent with more than a half dozen epidemiology studies of Hanford workers, and residents of the surrounding communities. These show nothing unusual—no greater incidences of disease, for instance. Such results are studiously avoided, however, by Hanford critics, the media, elected officials, contractors, and regulatory agencies.

Based on this and other information, I consider the clean-up activity in great measure to be a grotesque waste of the nation's resources. I contend that these expenditures are totally out of proportion, relative to the expected health benefits, are scientifically unjustified, and would be socially unacceptable if the public were honestly told of this sad situation. Throwing billions of the nation's resources at small or unobservable risks, however, is all too common across the nation.

Gephart himself says this, "The whole process screams for simplification" (p. viii).

How Did We Get in This Mess?

The Linear No-Threshold model of radiation harm bears much of the blame for this waste. The LNT was first established as a management tool, simply as

a conservative device to protect workers by *overestimating* the health effects of radiation. It was never intended to describe the actual biological relationships between radiation and health effects.

Over the years, the transformation from a simple radiation management tool to the scientific expression of the health effects of radiation took place in full view of the scientific world. This transformation developed gradually over time, and has been the underlying basis for the horrendous costs needed to comply with the large overestimations of observable risks. The actual health research data and analyses are not adequately considered by radiation protection agencies in setting radiation dose limits. They presume, despite the data, that low-level radiation, even at the smallest levels, causes adverse health effects. Current knowledge of biology and carcinogenesis has refuted this presumption.²

The Secrecy Issue

My other chief criticism concerns the secrecy issue. On page 6.1, Gephart states: "It took several decades to chip away the wall of secrecy surrounding Hanford contaminant release." Although this is the prevailing dogma of the

Hanford critics and the media, it is not accurate.

First, the secrecy imposed on the operations of Hanford was demanded by federal law, and was not the choice of those who operated or worked at Hanford. The Atomic Energy Acts of 1946 and 1954, and related amendments, were just the beginning of the legal strictures imposed.

Many Americans today are too young to remember the frightening days of World War II, the first Soviet bomb test in 1949, and the clearly stated warnings of conflict by Winston Churchill, so it is not surprising today that so many condemn secrecy out of hand. They don't have the historical perspective that we older people had when our nation's very future was in doubt. There was good reason for such secrecy then, and American citizens would not have tolerated putting the nation's future and its defense, and military secrets, in the hands of enemies.

Further, there were serious national defense implications in revealing information about the amounts of radioactivity released from Hanford. Here's why:

If one knows: (1) the fission yields of the fission products for Uranium-235 (or Plutonium-239), one can estimate (2)



Courtesy of Westinghouse Hanford

Studies of Hanford workers and residents of the surrounding communities show no unusual disease rates. Here, Hanford workers in the mess hall, during the 1943-1944 construction era.



Courtesy of Westinghouse Hanford

The Hanford Reservation in eastern Washington, showing construction of the first plutonium production reactors and auxiliary buildings, 1943-1944.

the annual amounts (in curies) of each fission product isotope. If one knows (3) the breeding ratios for producing Pu-239 from the neutron absorption of Uranium-238, one can estimate the annual amounts of Pu-239 being produced at Hanford.

Thus, an intelligent enemy could estimate the number of weapons being produced annually (carried out elsewhere in the complex) by the United States. Revealing this number, or those factors by which it could be estimated, was unlawful and dangerous military and security policy. Therefore, publicizing the amounts released was forbidden by law.

Similarly, the fission energy of U-235 is well known, about 200 MeV/fission. So too are the heat capacity of water (1 btu/lb/°F) and the flow rate of the Columbia River (about 100,000 cubic feet per second) as it passes through the Hanford Reservation). By publicizing the difference between the upstream and downstream temperatures of the Columbia River, again one could estimate the number of U-235 fissions and, therefore, the annual amounts of Pu-239 being produced.

Non-Secrets

Furthermore, much of the Hanford contamination data was never secret, as contended by the Hanford critics and

the media! This, among all else, demonstrates the power of the media to mislead the public for decades.

To give some examples: The United Nations convened the first International Conference on the Peaceful Uses of Atomic Energy in August 8-20, 1955, in Geneva, Switzerland. The Proceedings of the meeting were published in a series of 16 volumes. These Proceedings are a matter of public record, and can be found in many public libraries in the United States, including here at Hanford.

These volumes contained hundreds of papers on many subjects, including the health effects of radiation. In turn, many of the papers contained listings of several dozen references to earlier literature on these subjects. These were also not secret.

A second United Nations International Conference on the Peaceful Uses of Atomic Energy was held in Geneva Switzerland, between September 1 and 13, 1958. The Proceedings from this Conference contained a total of 33 volumes. All of these volumes have been in the public domain for 46 years and are quite accessible for anyone interested. In several instances, Hanford scientists presented their findings at these conferences on radioactive materials from Hanford.

On page 6.5, Gephart briefly men-

tions the 1986 declassification and release of 19,000 pages of secret documents about past contaminant releases, one of several such information releases during those times. But, the question has to be raised: Were these documents all secret, and has any of the information been withheld? The reasons for these questions are that many librarians were involved, as Gephart states, with the "retrieval, declassification, and release of these documents." Being intimately involved with the actual labor-intensive processes of de-classification, they have a somewhat differing view of these "secret documents."

In a letter dated November 15, 1988, one of the research librarians wrote: "In regards to the HEAL FOI request for documents released on April 8, 1987: Of the pages comprised in that request: a. 73% had never been classified b. 24% had been classified earlier (often years earlier) c. 3% had to be classified for the FOI request d. 84% had been made publicly available earlier.

"Of the reports included in that request: a. 48% had never been classified b. 47% had been declassified earlier."

Not to put too fine a point on this, some of the documents which were released were secret weekly reports and had not been formally declassified at the requested time. However, the information contained in the weekly reports had been published in monthly reports which had been declassified earlier.

Releases vs. Natural Radiation

Most of these documents are also publicly available in the Hanford Reading Room in Richland, Washington, and maintained as a repository for such purposes. In one short visit, I found a public Hanford document (one of thousands) entitled "Evaluation of Radiological Conditions in the Vicinity of Hanford for 1959, HW 64371, R.L. Jenkins, et al." What is remarkable about the document was its distribution list of dozens of agencies around the nation, including many universities, companies, government agencies, and others. It included the U.S. Public Health Service regional office located in Portland, Oregon, at the time. It also included the Oregon State Board of Health (Portland), Washington State Department of Health (Seattle), Washington Pollution Control Commission (Olympia, Wash.).

That is, not only was this document *not* secret, but dozens of copies were mailed all around the United States. This was a common distribution practice for many of these Hanford documents.

This particular document of 1959 reported a number of radioisotopes contained in agricultural products grown around the Hanford site, including carrots, beets, turnips, asparagus, potatoes, beans, fruits, grains, and even milk. While the report provided isotopic concentrations of fission products from Hanford in these food crops, it also provided the food concentration of radioactive potassium-40 (K-40) as well. This is

crucial, because the K-40 is a *naturally occurring radioisotope* with a half-life of 1.3 billion years.

In all the tables in the report, the K-40 levels always were *higher* than those of the other isotopes, often by factors of 10 to 20! That is, the naturally occurring K-40 was more prevalent in the food than were the man-made isotopes. The K-40 levels were in the range of 2 to 6 picocuries (pCi) per gram of food sample. Even today, the K-40 levels found in milk from around the world are typically 0.8 to 1.4 pCi/gm, or about 800 to 1,400 pCi per liter of milk.

The presence of naturally occurring K-

40 in all living organisms, plant and animal, has largely escaped notice, discussion, and understanding. For nuclear scientists, natural radioactivity such as K-40 is well known, even a nuisance, especially in environmental samples, because it is always there along with others. For the rest of the uninformed public, the fact of natural radioactivity is a revelation!

Thus, most of the allegedly "secret" and "withheld" Hanford pages/documents were neither secret nor withheld! Certainly several of the documents were still formally secret, but little or no analyses were made to determine whether the information contained in

The Mission of the Hanford Reservation

The Manhattan Project was created during World War II to exploit fission energy in the pursuit of making nuclear weapons for military purposes. It was divided into two main pathways: the making of a nuclear weapon based upon the Uranium-235 device, and the other based upon the Plutonium-239 device. Each process required different physics, different chemistries, and different separation and purification processes. For example, the use of U-235 required diffusion plants for isotope enrichment, while the Pu-239 required chemical separations and no enrichment.

On December 2, 1942, Enrico Fermi and his team successfully demonstrated a controlled chain reaction in a small fission reactor at the University of Chicago. President Roosevelt appointed General Leslie Groves to head the Manhattan Project. Later that month Groves's new military advisor, Colonel Frank Mathias, had explored the Western United States to find the best site for the plutonium half of the Manhattan Project. A very memorable moment in this reviewer's life, was sharing an evening with Colonel Mathias discussing these momentous historical decisions and events.

By March 1943 (notice only three months had passed), the small towns of Vernita, White Bluffs, and Hanford in eastern Washington, had been evacuated, and the Manhattan Project

had begun in the desert of eastern Washington. According to Colonel Mathias, the criteria for siting Hanford included: great distance from the uranium efforts (sited in Oak Ridge, Tennessee), remoteness, access to large amounts of water (such as the nearby Columbia River), and access to large amounts of electricity (Grand Coulee Dam in eastern Washington had just been completed).

Making Plutonium

Hanford produced plutonium oxide. No nuclear weapons and no weapons-ready plutonium were manufactured at Hanford. The plutonium making processes included: (1) breeding of plutonium in nuclear production reactors; (2) ejection of the irradiated fuel rods from the reactor after a predetermined time; (3) chemical separation of the plutonium from the nuclear wastes, unused uranium, and fuel cladding; (4) conversion of the plutonium to a solid oxide from a solution; (5) shipping the oxide to other weapons facilities for fabrication into weapons; and (6) pumping the large amount of liquid nuclear wastes to underground storage tanks constructed for this purpose. (By contrast, the Soviet nuclear weapons programs handled their high level nuclear wastes by simply pouring them into the Techa River near Chelyabinsk.)

Now, for more than two decades, the plutonium production reactors

have been shut down, as have other plutonium facilities. The wastes are still there, although because they are radioactive, they are decaying away as the laws of physics demand.

In this reviewer's 30-year Hanford career, 50 percent of all the cesium-137 and strontium-90 has decayed away to non-radioactive products. So too, have 100 percent of the iodine-131, and more than 85 percent of the low-energy radioactive tritium, which continues to decay.

Gephart also points out (p. 5.4) that between 1989 (when cleanup began) and 2002, about 130,000,000 curies of radioactivity have decayed away to naturally non-radioactive products. This process continues naturally, without any expenditures. Predictably, such inevitable radioactive decay, reduced inventories, and reduced health risks, have not diminished the number of scare stories about Hanford and the exaggerations of the critics.

During the intervening 60 years since the beginnings of the Manhattan Project, many other science and engineering activities have been undertaken at Hanford, including molecular science studies, biochemistry, genome studies, environmental studies, medical isotope production, reactor safety studies, and many others. The Northwest's only commercial nuclear power station is also sited on the Hanford Reservation.

the documents had in fact been secret, and had not been released earlier in other unclassified documents.

What we are dealing with in the media coverage of the Department of Energy "secrecy" issues, could be described as true journalistic incompetence and laziness, invariably with duplicity, if not collaboration, with the many Hanford critics. Collectively, they refused to do their homework and perform the searches of the massive Hanford literature publicly available.

The Federal agencies have also been derelict in their duties to inform the American citizens, and to distribute more widely the findings of their own researchers. There is plenty of criticism to be leveled at the Department of Energy, too. A good place to start would be its Public Information Programs. A 1980 public report of the U.S. House of Representatives Committee of Science and Technology, "The Department of Energy's Public Information Programs: Major Changes Needed," was critical of the politicized DOE. This report documents, for example, that the DOE contributed considerable sums of money to an antinuclear rock group called the "Plutonium Players."

These government weaknesses must not be used as a license to misrepresent Hanford history, which began long before the existence of the DOE.

Given the massive and useful work by Roy Gephart in assembling the huge volume of historical engineering details of Hanford, I don't fault him for the short shrift paid to the secrecy issues, or the

Weighing the risks at Hanford
Workers worry about their safety -- and their jobs
Wednesday, August 13, 2003
By LISA STIFFLER
SEATTLE POST-INTELLIGENCER REPORTER

Contaminated fish put Indians at risk
Report says Hanford...
THE AS...
Original...
KENN...
Radioactive waste from Hanford is seeping toward the Columbia
by Karen Dom Steele

NUCLEAR SHOW
Radioactive Trojan Horse Buried at Hanford
RICHLAND, WA -- The Trojan Horse of ancient history was loaded out of a funoversized spectacle. With the shallow burial of the defunct T...
The MRC has committed a deadly...
WHY THE HANFORD MATTERS TO FISHERMEN
Avoiding a Radioactive Columbia River



The scare stories continue, while radioactivity decays.

environmental radiation issues. These are complex, easy to exaggerate, and difficult to understand. Although in my assessment the history of Hanford remains to be written, Gephart's book takes us much farther down this road than any before.

Notes

1. The BWIP was one of several studies being conducted at the time by the Department of Energy at Hanford. Its purpose was to evaluate the Eastern Washington Basalt Flows as a possible site for the geological disposal of high level nuclear wastes. It was one of the precursor sites to the current Yucca Mountain site now being evaluated in Nevada some 18 years later.
2. Many renowned scientists are extremely concerned with the wasted resources expended in the pursuit of zero risk. To give you a sense of how biology and radiation scientists characterize the use of the LNT (Linear No-Threshold) basis of radiation protection, here are some quotations:
 - (1) [I find the LNT] "to be without scientific foundation and a deeply immoral use of our scientific heritage" (Dr. Lauriston Taylor).
 - (2) "I do not hesitate to say that the LNT is

"the greatest scientific scandal of the 20th Century" (Dr. Gunnar Walinder).

(3) "Populations have been studied in geographic areas of increased natural radiation, in radiation-exposed workers, in patients medically exposed, and in accidental exposures. No reproducible evidence exists of harmful effects from increases in background radiation three to ten times the usual levels. There is no increase in leukemia or other cancers among American military participants in nuclear testing, no increase in leukemia or thyroid cancer among medical patients receiving I-131 for diagnosis or treatment of hypothyroidism, and no increase in lung cancer among nonsmokers exposed to increased radon in the home.

"The association of radiation with the atomic bomb and with excessive regulatory and health physics ALARA radiation levels practices has created a climate of fear about the dangers of radiation at any level. However, there is no evidence that radiation exposures at the levels equivalent to medical usage are harmful.

"The unjustified excessive concern with radiation at any level, however, precludes beneficial uses of radiation and radioactivity in medicine, science, and industry" (Nobel Laureate Rosalyn Yalow, Ph.D., Senior Medical Investigator Emeritus, Mt. Sinai School of Medicine, New York).

The Axiomatics of Fascist Archaeology

by Rick Sanders

Secrets of the Sands: The Revelations Of Egypt's Everlasting Oasis

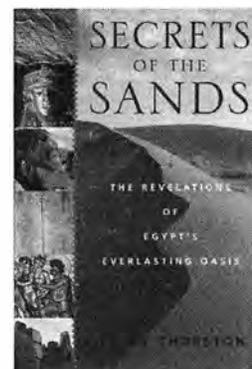
by Harry Thurston
New York: Arcade Publishing, 2003
Hardcover, 388 pp., \$25.95

Will this book with its tantalizing title tell us something about the beautiful petroglyphs in the deserts of Africa, or of ships dating back many thousands of years B.C.? Are we going to peer into the minds of the ancient shipwrights, explorers, and hydraulic engineers?

Not in this book! The stories it tells

have the following underlying axioms:

- The world is overpopulated.
- The Earth's resources are finite.
- There is no way that man can create new sources of fresh water.
- Irrigation can only lead to salinization.
- Global warming is on the way.
- Anthropologists are nice people, who are concerned that people squander their resources and then die in famines and epidemics.
- George Bush's Barrick Gold, other looters, private armies of mercenary



killers and torturers, centuries of British, Dutch, French, and Belgian colonialism have nothing to do with the problems of Africa. Rather, the main problem is industrial pollution.

• Prometheus was the enemy of mankind because "the human use of fire may have kick-started the desert-making process" (p. 362).

Disappointment

The book is very disappointing, because it promises to reveal some of the fascinating pre-history of northern Africa, and to report on the use of new, uranium-dating techniques that allow measurement going back much farther in time than carbon dating. The focus is to be the Dakhleh oasis, previously unstudied, and "to chart an unbroken 400,000 year pageant of human endeavor."

But the first 388,000 years are covered in a mere 35 pages, with modern drawings of a few purported stone tools, no petroglyphs, and no reported attempt to find evidence of cognitive thought. The rest of the book is a boring search for stone huts, and other "Neolithic civilization."

The author's over-ground axe, is that mankind causes deserts, and similar foolishness. Struck blind by their axioms, scientists like these go into the desert, take two or three "facts," glue them together—perhaps the skull of an

ass and the jawbone of a man—and lo! the anthropologist has found the reason for the depletion of the Ogallala aquifer!

Let us look briefly at the gaggle of "ex"-colonial anthropologists, archaeologists, and whatnot, involved in the study described in this book, of an oasis in the western part of Egypt, the Dakhleh Oasis. The money and sponsorship for the study come from the old colonial superstructure: the Canada Council, the Royal Ontario Museum in Toronto, the University of Toronto's Anthropology Department, the Canadian Institute in Egypt. Most of the diggers and grubbers are Canadians, with a sprinkling of Australians, Austrians, and Poles.

Cultural Myopia

Perhaps someone should write a book about *them*, called "Foreign Intellectual Pygmies of Africa." You can study them with some amusement—but never forget that when cornered, they can be dangerous, or like baboons, throw their excrement at you. Watch them from a safe distance, acting like the pre-historic savage they describe, digging in the ground with a stick, in garbage dumps they call "middens."

When they find a piece of rock, or some ugly little statue, they start grunting and screaming like baboons, or tennis champions.

How could such critters as these rec-

ognize human creativity from an artifact thousands or tens of thousands of years old? What would be their response to NAWAPA, the North American Water and Power project, which would replenish the Ogallala aquifer, and double the irrigated land in the United States, Canada, and Mexico?

What would they say to the peacemaking initiative of Lyndon H. LaRouche, Jr., to desalinate the water of the Mediterranean cheaply, using the waste heat from nuclear plants which would be installed for the mutual benefit of Palestine and Israel, providing new rivers of fresh water, equal to, or greater in flow than the Nile, every second, every minute, every day, 365.25 days a year?

And how do you think these British Commonwealth-bred subjects would react to LaRouche's proposal to throw a necklace of floating nuclear plants around Africa, to provide cheap power, improve health care dramatically, and use DDT to wipe out malaria that causes such untold human suffering?

And there's the irony: The representatives of the fag end of the British Empire, peering out of myopic eyes, are searching for the source of the great civilization of the Nile Valley, which they would not recognize if it hit them in the nose.

The End of Civilization—Almost

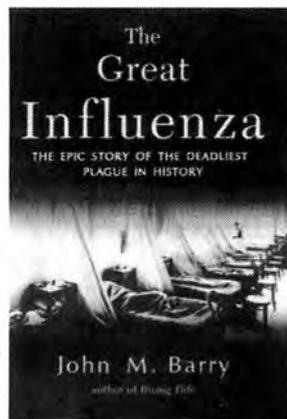
by Stuart Lewis

The Great Influenza: The Epic Story of The Deadliest Plague in History

by John M. Barry
New York: Viking (Penguin Group), 2004
Hardcover, 546 pp., \$29.95

During the last few years, we've been made more aware of the horrors of the Influenza of 1918, also known as the "Spanish Flu," as new flu epidemics have been in the news. But, one can have no idea of the havoc the 1918 influenza wrought until reading John Barry's chilling description of how mortifyingly destructive the 1918 influenza was. The book is well worth reading.

A quote at the end of the book sums it up: "In 1918 the lies of officials and of the press never allowed the terror to condense into the concrete. The public



could trust nothing, and so they knew nothing. So a terror seeped into the society that prevented one woman from caring for her sister, that prevented volun-

teers from bringing food to families too ill to feed themselves and who starved to death because of it, that prevented trained nurses from responding to the most urgent calls for their services. The fear, not the disease, threatened to break the society apart. As [one commentator warned], 'civilization could have disappeared within a few more weeks.'

Barry lays out for readers the massive scale of the epidemic. He quotes various medical studies and an epidemiological study in 2002, which concluded that the death toll was " 'in the order of 50 million [but] . . . even this vast figure may be substantially lower than the real toll.' " In fact, he writes, ". . . as many as 100 million died."

"With most of the death coming in a

horrendous 12 weeks in the fall of 1918—in excess of 5 percent of the people in the world died,” he says. In terms of the current world population, such a percentage would amount to a staggering 175 to 350 million people dead.

The book is replete with shocking descriptions, telling of conditions that could only make one think of the plague depictions of the Dark Ages. Barry quotes an internal American Red Cross report, which concluded: “A fear and panic of the influenza, akin to the terror of the Middle Ages regarding the Black Plague, has been prevalent in many parts of the country.”

One of the areas hit hardest in the United States was the city of Philadelphia. So terrifying was the epidemic, and the “piling up of bodies,” Barry writes, that “undertakers, themselves sick, were overwhelmed. They had no place to put bodies. Gravediggers were sick or refused to bury influenza victims.” They ran short of coffins, and “the city and archdiocese turned to construction equipment, using steam shovels to dig trenches for mass graves.”

The numbers were staggering: On Oct. 10, 1918, the epidemic alone killed 759 people, and “during the week of October 16 alone, 4,597 Philadelphians died from influenza or pneumonia.”

The Medical Perspective

Fortunately for the reader, as gripping as the effects of the flu were, there is more to the book than the doom and gloom of the horrifying death toll and conditions. Author Barry spends a considerable part of the book on the medical aspects of the period. Although not essential to the story, he presents an interesting and fairly extensive history of medicine in the United States, leading up to the outbreak of the flu, and the role of Johns Hopkins University in leading the way to modernizing medicine. Included is the heroic fight the medical profession waged against this heretofore unknown killer.

Last but not least, the author has an analysis of where the influenza started: It was not in Spain, even though it was named the “Spanish Flu,” but began in Haskell County, Kansas. Barry cites Frank Macfarland Burnet, “a Nobel laureate who lived through the pandemic and spent most of his scientific career studying the influenza, [who] later con-

cluded that the evidence was ‘strongly suggestive’ that the 1918 influenza pandemic began in the United States, and that its spread was ‘intimately related to war conditions and especially the arrival of American troops in France.’ ”

The concentration of soldiers for the war no doubt led to the quick spread of the disease. He writes, “The U.S. Army had exploded from a few tens of thousands of soldiers before the war to millions in a few months. Huge cantonments, each holding roughly 50,000 men, were thrown together in a matter of weeks.” So these camps were perfect breeding grounds for a disease which spreads easily. The Surgeon General of the Army, William Crawford Gorgas, who was well known for eliminating the plague of Yellow Fever during the construction of the Panama Canal, had what he describes as a “nightmare. . .of an epidemic sweeping through those camps [which] might spread to the civilian population as well.”

War Policy-makers Ignore Flu

But under the pressure to execute the “War to End all Wars,” the U.S. military was more concerned about the war than overcrowded conditions. For example, in Camp Grant, near Rockford, Illinois, Colonel Charles Grant Hagadorn “decided to ignore the army regulations on overcrowding and move even more men from tents into barracks,” because of the cold conditions. Shortly after that, the influenza started.

It wasn’t just a misguided military that was throwing caution to the wind. It came from the top—from President Woodrow Wilson. The author directly blames President Wilson for many unnecessary deaths:

“If Wilson and his government would not be turned from this end [winning the war] even by the prospect of peace, they would hardly be turned by a virus. And the reluctance, inability, or outright refusal of the American government to shift targets would contribute to the killing. Wilson took no public notice of the disease, and the thrust of the government was not diverted.”

No government resources were used to help civilian sufferers, and even the movement of soldiers between camps was not halted for several weeks. Not until, “camps [were] paralyzed, and literally tens of thousands of soldiers

[were] dead or dying, did the army make any adjustments,” Barry writes.

The Danger Today

The author also doesn’t shy away from predicting what could happen if a deadly influenza appeared today. “If a new influenza virus does emerge,” he writes, “given modern travel patterns, it will likely spread even more rapidly than it did in 1918. It will infect at least several hundred million, and probably more than a billion, people.”

In the United States alone, the Centers for Disease Control estimates that a new pandemic would make between 40 and 100 million people sick. So the prospect is threatening indeed.

Author Barry notes, that while we now have antibiotics to help against some of the secondary effects of influenza, they can only reduce the severity of an attack if taken within 48 hours of the symptoms. However, developing and distributing a vaccine in time to protect the population against a new virus is not a likely possibility, he says.

Not taken into account by the author is the current and rapidly increasing decline in health care of this country. The nation’s medical capacity is being strangled by the closing of hundreds of hospitals; it has been estimated by the Economic Staff of *Executive Intelligence Review* that since 1985, 800 hospitals have been shut down, with the concomitant loss of 200,000 beds. There are now areas in this country where people have to drive hundreds of miles just to get to a hospital.

This country is not ready for a bioterrorism attack, much less a full-scale deadly influenza attack. Several years ago, the U.S. Congress directed that an exercise be conducted “engaging key personnel in the management of mock chemical, biological, or cyberterrorist attacks.” This was called TOPOFF, from a report issued by the Johns Hopkins Center for Civilian Biodefense Studies at Johns Hopkins University in Baltimore. The study concluded, “Perhaps the most striking observation overall is the recognition that the systems and resources now in place would be hard-pressed to successfully manage a bioweapons attack like that simulated in TOPOFF.”

Also lacking is author Barry’s recognition of an impending economic collapse. Imagine what will happen to the physical health of this country under 1930s depression-like conditions?

THE PRINCIPLE OF TECHNOLOGY: MAN VS. MONKEY



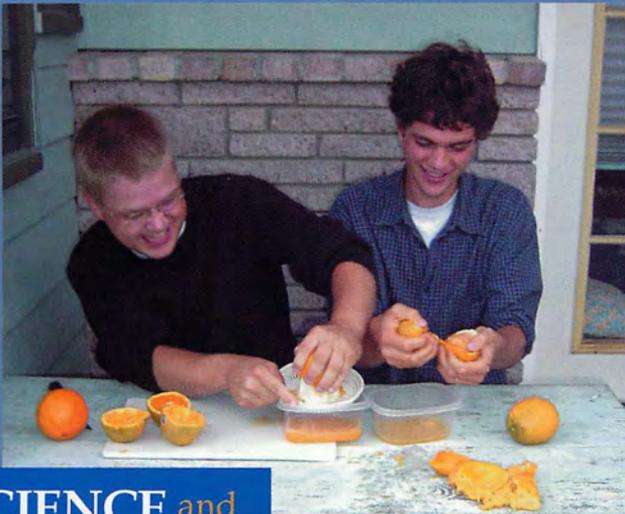
Wesley Irwin

The principle of technology is illustrated here in scenes from a Seattle LaRouche Youth Movement presentation. Photos 1 and 2 show two ways to remove the juice from an orange: John Milner (left) demonstrates a technological method, versus the anti-technology ape-like method used by Will Mederski (right).

In photo 3, John sits with a full squeezed bowl of orange juice, clean and content, in victory, while Will continues to monkey around with his oranges.

Both man and monkey will reap the benefits of their work (photo 4), although John has expended much less energy, with the application of technology, than his ape-like rival.

—Wesley Irwin



Wesley Irwin



Wesley Irwin

SCIENCE and
the LaRouche
Youth Movement



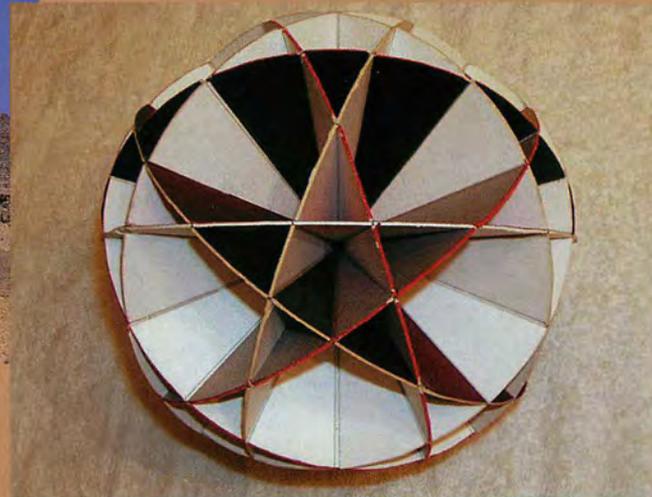
Wesley Irwin

In This Issue

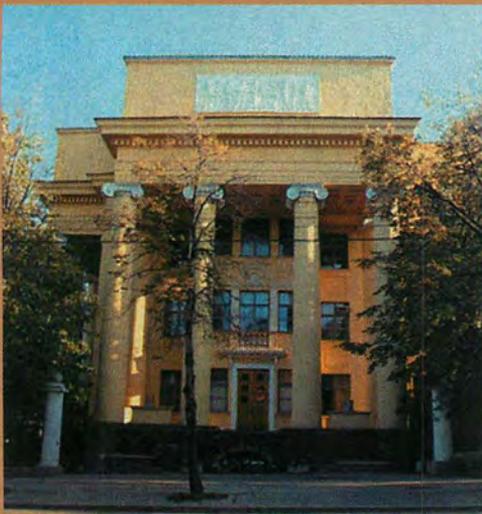


Frank P. Roy/2002 <http://egyptphoto.ncf.ca>

The Pyramid of Khufu at Giza, seen from the northwest corner. Inset, the 10-circle sphere from which the apex angle of the great pyramid is derived. This view highlights one of the star pentagons which cover its surface.



Pierre Beaudry



The Vernadsky Geological Museum in Moscow, where the conference on "Science and Our Future" was held.



Helga Zepp-LaRouche/EIRNS

IDEAS THAT WILL CHANGE THE WORLD PRESENTED AT MOSCOW CONFERENCE

The inevitability of mining asteroids, anti-gravitation, the possible renewability of oil reserves, and the effects of orbital electrons on nuclear stability were some of the featured papers at a three-day conference at the Vernadsky State Geological Museum in Moscow April 14-16. Our Conference Report, p. 78, reviews the research highlights.

