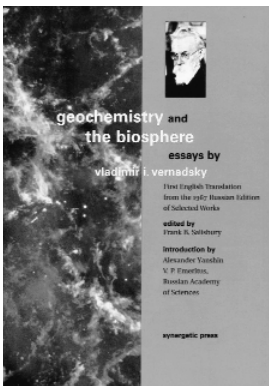
Vernadsky and His Biosphere

by William Jones



Geochemistry and the Biosphere: Essays by Vladimir I. Vernadsky
Ed. Frank B. Salisbury
Santa Fe, N.M.: Synergetic Press, 2006
Paperback, 427 pages, $49.95

The publication in English of a new volume of writings, *Essays on Geochemistry and the Biosphere,* by the great Russian-Ukrainian scientist Vladimir Vernadsky, should be viewed with great interest, and not only by those active in the scientific fields with which these essays deal. It is also to be hoped that the publication is a harbinger of more to come in English from the Vernadsky writings.

The work of this towering giant of Russian science has been woefully neglected here in the West, and particularly in the United States. Ironically, much of Vernadsky's work was picked up during the 1970s by representatives of the environmentalist movement, who then tried to draw similarities between Vernadsky with their own particular back-to-nature Gaia philosophy, virtually turning him on his head, and obfuscating both the content and the intent of Vernadsky's lifework.

The publication of more of Vernadsky's own writings in English should help to set the record straight on this point. A major step in correcting this distortion of Vernadsky has been the writings of economist and statesman Lyndon LaRouche on the work of Vernadsky, and his introduction of the work of Vernadsky into the LaRouche Youth Movement, which has created recognition of the true significance and import of Vernadsky's work by a much broader segment of the American public than ever before.

The present volume, a translation of a work published in Russian in 1967 under the title *Biosfera,* includes several essays by Vernadsky on the subject of geochemistry, as well as his final editing, in the last decade of his life, of the third edition of his groundbreaking study, *The Biosphere.* This volume gives the reader a good sense of the range of Vernadsky's thinking in various fields of science.

His chapter on the "History of Geochemistry," depicts how this discipline, with which his name has been most prominently associated, evolved out of the field of chemistry and soil science. The period of Vernadsky's education at St. Petersburg University, 1881-1890, was undoubtedly one of the most fertile periods in the history of that institution, with some of the greatest scientific thinkers of the country located there, including names like Mendeleyev, Butlerov, and Dokuchaev, who served as mentors, and as an inspiration to young students like Vernadsky.

The lecture halls were always filled when Mendeleyev lectured, Vernadsky relates. "We entered a new and wondrous world during his lectures, as if released from the grip of a powerful vise." Vernadsky also relates how the St. Petersburg department of mineralogy promoted a more dynamic view of chemistry, concentrating not simply on the chemical composition of the Earth's mantle, but also on the dispersion of the chemical elements, their "migrations," deep into the Earth's crust over geological time.

Here already we see some of the first indications of Vernadsky's own groundbreaking theory of how living matter itself, through such chemical and atomic "migrations," actually forms the outer crust of the Earth's surface. Here Mendeleyev also played a key role. "In [Mendeleyev's] *Principles of Chemistry,* the problems of geochemistry and space chemistry were not only fully described, but were also often dominant," Vernadsky writes in his historical essay.

The other intellectual influence on the young Vernadsky was Vasilii Vasilievich Dokuchaev, who held the chair in mineralogy at St. Petersburg University, and on behalf of whom he would often undertake expeditions in various parts of

Courtesy of Synergetic Press

Vernadsky (second row, third from right), along with a good part of the faculty at Moscow University, shown here in 1911, when they resigned in protest of repressive measures imposed by the Stolypin government against the Education Ministry.

the Russian Empire. Dokuchaev's *The Russian Black Earth Region,* the result of a seven-years-long labor, also brought Vernadsky a greater understanding of his beloved Ukraine, where he conducted expeditions under Dokuchayev's direction, examining the soil of the region.

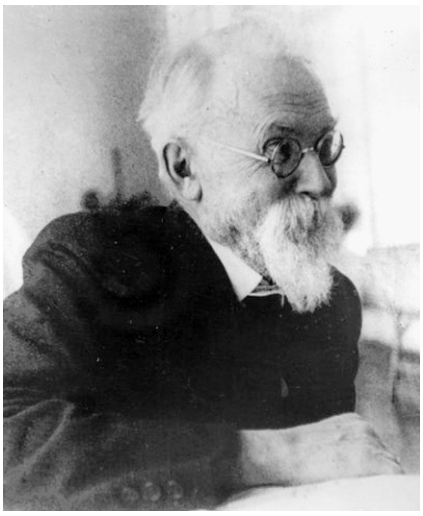
Later in the years of the Russian civil war, Vernadsky, who had fled to the family estate in Ukraine, was doing his own studies in the Ukrainian countryside. Already at this early stage, seeing the economic devastation that was caused by the civil war and revolution, he predicted that because of the lack of investment in the agricultural sector, this most fertile region would again be facing a situation of famine.

'Father of the Soviet Nuclear Program'

In the same historical essay, Vernadsky also touches upon the important role of radioactive elements in the Earth's crust, a phenomenon on which he placed great significance. From a trip in the early part of the century, looking in Central Asia for radioactive elements, and later, from the work he would accomplish with the Curies at the Radium Institute in Paris, Vernadsky placed great interest in this "new physics." By 1909, he had established a radiological laboratory in Moscow, and later, in 1922, he set up a Radium Institute, modelled on that of the Curies in Paris. Vernadsky also established the first cyclotron in the Soviet Union at the Radium Institute, on which Igor Kurchatov and other leading figures in the Soviet atomic bomb program would get their initial training.

Early on, Vernadsky realized the tremendous benefit mankind would receive if it achieved mastery of the power of the atom. Like others knowledgeable in the field, he was also aware of its tremendous potentially destructive power. In his opening speech at the Radium Institute, Vernadsky said: "Soon man will have atomic power at his hands. This is a power source which will give him the possibility to build his life as he wishes. Will he be able to use this force for good purposes and not self-destruction?"

During the twenties and thirties he kept well abreast of the field, meeting with Otto Hahn, Lise Meitner, and Arthur Sommerfield in Germany; Frederick Soddy in Montreal; and the Curies in Paris. It is something of an irony that



Courtesy of Synergetic Press

Vernadsky as a member of the Presidium of the International Geological Congress, in Moscow in 1937.

Vernadsky would first learn of an American atomic bomb program through an interpretation from the *New York Times* in 1943, sent to him by his son, George, who, after the Bolshevik Revolution, emigrated to the United States, where he became a professor in Russian history at Yale University. George had attached a note to the clipping with the message to his father: "Don't be late!"

After receiving this, Vernadsky formed a troika with two of his closest collaborators, to work out a program for the development of atomic energy. This led to the formation of the Uranium Committee, which would later chart the course of the Soviet atomic bomb program. Illness and old age (Vernadsky was then in his eighties), did not permit him a major role in the development of the bomb, but he was often consulted on aspects of the program. His pioneering role in the field really makes him deserving of the title "father of the Soviet nuclear program."

In the essay "Chemical Elements in the Earth's Crust," Vernadsky deals with the actual chemical composition of the planet, utilizing the research conducted in the United States by F.W. Clarke at the Carnegie Institution, which he had visited on a trip to the United States in 1913. Here he is on very familiar ground, studying particular instances of the chemical dispersion of certain elements from the biosphere into the Earth's outer mantle.

In the essay "Carbon and Living Matter," Vernadsky deals with the study of the hydrocarbons and petroleum deposits. In the context of the alleged "oil crisis" so much bandied about today, the essay of Vernadsky may have more than a passing interest. He holds firmly to the predominant theory that hydrocarbons will only be found as the remains of fossils, that is, they are a result of the decay of living matter, a theory which has been questioned in the work of the late Cornell University astrophysicist Thomas Gold. As Vernadsky himself indicates, Mendeleyev, also, thought that there may well be a non-organic origin of oil.

The third edition of *The Biosphere,* published in this volume, may be of some interest to the readers of the earlier edition, published in English. The years of his editing this edition were those in which he was expanding on his early theories, always reconceptualizing and reformulating many of his central hypotheses on Man and the Universe. Some of this is reflected in the changes he made in the last edition of that great work. But those well-versed in the 1926 edition will feel themselves on rather familiar ground in reading this last edition.

Vernadsky's 'Political' Mission

But, it was not only purely theoretical scientific work that Vernadsky was engaged in, in those years. Rather, he saw his scientific work as his major contribution to the progress of humanity. Although more restricted during the Soviet years in his direct political activity, he felt that his work in science and education was his major contribution in the development of the species, of the Noösphere.

Already in his student years, Vernadsky was involved in politics. Some of his closest friends in those liberal circles of his student days, a small group of friends that called themselves "The Brotherhood," would later wind up in a variety of political formations, populist "narodniki," or communists, or followers of the philosophy of Leo Tolstoy. Vernadsky chose another path, devoting himself, as a "cavalier of science" to the natural sciences as a means of promoting the welfare of the people.

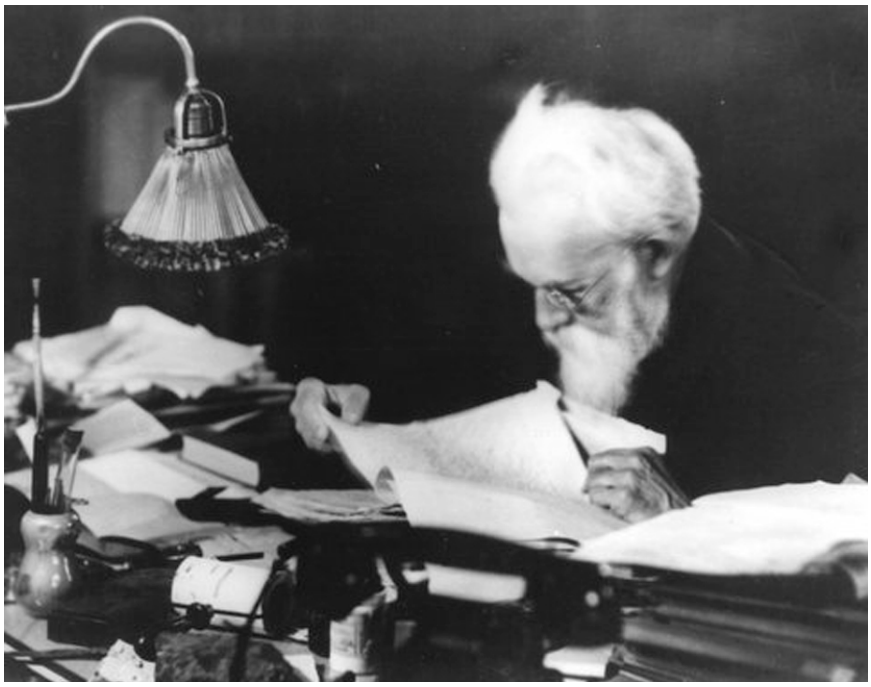
During the time of the 1905 Revolution, Vernadsky played an impor-

tant role in the formation of the Constitutional Democrats, (Kadets). When some extremely repressive measures had been imposed on student activity during various phases of that 1905 period, Vernadsky was one of those who went to speak with the Premier, Sergei Witte, in order to help mitigate those measures. In 1911, he, together with a good part of the faculty at Moscow University, resigned in protest of repressive measures imposed by the Stolypin government.

In 1915, during World War I, Vernadsky was involved in setting up the Commission for the Study of the Natural Productive Forces of Russia (KEPS), with the task of investigating the strategic resources and raw materials at Russia's disposal, a project that had been close to the heart of his old teacher Dokuchayev. The significance of this body was recognized by V.I. Lenin, who decided to retain it in the new Soviet Republic.

When the Bolsheviks took power, a disillusioned Vernadsky left Moscow for Ukraine, where the civil war was raging. He spent some time doing research in the countryside, setting up the Ukrainian Academy of Sciences, to which he was elected as head. Later, during World War II, when Vernadsky was evacuated to what is today Kazakhstan, he similarly gathered together the scientific layers there, and set up another Academy.

Both his son and his daughter chose to leave the country rather than stay under the rule of the Bolsheviks. Vernadsky elected to return to the Soviet Union. Not that he had any sympathies with the Bolshevik leadership, but many of his friends were still active in the Russian academic world, some of whom had become communists. More than any other concern which propelled him to make what must have been a difficult decision, was his firm belief in the power of Russian science to revive a beleaguered nation.



Courtesy of Synergetic Press

Vernadsky in his office in Moscow, in 1940.

Biogeochemistry Is Born

Although he stood in undisputed mastery of his own fields of expertise, in mineralogy and geochemistry, many of his bolder hypotheses and fundamental writings on the nature of the universe went largely unpublished. Vernadsky was accepted as a scientific genius of sorts, but one often attacked and viewed generally by the mandarins of dialectical materialism as an "idealist" and a "vitalist."

In something of a master-stroke, Vernadsky created an entirely new field, biogeochemistry, and established an institute around that study in order to have a forum in which his own notion of the formative role of the biosphere in the chemistry of the planet, also frowned upon by the authorities, might be studied without repercussions.

His most farsighted writings criticizing the prevalent notions of Euclidean space and time in physics, as defective for understanding the phenomena that were being investigated in the biological sciences, and calling instead for the application of a Riemannian, rather than a Euclidean, geometry, went totally beyond the ken of the guardians of "Diamat," and were either suppressed or printed in scholarly journals with a very limited circulation.

In the essays presented here, Vernadsky also outlines the two principal premises on which his life's work was based. The first is the principle of Christiaan Huygens, that life exists throughout the universe and not simply here on Earth, a thesis which Huygens developed most succinctly in his 1698 book, *Cosmotheoros.* His second fundamental premise was based on the thesis of a 16th Century Florentine doctor, Francesco Redi, which said "All life comes from life."

This was an implicit denial of the theory of abiogenesis, as well as spontaneous generation. Neither the evolutionists nor the creationists would be happy with Vernadsky. But he simply could find no scientific basis for either of these hypotheses, attributing them both to religious or philosophical principles, rather than to scientific study of the phenomenon of life.

Appended to the *Essays* (as probably they were to the 1967 Russian edition of *Biosfera*), are Vernadsky's short but powerful theses: "Some Words About the Noösphere," published in *21st Century,* Spring 2005, these short notes would be familiar to readers of this magazine, but little has hitherto been said about their origin.

Vernadsky was to have elaborated on his concept of the Noösphere in a third part of his final work, "The Chemical Structure of the Biosphere and Its Surroundings." That chapter was never written. In many respects, the "Some Words" represents his most elaborate view of the topic, although the concept, if not the term, which he borrowed from Edouard LeRoy, permeates most of his work from his student days. But for Vernadsky, "Some Words About the Noösphere" really represented a post-war program for the world.

In 1943, there were celebrations on the 80th birthday of Vernadsky. He

received the Stalin Prize and an award of 200,000 rubles. As was customary, he sent half of the sum back to be used for the war effort. He also penned a note to Stalin: "Dear Joseph Vissarionovich, I request that 100,000 rubles of the prize named for you, which I have received, be directed to defense needs, wherever you see fit. Our cause is just, and at the present time it spontaneously coincides with the onset of the Noösphere—a new state of the domain of life, the Biosphere—the foundation of a historic process, when the human mind becomes an enormous geological planetary force. Academician Vernadsky."

Later that year, when he had completed "Some Words About the Noösphere," he sent his article to two addresses: to the editorial board of *Pravda,* and, to be sure, to Stalin personally.

Here is what he wrote in an accompanying note: "Borovoye, 27 July, 1943. Dear Joseph Vissarionovich, I am sending you the text of my article, which I have simultaneously submitted to the editors of *Pravda,* and which it would be useful to publish in the newspaper, because I identify a spontaneous natural process, which will ensure our fundamental victory in this world war. In the telegram I sent you, donating to the Red Army half of the prize named for you, which I received, I indicate the significance of the Noösphere. With deep respect and devotion. V. Vernadsky. I am sending you the article, because I don't know if it will be published." The article was never published in *Pravda,* nor is Joseph Stalin known to ever have replied—or received—Vernadsky's note.[1]

The 'Book of Life'

The volume before us gives a tantalizing look at the powerful mind of a great scientist, but it leaves one looking for something more substantial, an elaboration of ideas that are only touched upon in these essays. We are encouraged to hear that the same publisher is considering also translating and publishing another book-length study by Vernadsky, *Scientific Thought and Scientific Work as a Geological Force in the Biosphere.*

Having read parts of the Russian edition of Vernadsky's final, and not fully edited work, *The Chemical Structure of the Earth's Biosphere and Its Surroundings,* I have great hope that this book, which Vernadsky himself considered the culmination of his life's work—"the book of life" as he called it—will also soon find the light of day in an English version.

In this work, Vernadsky does not simply expand on an earlier text, as he did with the various versions of *The Biosphere,* but rather approaches the entire issue from a somewhat higher standpoint, from the point of view of the Cosmos as a whole, incorporating all the new ideas that he had developed in the last decades of his most productive life. Vernadsky viewed this final work as his equivalent to the great "Cosmos" that final work of his beloved scientific forebear, Alexander von Humboldt, whose books had impelled the young Vernadsky on a career of science.

While *EIR* and *21st Century Science & Technology* magazine have published two parts of a three-part project by Vernadsky dealing with the more comprehensive space-time issues provoked by his work in biogeochemistry, the third and final part of that series, "On the Conditions of Physical Space," still remains completely unavailable to non-Russian speakers. It is hoped that the present volume will indeed lead to a resurgence of interest in this remarkable scientist, and to more of his writings in the English language.

While, in this day and age of radar and satellite imaging, many of Vernadsky's "facts" may be somewhat dated (indeed he himself would underline the fact that with the progress of science that *must* be the case), his unique view of man and the universe would be of tremendous benefit to those working in fields about which Vernadsky could have only dreamed—from terraforming Mars to astrobiology.

More important, the fundamental humanist outlook of Vladimir Vernadsky, who viewed the human species and its productive activity as the most important "geological force in the development of the universe," might help revive in society at large, some of the optimism that has been so seriously undermined by the doomsday scenarios of the environmentalist lobby.

Footnotes

1. The text later reports that Vernadsky's article was published in a small Academy journal called *Achievements of Modern Biology.* Vernadsky read the proofs in the Fall of 1944, and lived to see the issue in which it appeared.

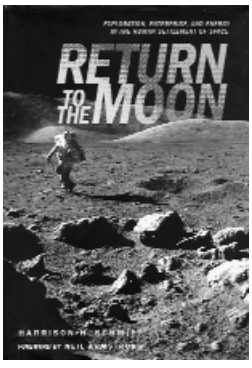
Mining the Moon for Helium-3 To Power Fusion Reactors

by Marsha Freeman

Return to the Moon: Exploration, Enterprise, and Energy in the Human Settlement of Space
by Harrison Schmitt
New York: Copernicus Books, 2006
Hardcover, 335 pp., $25.00

Since President Bush presented his January 2004 initiative for America to return to the Moon, many comments, criticisms, and offers of advice have been written by the science, engineering, and space communities. But few are as qualified to offer proposals on how this program should be carried out as geologist, Apollo 17 astronaut, former Senator, and professor of engineering, Harrison Schmitt.

When most former astronauts write books, they are usually memoirs of their lives and experiences in space. Harrison



Schmitt has worked, virtually since he was the last man to leave his footprints on the Moon in 1972, on the question of how astronauts will return. His new book lays out his plan.

For nearly 20 years, Dr. Schmitt has

worked with Dr. Gerald Kulcinski and other researchers at the Fusion Technology Institute at the University of Wisconsin in Madison, who are investigating the possibility of creating thermonuclear fusion energy using the rare isotope of helium-3.

The reason this particular program is of great interest to Schmitt, is that the nearest and most accessible reservoir of helium-3 is on the Moon.

Helium-3 as a fuel for fusion power has advantages over the heavy hydrogen isotopes deuterium and tritium, which are used in today's fusion experiments around the world. (See the Summer 1990 issue of *21st Century Science & Technology* magazine for a comprehensive discussion of fusion using helium-3.) There is enough helium-3 deposited by the solar wind on and near the surface of the Moon to power the world's economy for millennia.

The importance of the treasure-trove of helium-3 on the Moon as the fuel for fusion has been well recognized by other nations. Japan, Russia, and China stress obtaining the energy resources of the Moon as a goal of their exploration programs.

On Dec. 26, Nikolay Sevastiyanov, president of Russia's space enterprise, RSC Energia, stated: "One way or the other, we will have to go beyond our planet in the search for new, environmentally friendly power soures. A good candidate is the isotope helium-3 for nuclear power. It is available on the Moon" and "can fully meet the entire Earth's power demand for . . . more than 1,000 years."

Given that fusion power is necessary, and helium-3 powered fusion is a most desirable pathway, the task is to consider how this can be accomplished.

Is It 'Competitive'?

For more than three decades, the United States had no program to return to the Moon, nor an adequately funded, broad-ranging effort to develop fusion energy. In response to the lack of Federal support, the University of Wisconsin scientists have proposed to finance their fusion energy research through private funding, by offering spinoffs from their work as commercial products. These include the production of medical isotopes for diagnostic imaging, and land-mine detection.

Similarly, Harrison Schmitt, after decades of watching a rudderless NASA, proposes that private investors be organized to fund space infrastructure—such as heavy lift rockets—and the helium-3 lunar mining and processes facilities.

The problem with such an approach is that high-risk, multidecade research and development programs such as the one proposed, should not, and in fact, cannot, be justified on the basis of the profit they will return to shareholders. Only a Federally funded long-term commitment will work.

Schmitt and the fusion scientists believe that fusion energy must be developed to provide the magnitude of energy that will be required by a growing world, at least by the middle of this century. But by trying to justify why private companies and utilities will order such plants in future decades, Schmitt ends up trying to prove that it will be competitive with coal.

But fusion energy must be developed, regardless of what private companies, utilites, or stockholders support. The same was the case for the development of the railroads, other transport infrastructure, nuclear power, and the Apollo program. The criterion should not be whether fusion power, or, for that matter, space exploration in general, is "competitive." They are urgent national needs.

In his book, Dr. Schmitt makes clear that he has put forward his private funding proposal because he does not believe this nation will make the necessary commitment to return to the Moon—but he has not given up hope.

When George Bush became President in 2001, Schmitt offered his views on the changes that should be made in space policy, and the space agency, for a long-term program to be viable.

On the policy level, decreasing risk, and increasing confidence in space assets, Schmitt advises, depends upon adequate support. Underfunding of the early Space Shuttle design, he states, led to high-risk compromises. "Service in the United States Senate [1977-1983] during this period allowed me to witness this irresponsible Congressional and Administrative behavior first hand," he reports.

For the space agency to be able to carry out a program with the breadth and scope of Apollo, a return to Apollo-style management is required, Schmitt states.

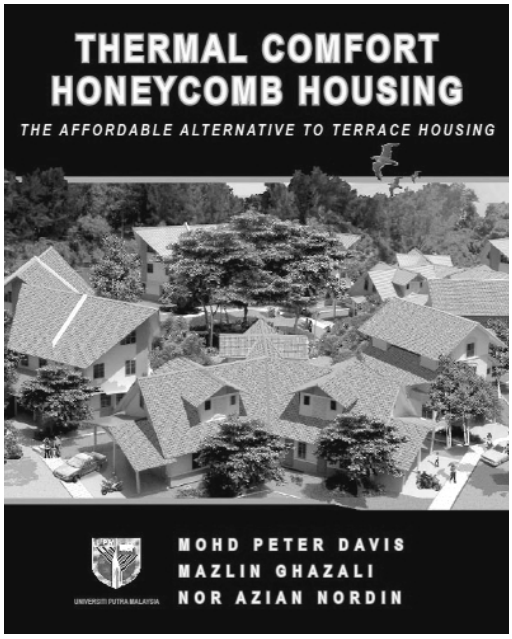
Youth Is the Key.

"The enthusiasm, imagination, and stamina of young men and women formed the heart and soul of Apollo," he says. His first proposal is "that most of NASA be made up of engineers and technicians in their 20s and managers in their 30s." This would return the space agency to the imagination and vitality that it took for the Apollo program to succeed.

Just as Harrison Schmitt's book was being released, near the end of 2005, he was appointed by NASA Administrator Mike Griffin to head the NASA Advisory Council. He is now in a position to use his well-earned scientific and political knowledge, experience, and prestige to help bring the space agency back to where it was, when it carried out the program that took Harrison Schmitt, and 11 other men, to the Moon.

How to Build Comfortable, Cool, and Attractive Housing

by Marjorie Mazel Hecht



Thermal Comfort Honeycomb Housing: The Affordable Alternative to Terrace Housing
by Mohd Peter Davis, Mazlin Ghazali, Nor Azian Nordin
Kuala Lumpur, Malaysia: Universiti Putra Malaysia, 2006
Hardcover, 187 pp., $50.00 (postpaid from Malaysia)*

This book is an inspiring example of how human creativity and determination can solve a problem that will change the lives of many people for the better. As the authors' "honeycomb housing" becomes a reality in Malaysia (where the government and housing developers are awarding honeycomb projects), the idea should catch on, to build comfortable housing around the world—and to tackle other very solvable development challenges.

In the first chapter, author Mohd Peter Davis explains how when he moved to Malaysia from Australia, he found his wife's house in Kuala Lumpur lovely, but too hot. It was a typical terraced rowhouse, but so hot during the day that he couldn't think and so hot at night that he couldn't sleep. Malaysia has 2 million of these grossly overheated houses, both low cost and luxury versions, he says, and the capital, Kuala Lumpur, is now a serious "urban heat island."

The older, traditional wooden kampong houses in the rural areas were cool at night, but unbearably hot "torture chambers" during the day. So, highly motivated by heat stress, Peter Davis decided to design and build a new kind of house that would be comfortably cool without air conditioning. He succeeded, and has been living with his family in their dream house for 14 years.

As he writes, "Our dream bungalow, designed to suit our family needs, has served a wider purpose; it is the first scientific demonstration that energy efficient thermally comfortable houses can be built in Malaysia without using air-conditioning." Davis calculated that his decision not to use air-conditioning will save him the entire cost of building the house in another 9 years. (Note that he is not against air-conditioning, however, and recommends that for bad heat waves or large gatherings, people could have one unit for their living area.)

Thermal Comfort

Davis then took on the project of improving Malaysia's existing urban housing and developing an attractive, comfortable, cool design for new housing that could be easily and inexpensively mass-produced. He and his colleagues scientifically studied, first of all, individual thermal comfort—what a tolerable temperature was for most people in Malaysia's hot, humid, climate—and then measured the temperatures night and day of various kinds of existing housing. For most people, the thermal comfort zone is between 24° and 28°C (75.2°-82.4°F).

They charted the Malaysian climate for every day in a year, and studied how houses heat up, and cool down. Although Kuala Lumpur's humid outdoor temperature didn't get above 35°C (95°F), the indoor temperature reached 49°C under the roof.

Then Davis and co-authors worked on the science of the architecture and the building materials. First, they developed a "cool roof," which reduced indoor temperature by 3.5°C (6.6°F). They found that the common Malaysian practice of using natural ventilation—doors and windows open—during the day made the house hotter, because it brought in the hottest air of the day from outside.

Conversly, opening the doors and windows at night—the opposite of usual Malaysian practice—cooled down the house and stored the coolness, keeping the house cooler the next day. A mechanical ventilation system at night (such as an exhaust fan) helped this process. They found that between 14 to 28 air changes per hour were most effective. Roof wind turbines, they discovered, had no cooling effect.

By combining the cooling features, the improved house was 5.6°C (10°F) cooler than conventional houses. The key was keeping the roof from heat gain from the Sun. They accomplished this, working with industry, by finding a white metal that would stay clean, not leak, and not store as much heat as the usual red concrete tile Malaysian roof. They tested both glass wool and rock wool insulation, which both worked, all in all reducing thermal discomfort in a two-story house by 80 percent and in a one-story house by 70 percent.

To keep the walls from heat gain, they designed wrap-around verandas. This enabled the concrete building materials to store the coolness from night ventilation, instead of the heat from the Sun.

The authors proposed that the government replace the current urban roofs with the new "cool roof," which would cut the thermal discomfort factor by 80 percent. But no one wanted to pay for the renovation. And so, they decided to concentrate on building new housing that was thermally comfortable—at no additional cost to the builder or buyer.

It should be noted that in the past, Malaysia has been a housing success story, constructing "reasonable quality urban housing," Davis says, to keep pace with the population increase and the migration from the rural areas. The

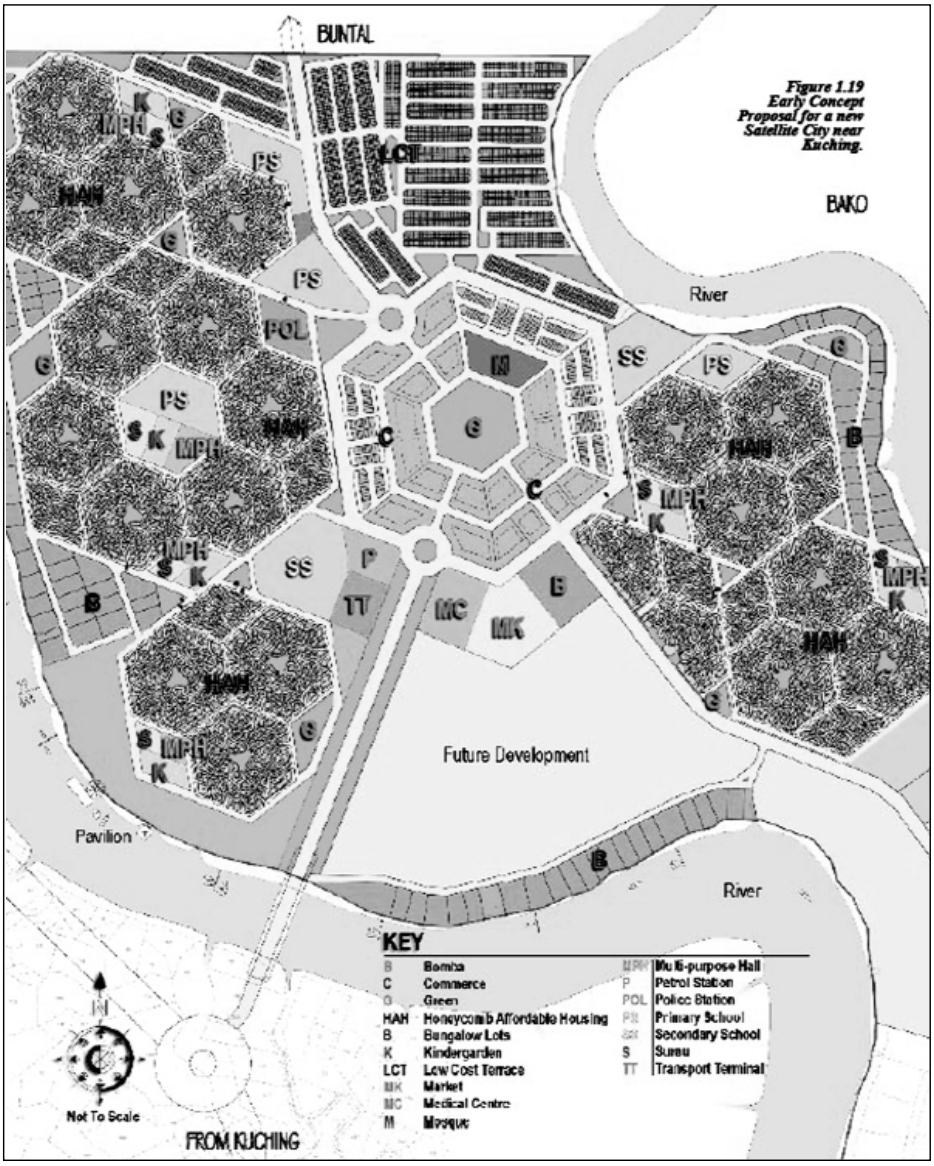
problem is today that the price of buying a row house is too high for most working families, who live instead in high-rise "pigeon-hole" apartment buildings.

The Honeycomb Design

Architect Mazlin Ghazali's honeycomb design addresses the cost question, and also two other complaints by residents of current low-cost housing: thermal discomfort and too-small kitchens. He also considered the lack of community spaces and the unfriendliness of conventional urban designs.

The Ghazali design revamps the traditional urban row house design by placing housing units around a central space in hexagonal formations. This gives the group of houses an inner courtyard. Instead of "monotonous terrace houses with small front yards," Ghazali says, there are "semi-detached houses with generous gardens . . . at no extra cost to the buyers."

The Ghazali tessellating design is not only attractive, but is more efficient than the usual row house design, accommodating more housing units per acre, using duplexes, triplexes, and quadruplexes. He has designed whole neighborhoods in a hexagonal grid, and all types of housing, including honeycomb four- and five-story apartment buildings. The design allows for mature trees to have the room to grow in the inner courtyards, unimpeded by sewer and utility lines.



An early concept proposal for a satellite city envisioned to house 100,000 residents in 2,000 acres.

A basic consideration was how to provide safe play areas for children, and community recreational spaces in an urban setting, and how to make quality homes available for every Malaysian family. Toward this end, for the last four years, the authors have been talking about thermal honeycomb housing with consumers, developers, and the government. In one market survey, their scale model of "My First Home" had 80 percent approval among respondents. When you look at the housing layouts, and the sketches of the honeycomb community, it is easy to see why they would be preferred to the usual row house.

The authors note that the world needs "about 500 million new houses, mainly in developing countries." They see their design as a counterpole to the greens who advocate going back to nature and the Stone Age. Instead, they write, we have to go "back to the optimism of the great Biosphere scientist Vladimir Vernardsky and his concept of the Noösphere. . . ."

We need 1,000 new cities in the developing world, the authors state, and Malaysia is positioned to play a leading role as a city builder. Where will these cities be located? The authors cite the Eurasian Land-Bridge, as pioneered by Lyndon and Helga LaRouche, as the location for these new cities.

The book concludes: "We can only agree with Vernadsky: 'The future is in our hands. We will not let it go.' "

The first honeycomb cities, to be funded by the Malaysian government, are on the drawing board (see figure).

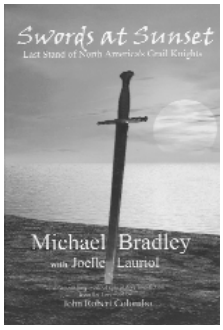
If Malaysia can do it, why not New Orleans?

Notes

* The book can be obtained directly from the authors in Malaysia. Send a bank draft for U.S.$50.00 (which includes postage), payable to Peter Davis, and mail to him at Institute of Advanced Technology, Universiti Putra Malaysia, UPM 43400 Serdang, Selangor, MALAYSIA. For more information, contact Peter Davis at e-mail: mohd_peter@hotmail.com.

Templar Knights in North America?

by Charles Hughes



Swords at Sunset: Last Stand of North America's Grail Knights
by Michael Bradley with Joelle Lauriol
Ancaster, Ontario: Manor House Publishing, 2006
Paperback, 240 pp., $24.95

Swords at Sunset was written in an attempt to prove that America was discovered in 1398 by the Scotch prince Henry Sinclair of Rosslyn, Scotland. According to author Bradley, a settlement was set up in what later became Nova Scotia, Canada, with colonists consisting of refugee Templar Knights who were fleeing persecution by the French and English kings.

That America was discovered by an expedition led by Prince Henry 100 years before Columbus is not exactly a new idea; it has been debated for the last 400 years, since the publication of a book and maps by the Venetian Niccolo Zeno ("The Zeno Narrative"). However, to push the controversy further, Bradley claims that the expedition and subsequent colonies were largely Scotch Templar Knights. Bradley is obsessed with the legends concerning the Templar Order and the Holy Grail, whatever that may be.

As readers may have noticed, a flood of books, films, and television programs has appeared since the publication of the book *Holy Blood, Holy Grail,* in 1981. These books, along with other fungus productions, conspire to bring about a cultural change in America and Europe by pushing feudalism and a new Dark Age.

The themes here are the Holy Grail, revisionist Christianity, pagan cults, and speculation about oligarchical family trees. That the Crusades of the European Middle Ages were a curse upon humanity, a promoter of genocide and the destruction of civilization, no one actually familiar with history can deny! Military orders such as the Knights Templar and the Knights of Malta were leaders and organizers at the behest of the oligarchy of this sorry mess. The so-called Republic of Venice was the controller of the feudal system.

Aside from Bradley's feudal and pagan outlook, he has done some serious antiquarian investigations over the last 20 years, looking at strange ruins and artifacts in the United States and Canada. In other words, he may have made some genuine and important historical discoveries of pre-Columbian history.

Bradley received a letter in December 1981, requesting that he come and investigate a strange ruin on the letter-writer's property in Nova Scotia, which resembled the remains of a castle or fort of stone-rubble-type construction, a common style in medieval Europe. The location of the ruin was a town northwest of Halifax, Nova Scotia, called The Cross.

Bradley went to see the ruin, taking photos of the walls and looking around the area for objects. He urged the Nova Scotia government's Ministry of Recreation, Culture, and Fitness to conduct an investigation, reporting that the ruins could very well be medieval European, built by religious refugees fleeing persecution. And, yes, they could be relics of the Sinclair expedition of 1398, as well.

Bradley's secondary axiom was that the historical Templars were Christian heretics, many of whom were given refuge in Scotland by King Robert the Bruce, after their suppression in 1307 by the French King Philip le Bel and the Pope.

A few years later, Bradley was informed of another possible Scotch ruin located on the Vermont-Quebec border, near Lake Mephremogog. People living around the lake had dug up artifacts in the course of house construction. One find was an iron spearhead, but the major anomaly there was a gigantic stone dam, some cut blocks of which weighed a ton or more. Stakes of spruce wood used to lay out the structure were discovered under the dam and, subjected to radio carbon dating, were found to be at least 500 years old, a date prior to French settlement of the area. Nearby, a stone carving of a gargoyle was also discovered in a style possibly Scotch or Norse. This discovery was filmed for a television documentary.

The Zeno Connection

The old book mentioned above was supposedly written at the time of the alleged Sinclair discovery in 1398, by a Venetian sailor who was employed as the leader of the Sinclair fleet of ships.[1] The book was discovered 160 years later in Italian, and soon English editions came out. It gave an account of a voyage from Scotland to the Atlantic coast of Canada of several ships and seamen, and more than a hundred fighting men. Landfalls were cited on Iceland, Greenland, a place called Friesland (still not identified), and an island or peninsula called in the narrative Esstiltoland, which is thought to be modern Nova Scotia.

This Zeno narrative, with its maps, has been disputed for the last 400 years, so, beware, as this book was written by one of the leading oligarchical families of Venice. Nevertheless, Henry Sinclair had good reasons to attempt an Atlantic crossing when he did, because Henry possessed a significant fleet of ocean-going ships, which also served the rulers of Norway; he was a vassal of Norway, having the title Earl of Norway.

In this period, Scotland looked toward the north, and not toward England. Norway at this time pulled, or had controlling influence over, Denmark, Sweden, Iceland, and Greenland. The Zeno family and their country, Venice, wished to take part in the extensive and profitable trade in fish, timber, furs, and seal oil. Venice was cut off from its eastern trade, because it was blockaded by the Turks, who suspected that Venice was running the Crusades against Turkey.

Perhaps Venice wanted to be part of a North Atlantic empire which would outflank the Hanseatic league, which had a

monopoly on the North Sea trade. Fishing grounds were all controlled by rivals, and of course fish were very important in the Middle Ages, when the Church forbade the consumption of meat during Lent and other numerous fast days.

Henry Sinclair could also have had accurate information on North America from his contact with Norway, including maps. One such map, included in the Zeno Narrative, was studied by map expert Arlington Mallery, and featured as a chapter in his book *The Rediscovery of Lost America* (Dutton, 1979). On the Zeno map of the North Atlantic, Greenland is shown correctly positioned as to longitude and latitude, and is shown without ice, consisting of three islands, a fact confirmed in modern times by seismic studies.

Mallery said that this must be a genuine map, predating the Middle Ages, of possibly Arab or Phoenician origin. He claims that a map can be the oldest written record, and may precede knowledge of writing. So the Zeno map looks like it may be real, though anomalous, even if the text may not be reliable.

The Narrative relates that Prince Sinclair took a flotilla of ships and a large crew of at least 100 fighting men, whom Bradley assumes were Templar Knights. Sinclair may have been tired of supporting these people who, since they had been condemned by the Pope and the Inquisition, were best sent West to set up a colony.

Prince Henry returned to Scotland in 1399, and was killed in a battle that year. The majority of the colonists remained in Nova Scotia, the initial settlement being at The Cross near Halifax, or perhaps at a place called Green Oaks. The area that most fits the description of the Zeno Narrative is the modern town of Stellerton, Nova Scotia, which has an exposed oil spring and gold-bearing beach sands, both items mentioned in the Narrative. This spring is a good indication that the Narrative refers to Nova Scotia, because there are only two such oil springs in North America (the other is in Los Angeles).

Bradley says that the colony, or several colonies, kept moving west to avoid other Europeans after the 1500s. Were these Scottish Templar Knights finally wiped out by the expanding onslaught of the Iroquois? Bradley thinks so, and thinks that the final battles were fought in the Rochester, New York, area, and in the area around St. Catherine's Ontario, no later than 1570. The major battle took place, according to Bradley, right where the Latter Day Saints (Mormons) place the battle of Cumorah, near Palmyra, New York. Could the family of Joseph Smith, the Mormon founder, have been survivors of this battle, and picked up an account of it from his ancestors?

Notes

1. The "Zeno Narrative" can be found in the *New England Antiquities Research Association Journal*, Vol. 32, No. 2, Fall 1998.

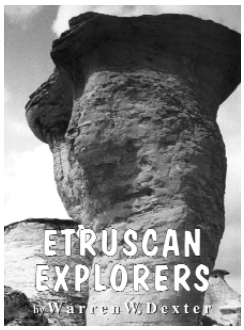
North American Evidence of Pre-Columbus Voyages

Etruscan Explorers
by Warren W. Dexter
Self-published
Hardcover, 63 pp., $28.50 order@bookmasters.com 1 (800) 247-6553

Warren Dexter's passion has been to create a photographic record of ancient sites in America and other countries, to preserve these artifacts for future generations, at least in pictures. Now 95, Mr. Dexter has made a selection of his thousands of photos available to the general public in this small book, *Etruscan Explorers.*

As the dustjacket to his book quotes him, "I'm not a verbiage writer but a graphic specialist." The frontispiece reinforces this, proclaiming: "This book is a graphic story board of the records left behind by Ancient Explorers. This is *not* in an academic or literary format, but the pictures tell the story." And so they do.

Most spectacular is the subject of the cover photo and several inside photos, the Milk River sculptured heads located in Alberta, Canada, about 10 miles up the river from the U.S. border. Sadly, the Canadian government did not see fit to preserve this ancient site, and pieces of



it have fallen into the Milk River, so Dexter's photos, taken in 1982, take on an increased importance. Vandals also demolished one of the sculptured heads with bullet holes, using the sculpture as a target.

These tall pillars are located on a cliff about 65 feet above the river. The base of one pillar has Ogam writing inscribed in a circular pattern. Using a montage of Dexter's photographs, Dr. Barry Fell deciphered the vowel-less Ogam which tells of using the flight of migrating birds to prophesy the future. It describes the same divination procedure attributed to the ancient Etruscans.

That same pillar has a sculpted Caucasian head, and next to it is another, smaller pillar with a sculpted Negro head, similar in style to the Olmec sculpted figures in Central America. (This is what you see clearly in the 1982 photos, although now both pillars are damaged.)

Dexter shows in his photos the only two places that the raised letter Ogam, spelling out the name of the god Baal, is found: in ancient (9th Century B.C.) Etruscan hut urns, used for cremated ashes, and on a Milk River dolmen monument, not far from the pillars decribed above. Hence the name of his book.

Among the other unique photographs are some of ancient Zulu artifacts. One of these is an ancient gold trading stone which has six different alphabets, including Ogam.

The author has written and contributed to other books about ancient America, including sites in his home state of Vermont. But there are thousands of unpublished photos in Warren Dexter's archive. It is hoped that enough people will be intrigued by this volume to support the publication of more of Mr. Dexter's photographs.

—Marjorie Mazel Hecht