Within the last few weeks, The National Herald, as well as other media around the world, heralded the amazing capacities of an ancient computer-like instrument that was found off the coast of Greece in 1900. Scientists, who had recently analyzed the machine using modern technology, marveled at the advanced technical skill needed to design this machine. The machine, with more than 30 gear wheels covered with astronomical, mechanical and mathematical inscriptions, was designed approximately 2,000 years ago.

Since ancient times Greeks have demonstrated their creativity in the field of mathematics, science and technology. Ancient Greeks, such as Demokritos, Pythagoras, Archimedes, and Hippokrates, have left the world a rich legacy.

Today in America, Greek scientists continue in the tradition of their forefathers, enriching us with their discoveries, inventions and technical advancements. This inaugural issue of “Greek American Scientists” honors the men and women who follow in the footsteps of their forebears.

We not only bring you their numerous achievements but also show their struggles on the way to success.

We present to you multi-faceted, humanitarian, interesting men and women of science. They are not just innovators in science or technology, but also artists and musicians, philosophers, community activists, teachers and entrepreneurs.

When I reviewed the articles submitted, I was struck with the dedication of our modern day Greek American scientists. All live by what is called “the Greek work ethic.” As children or young adults, a few had a slow start and struggled in school. However, a concerned parent or teacher recognized their hidden genius and encouraged them to make a difference.

Many of those we feature in this issue came from agrarian or working-class backgrounds. Those who immigrated had the burden of learning another language. They overcame overwhelming odds to obtain an education and advance in their careers. They have made important contributions to America, Greece and the world. Their accomplishments inspire us and teach us lessons of life.

Please feel free to email me your impressions and suggestions for future issues of “Greek American Scientists.”

Elaine Thomopoulos
Managing Editor
“Greek American Scientists”
The National Herald
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Dr. George Papanicolaou: Through the Lens of Discovery

By Antonia Callas
Special to The National Herald

In the fall of 1913, a 30-year-old Greek immigrant with a medical degree and an unpronounceable name arrived in New York City with his wife. The couple knew no English. The young doctor and his wife took a variety of small jobs to make ends meet. The doctor sold rugs, wrote articles for the Greek newspaper, Atlantis, even played the violin in restaurants. The wife worked as a seamstress at Gimbels. Within a few months, the doctor obtained a position as a technician in the Pathology Department of New York Hospital. By September of 1914, he had been promoted to assistant in the Department of Anatomy at Cornell University Medical College. He soon became an instructor and in 1917, published a paper on the estrous cycle in guinea pigs, which established him in the scientific community.

The research from it became the basis for his life work, the culmina-
tion of which would result in a method of detecting cervical can-
cer, the second most virulent form of female cancer, with a simple cel-
ular smear on a glass microscope slide. This man was Dr. George N.
Papanicolaou and his development of the “Pap test” would prove to be the most effective cancer prevention method ever devised, saving countless lives.

Weill Cornell University Medical College, founded in 1893, sits on the East River on the Upper East Side of Manhattan. In a shaded courtyard of the complex, a Hippo-
cratic Maple tree from the island of Cos is planted in Papanicolaou’s honor. It is both poignant and fitting that the current graduating class recites the Hippocratic Oath under this tree. The college is now one of the most prestigious clinical and medical research centers in the country. However, when Papanico-
laou worked there, the school was much like any other medical col-
lege in the United States, given that prior to 1920, the state of medical technology generally meant that very little could be done for most patients. Dr. Katherine Hajjar, current Chairman of the Department of Cell and Development Biology at Weill Cornell says, “At the time, they didn’t have sophis-
ticated diagnostic techniques. There was just the plain X-ray and in terms of gynecological prob-
lems, the X-ray was not helpful.”

Cell theory had been around since 1839. The theory stated all plants and animals are composed of cells that reside within tissues and that cell types from different tissues have their own individual characteristics and functions. Pathologists had eagerly adopted cell theory and began using the micro-
scope to search for cellular changes that would diagnose specific diseases (cytopathology). However, with the development of tissue biopsy in the late 1800s, inter-

test in cytologic (cellular) diag-

nosis virtually disappeared.

When Papanicolaou began his research at Cornell, he was a skilled microscopist and keenly interested in cells. In the infinitesi-
mal realm of cells, things are always happening. Cells are dynamic in the sense that they perform a variety of functions: movement, growth, maintenance and manu-

facture of specialized cell products, such as enzymes and hormones. They are the building blocks of life. And Papanicolaou was very much predisposed toward the mystery of the phenomenon of life.

He had attended graduate school in Germany at a time when it was an intellectual hub of Europe. There was a wealth of new information about the diversity and distribution of living organisms. A natural sense of excitement infused the medical and scientific community, and by extension, Pa-
nanicolaou. It was in Munich that his love of investigating the nature of life and his dedication to science as the tool of understanding life was fully realized.

At Cornell, Papanicolaou started the study of sex chromosomes in guinea pigs. He needed to determine when a female guinea pig was ovulating, but it was impossi-
ble without killing the animal. One morning he woke up with the real-
ization that guinea pigs must men-

struate, but not visibly. He then had the inspired idea he could take a sample of cells from the vagina of a guinea pig to determine oestrous.

He purchased a nasal speculum and took what was the first Pap smear from a guinea pig. He noted, “There were moments of real ex-

citation when the examinations of the first slides revealed an impres-
sive wealth of diverse cell forms and a sequence of distinctive cyto-

dlogic patterns.

At this point Papanicolaou had to correlate the patterns he had ob-
served in the vagina of a guinea pig to humans. That evening, he per-
formed the Pap test on his wife, Mary. She agreed to be her hus-
band’s test patient and is reported to have collected vaginal smears from herself daily from the begin-
ing of his work through her meno-

pause, becoming the model of what a normal cytological pat-

tern in a women looks like. Papani-
colaou would refer to her affec-
tionately as, “my wife – and my vic-
tim.”

In 1917, Papanicolaou pub-

lished his findings, “The Existence of a Typical Oestrous Cycle in Guinea Pigs With a Study of Its His-
tological and Physiological Changes,” with his colleague Charles Stockard in the American Journal of Anatomy. This work pro-

vided a correlation of cytologic changes to hormonal patterns and became a great diagnostic tool.

With this landmark work, at 36 years of age, Papanicolaou’s place in the world of medical science was secure. He declined the prestigious offer of Chair of the Department of Zoology at the University of Athens, as conditions for research in New York were still better than Athens. He did not return to

Continued on page 4
Greece for another 38 years. Papanicolaou has said, “No matter how long one lives far from Greece, one cannot remove the longing from the soul to return.”

The island of Evia (Euboea) is long and narrow, hugging the eastern coast of Greece. It is the second largest of the Greek islands after Crete and a popular vacation spot for Athenians. George N. Papanicolaou was born on May 13, 1883, in Kymi, a prosperous little town nestled in a fertile hilly area along the central coast of Evia, near the Aegean Sea.

George’s father, Nicolas, a distinguished physician, also served as mayor and delegate to the National Assembly in Athens. His mother, Maria, had a cultured nature with a love of music that he inherited. The second of four children, George was a sensitive and talented student, often spending his free time hiking, boating or walking along the sea. George entered the University of Athens where he studied languages, philosophy and violin. When George’s older brother had decided to become a lawyer, George was pressured by his father to study medicine. He graduated in 1904 as a physician. His father, indeed, it seemed everyone in Kymi expected George to follow in his footsteps.

Yet Papanicolaou did not want to follow in his father’s footsteps. Demosthenes Triantafillou, who is writing a book about Papanicolaou, says, “George had a passion to achieve something unique. This was a very big deal at the time. You listened to your parents and you did what you were told. But George tells his father; ‘What is the meaning of life? To work in an office and make money or to work in a research center and become immortal?’ So he revolted against his father.”

Papanicolaou finally convinced his father to send him to graduate school and in 1907 traveled to Germany, eventually enrolling at the Zoological Institute in Munich. Papanicolaou wrote his doctoral thesis on sexual reproduction among sea urchins and obtained his doctoral degree in zoology in 1910.

His father still had hopes for him to return and take over his practice. In Papanicolaou’s correspondence to his father, he stated, “Why do you want me to commit a suicide? For me to come and lay myself in that environment without research is like suicide. I can never do that – even if I have to disobey you.” Yet he returned home to Kymi.

Then he met Andromache (Mary) Mavroyeni, the daughter of...
a wealthy merchant in Kymi. They fell in love and married over the objections of both families. Mary became his lifelong companion, supporter and unwavering assistant. In 1911 the couple traveled to Monaco, France, where George had obtained a temporary position at the Oceanographic Museum of Monaco.

They returned to Greece at the onset of the Balkan War in 1912. Papanicolaou served in the medical corps where he met Greek Americans who told him about the great opportunities in America. The couple decided on a future in America over the objections of both families. Papanicolaou had determined to dedicate himself to medical research, and laboratory conditions were primitive in Greece. He knew he must live in a place where he could fulfill his destiny and thrive. Soon the families reconciled and the couple immigrated.

In the early 1920s, while studying the vaginal cytology of humans, Papanicolaou encountered a smear with bizarre cells from a woman with cervical cancer. Cervical cancer is a disease caused by the abnormal growth and division of cells that make up the cervix, which is the narrow, lower end of the uterus. The body could be thought of as a cell state, divided into cities of tissue in which every cell is a citizen. All of these citizens have different jobs which they usually perform amazingly well; couldn’t you just post-pone it for a few more days until this course is finished?”

Papanicolaou’s discouragement was enormous. He abandoned his research for several years but held fast to his conviction that vaginal smears would reveal cancer cells. He continued to work and teach at Cornell. Referred to among students and colleagues as “Dr. Pap,” he worked six, sometimes seven days a week and was known for never taking a vacation. His wife, Mary, worked as his assistant at Cornell virtually his entire career, becoming proficient as a technician in her own right. Her importance to the work of her husband was profound. She was truly his partner in work and in life.

At times funding for his work was limited. When he was finally able to hire a cytotechnologist, Charlotte Street, he shared his own salary with her. There is an anecdote that both reveals the humor of Papanicolaou and the dedication he expected from others. When one of his postdoctoral students was pregnant and going into labor, she told him she was going to the hospital and therefore would not be able to give one of her lectures. Papanicolaou looked the young doctor over and said, “You look very well; couldn’t you just postpone it for a few more days until this course is finished?”

The new chairman of Anatomy at Cornell, Dr. Joseph Hinsey, encouraged Papanicolaou to continue to collect and document samples. He introduced him to Dr. Herbert Traut, a gynecologist at New York Hospital, and together they organized a clinical trial in 1939. Finally, in March 1941, after repeated confirmations of the test’s value.
Dr. George Papanicolaou: Through the Lens of Discovery

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Papanicolaou and Traut published a monograph, “The Diagnostic Value of Vaginal Smears in Carcinoma of the Uterus.” In August, the American Journal of Obstetrics and Gynecology published it. The diagnostic procedure was named the “Pap test” or the “Pap smear.”

The findings proved conclusively that the Pap smear was not only valuable in determining cancer in early stages where it could be easily treated, but could also detect precancerous conditions. This time, the medical community took notice. The American Cancer Society devoted funds to further develop and champion the Pap smear. Although progress was slow, the method was disseminated to professionals across the country and the technique was put into use. Papanicolaou published his comprehensive “Atlas of Exfoliative Cytology” in 1954, a monumental work that was immediately accepted by the medical community. In the years that followed, Papanicolaou continued to advocate his method, helping to train and teach courses in cytology.

Papanicolaou received many outstanding honors and degrees, as well as memberships to various faculties and societies. He was the first president of the American Society of Cytology, which continues to thrive. In 1950, Papanicolaou received the prestigious Albert Lasker Medical Research Award. He was honored as the Most Outstanding American Scientist of Greek Descent by the Order of AHEPA in 1951 and was a founder of the Hellenic University Graduates Organization. Although a finalist in 1960, he did not receive the Nobel Prize, a fact many find surprising.

Papanicolaou and his wife finally took a vacation, visiting Greece in 1957. In 1961, at 79 years of age, Papanicolaou was offered the directorship of the Cancer Research Institute of Miami. He accepted, and they moved to Miami. Soon after work on the Papanicolaou Institute started, George N. Papanicolaou died of a heart attack on February 18, 1962. His wife Mary stayed in Miami Beach and passed away on October 13, 1982, at 90 years of age.

A bust of Papanicolaou with his microscope stands at the entrance of Weill Cornell University Medical College, and a portrait of him graces the medical library. Papanicolaou has adorned a commemorative U.S. postal stamp, several different postal stamps in Greece and Cyprus, and his image was on the 10,000 drachma bank note.

Each year, around his birthday, the Panevolos Society of America, which represents the island of Evia, the Hellenic Medical Society of New York and Weill Cornell University Medical College hold an annual Dr. George Papanicolaou Symposium that honors a doctor either in the field of psychology or biology. At the Papanicolaou Symposium held this past May 2006, the Greek Minister of Health, Demetris Avramopoulos, announced the establishment of an annual prize in medicine given in Dr. Papanicolaou’s name.

George Papanicolaou’s dedication and passion took him halfway across the world to pursue his philosophy, “not to become rich but to create something worthy of a human being.” He founded the science of exfoliative cytology. It was his persistence and determination that made the Pap smear a common clinical tool. Cervical cancer, once the most common causes of cancer death for American women, has dropped by about 2% a year. The world has honored and will continue to honor the man who has saved the lives of so many.

Antonia Callas is a freelance writer based in Chicago. Her work has appeared in various Greek newspapers and magazines throughout the country. She is a produced screenwriter and has directed a short film.
Economou Explores the Solar System

By George L. Chiagouris
Special to The National Herald

July 4, 1997, was a very memorable day for Dr. Thanasis Economou and a very remarkable one for the space exploration community. On this day NASA received data regarding the chemical composition of the surface of Mars. This long distance analysis of the surface materials of our planets was a major achievement in man’s quest to explore the universe.

This data had been prepared by the Alpha Proton X-Ray Spectrometer, which was attached to the Sojourner Robot of the Pathfinder Mission. Economou and his team had designed and built this spectrometer at the Laboratory for Astrophysics and Space Research (LASR) at the University of Chicago, where he holds the title of senior scientist at the Enrico Fermi Institute.

SO, WHO IS THIS WORLD RENOWNED GREEK AMERICAN SCIENTIST?

Economou was born on May 6, 1937 in the village of Ziakas, Grevena, Greece. He lived there with his parents and five siblings until he was 11 years old. The family farmed and tended sheep.

Even though Economou’s odyssey to explore our planets began at a small village in northern Greece, eventually he traversed our globe. He conferred and collaborated with some of the most prestigious laboratories involved in nuclear research and space exploration, such as Institute for Plasma Physics in Prague, Jet Propulsion Laboratories in California, University of Chicago, Russian Space Agency in Moscow, Los Alamos, Argonne National Labs, Fermi Lab and Sandia.

Economou has been at the Enrico Fermi Institute since 1964 and has been involved, mainly in the chemical analysis of planetary bodies and cosmic dust on near earth bodies. For many years he also collaborated extensively with many other professors in studying the basic laws of modern physics using the most powerful accelerators in the world. At the University of Chicago,

Above center standing, Dr. Thanasis Economou is congratulated at NASA Jet Propulsion Laboratory upon receipt of data from the Stardust Spacecraft as it passed the atmosphere of Wild-2 Comet, on January 2, 2004.

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Dr. Thanasis Economou, left, and co-worker Murray Perkins, chief electrical engineer, University of Chicago, check the assembly of the Sojourner Robot prior to installing the Alpha Proton X-Ray Spectrometer in the movable arm. Economou and his team developed the spectrometer and other flight instruments, which have analyzed material and surfaces of the moon, Mars, Saturn, asteroids and the Comet Wild-2.

After finishing elementary school, Economou was sent to a nearby resort town to attend high school and eventually to Prague University in Prague for studies in nuclear physics.

FROM A SHEPHERD BOY TO NUCLEAR PHYSICIST

Economou began first grade when he was 11 years old and obtained his Ph.D. degree in physics at the age of 24. How did he accomplish this remarkable feat? Was it the Communist educational system or individual effort? When I posed this question to Economou, he replied that maybe it was a little of both. He stressed that his father had a good grasp of arithmetic, so he was educated, most activities took place in classes, in the library, or in their rooms doing homework.

In the late '50s, life began to improve for Economou, as he moved to Prague and entered university life. In 1961 he graduated with an advanced degree in physics. After finishing high school, he was employed by the Institute of Plasma Physics and began to socialize with the small Greek community in Prague. It was at this time that he met his future wife, and within a short time they were married and began to raise a family. Eventually they had three daughters.

The next set of dark days was the first days of boarding school in Czechoslovakia. When reminiscing about these days, he paused and asked me, “Can you imagine what it was like to be in a room full of children and not be able to communicate with them, nor respond to teacher’s questions?” He was surprised when I told him that I had very similar experiences myself, as I was 15 years old when I came to this country and did not know a word of English. He sympathized by saying that this probably happens to all of us immigrants. He then pointed out that eventually school became easier and later enjoyable, especially the technical subjects. However, he realized that he was neglecting the Greek language. Since there were no formal Greek classes near the boarding school nor in Prague, he was determined to learn his mother language by himself, by reading anything Greek he could find. Later on, Economou learned Spanish and then English on his own.

LIFE IN CZECHOSLOVAKIA

Economou indicated that during the first five years in Czechoslovakia, life was very structured and very predictable. Since they lived in the boarding school, which was somewhat isolated, interaction with the local people was limited. Since the main objective for the children was education, most activities took place in classes, in the library, or in their rooms doing homework.

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Thanasis Economou learned to build and fly model airplanes while a member of a club in Czechoslovakia. He is about 14 in this photo. When he was 11, he journeyed to Czechoslovakia where he attended school for the first time. In war-torn Greece, there wasn’t any school. Economou was part of the “Paidoma-zoma” (gathering of children) by the Communists in northern Greece.

Even though Prague is a beautiful city, back in the early ’60s it did not offer Economou opportunities for professional advancement nor was it the best place to raise a proper Greek family. At that time Economou received offers to work in Russia, and he also received an invitation to visit his two siblings in the U.S. They had been living in Chicago since 1955. He chose to immigrate to the U.S. and explore career opportunities there.

COMING TO AMERICA

When Economou came to Chicago in 1964 and began to look for a job, one the first places he contacted was the University of Chicago (UC), which was then at the cutting edge in nuclear science. He was aware that the first nuclear reaction test took place in this campus in 1942. As luck would have it, a team of scientists at UC was being organized to find ways and means to determine the chemical composition of the surface of the moon by using a unique nuclear technique, which had been proposed earlier by the university. NASA had approved UC’s proposal and the project had been given top priority, as President Kennedy had committed the U.S. to beat the Russians to the moon before the end of the 1960s. Economou was hired immediately and has been working there ever since, living the American Dream.

HELENIC LEGACY

I asked Economou whether the ancient Greek scientists and philosophers were mentioned in his high school and college classes. He answered, “Yes, indeed. The Greeks have a high regard for the numerous contributions that the ancient Greeks gave to Western Civilization, especially in the fields of science and philosophy. Some of their favorite individuals are: Archimedes, Demokretos, Aristotle, Plato, Socrates and Homer. They gave credit to Demokretos for being the father of Atomic Physics, as he stated in 462 B.C., “All matter is made of atoms and space. Anything else is opinion.” Economou mentioned that whenever they discussed Demokretos in his physics classes, the teachers stressed the following points over and over again: “It must have taken a lot of deductive thinking to come up with the above theory, since Demokretos did not have any microscopes, cameras, computers, nor other equipment that modern scientists utilize nowadays. He used only pure logic and deductive reasoning when he postulated his atomic theory over 2,500 years ago.”

Economou admires the accomplishments of both the ancient Greeks and the modern Greeks. He has named places on Mars to commemorate the events that took place on “OHI” Day (October 28, 1940) when Greece said “No” to Italy’s demand for free passage through Greece. Places he has named include: OHI, Antistasi, Kalambaka, Helias, Zikas, Pindos and others.

MAJOR ACCOMPLISHMENTS AND AWARDS

From 1964 to 1968, Economou worked on the development and perfection of the Alpha Scattering Instrument, which was successfully sent to the moon to analyze its surface. When Neil Armstrong took that giant step for mankind, he and all of the NASA scientists had been assured by Economou’s high tech machines that the moon’s surface was indeed a safe place to take a walk.

The Alpha Proton X-Ray Spectrometer and several other flight instruments, which Economou developed in his laboratory and carried in many NASA missions, have been very successful in analyzing material surfaces of the moon, Mars, Saturn, asteroids and the Comet Wild-2. One of his instruments on board the Cassini/Huggins spacecraft traveled over 4 billion miles and took seven years to reach Saturn in 2004. Another one on board Stardust spacecraft traveled 2 billion miles and after five years had a rendezvous on January 2, 2004, with the Comet Wild-2. Both of these instruments returned significant scientific information about the Saturn ring system and the comet environment.

Through his extensive knowledge of nuclear physics and his persistent scientific experimentation, Continued on page 10
Economou Explores the Solar System

Continued from page 9

and observations, Economou helped immensely in the explo-
ration of space. Recently, data rec-
ceived from the spectrometer sent to Mars indicated that at one time
this planet did indeed have water
on its surface. Some scientists won-
der: “If there was water on Mars,
was there life of some type also? If
so, could there be life on other plan-
ets?”

I spoke with a couple of young
UC post doctorate students whose
offices were near Economou’s of-
lice. Theoretical physics students
Kostas Tassis and Baso Pouuldou said that more than likely
Economou’s gizmos should help an-
swer those questions. They also
stated that Economou is a “real
cool” scientist. “Who else can send
his analyzers millions of miles away
populating the universe and operate
them with a computerized joy stick
from his office? Is this not the
coolest that anyone can do?”

Economou has published over
150 articles in scientific books and
magazines in the field of materials
detection via long distance analyz-
ers, as well as other topics on space
exploration and modern physics. He
has received several awards and
commendations for his work: the
NASA award for the APXS Pathfinder
Mission, NASA awards for the MER and Stardust Missions, the Na-
tional Air and Space Museum
Award, the 1998 Achievement Tro-
phy for the Pathfinder Mission,
Group Award for the Sojourner Rover
development, the Gold Key
from the Village of Zikas in Greve-
na, Greece for his many achieve-
ments.

Economou’s accomplishments
are both impressive and inspiring.
He re-kindled the torch of scientific
knowledge, initially lit by the an-
cient Greeks over 2,500 years ago,
and took this torch to the moon and
beyond.

George I. Chiagouris, P.E., retired
civil engineer, was born in Louka,
Arcadia, Greece. He came to the
U.S. in April 1948 and graduated
from Illinois Institute of Technol-
ology in 1960 with a BSCE. He lives
in Niles, Illinois, with his wife
Connie and son Steven. He is a
member of AHEPA, Arcadian Fed-
eration and St. John Church. He
has written articles on Hellenism,
and its survival here in America. He
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Dr. Roy Vagelos’ Scientific Odyssey: From Luncheonette to World Leader in Disease Eradication

By Penelope Karageorge
Special to The National Herald

Growing up in Rahway, N.J., “Pin-
do” Vagelos (short for Pindaros) en-
joyed working in his father’s lun-
cheonette, Estelle’s, but slurred
schoolwork, preferring the role of
class clown. An indifferent student,
he had problems reading and wrote
his book reports based on the vol-
umes his older sister, a voracious
reader, consumed. But in junior high,
an algebra teacher, Miss Brokaw,
turned his life around. When she saw
the “slow” student whizzing through
algebra, completing homework as-
signments in record time, she piled
extra, accelerated work on Vagelos.
He found himself “rocketing through
mathematics. When I realized that
she believed me capable of doing
more, I went up the scale. From be-
ing at the bottom of the class, I grad-
uated Number One.”

Dr. Roy Vagelos (Roy is his middle
name, the Anglicized version of his
father’s name, Herodotus) went on to
achieve a remarkable career in sci-
ence that embraced everything from
developing life-saving drugs to mak-
ing Merck Pharmaceutical an inter-
national giant. Known as the “Fa-
ther of Pharmaco-Philanthropy,” he
counts as that rare individual who
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ing Merck Pharmaceutical an inter-
national giant. Known as the “Fa-
ther of Pharmaco-Philanthropy,” he
counts as that rare individual who
actually changed how the world
works. Even better, the self-con-
fessed “science addict” has loved
every minute of it. He eschews the
word “brilliant,” as applied to him
and claims “hard work” has been the
key to his wide-ranging success.

“I’ve been fabulously lucky,” Vage-
los says. “I’ve been able to work in ar-
eas that for me were like a hobby. I’ve
never felt like I was going to work.
That’s why I can work so many
hours, 10 to 12 hours a day. Other
people work their hours, and then
they go to play golf. I don’t play golf.
But I run, five miles every morning. It
clears my head, and I organize my
whole day while I’m running. It’s re-
ally important for me.”

Vagelos set the pace for pharma-
ceutical companies, as well as indi-
viduals like musician Bono and bil-
lionaire Bill Gates, to reach out and
give freely help eradicate diseases
around the world. While CEO of
Merck, Vagelos spearheaded an un-
precedented effort to fight and lick
the grotesque disease of River Blind-
ness by giving the drug Merzican, de-
veloped by Merck, free of charge to
all those in need. Says Vagelos: “It’s a
drug we discovered in 1975 and fi-
ally were able to deliver to Africa
people were receiving the free drug
and will not become blind. The tar-
get is 100 million people.”

Vagelos describes River Blind-
ness, caused by bites from parasite-
bearing flies, and its cure: “Parasites
mature to live in lumps in the skin
and make millions of microfilaria
that go all through the skin, causing
terrible itching, moving into the
eyes, causing inflammation, scar-
ing of the eyes and blindness.

“Now, when you give one tablet
of this drug to an individual, it kills
all the microfilaria. Once they’re
gone in the skin, the flies don’t have
a source for the disease, so they be-
come sterile and can’t transmit the
disease. And if you treat a large geo-
graphic area and give everyone one
tablet, then the whole area becomes
sterile. And so they’re just going
around the world, and it’s getting
broadener and broader.”

Vagelos had come to the New
York Hilton to be the guest of honor
at Saint Spyridon Church’s 75th An-
niversary Gala. Entering the room in
black tie, with nimble grace, Vagelos,
tall and tanned, with a long, lean,
expressive face, exuded a low-key dy-
namism and palpable charm.

Asked what he regarded as his
greatest accomplishment, he did
not hesitate: “The introduction of
several of the most important drugs
and vaccines. I heard that there were
about 350 people coming tonight. I
would bet that every person in that
room has taken one of my drugs, or if
they haven’t, their children or grand-
children have.

“How many people take statins
for heart disease? The statins started
in my laboratory, the great antibi-
otics, the new drug for glaucoma,
drugs for prostate disease, peptic ul-
cers. It was just a very exciting time.
For a young doctor, who initially was
interested in the practice of medi-
cine, and loved it, to be able to touch
the lives of literally millions of people
through the use of the science that I
understood, biochemistry, was great.”

At 77, Vagelos manifests the unal-
loyed enthusiasm of a young sci-
tist, although he retired 12 years ago
as CEO of Merck. He continues to
push experimentation forward as
chairman of two biotech companies,
Regeneron Pharmaceuticals and
Theverance. “I hope that one of my
companies will hit a home run and
cure one of the diseases that’s now
incurable. Because when it comes to
science, I can’t stop. That would be
unlike me.”

When he lectures at the Univer-
sity of Pennsylvania, students flock
to hear his “ad lib” lectures. He has nev-
ever mastered the art of memorization.
When he was high school valedicto-
rian, the principal gave him special
permission to read his speech. “It’s a
problem I’ve had all my life. And that
gave me great difficulties when I was a
medical student, because what you
do in anatomy is learn the names of
bones and blood vessels. And I
couldn’t remember them. And so I
would get very, very tense about these
things.

“But I run, five miles every morning. It’s re-
ally important for me.”

Vagelos first rubbed shoulders
with scientists in Estelle’s Lun-
cheonette, where the major cus-
For Vagelos, family has always been important. His prime role model, Vagelos says, was his father, Herodotus, one of five surviving brothers from a large family from Erressos, Mytilini. “When someone was sick it was he who took them to the doctor, the hospitals. And he and my mother were responsible for bringing over many, many relatives from Greece, and keeping them in the house. And so responsibility and the willingness to take on helping people really came from my dad and my mother and their involvement in life in general.”

Vagelos and wife Diana play tennis, enjoy the opera, collect Impressionist art and travel, sometimes with their four children and grandchildren. Both are involved in nurturing the arts, with Diane Vagelos founding president of the Women’s Board of the New Jersey Performing Arts Center. Once a non-reader, Vagelos reads constantly, science journals and historical biographies given to him by his son, a medical doctor who majored in history at Harvard.

Vagelos and his wife visit Greece frequently. “To go back to that beautiful country, which is unlike any in the Western world, and to know that your roots go back to Aristotle and Sophocles, the great philosophers, the first doctors, the first mathematicians, and your genes are coming from that. It is fabulous.”

“What could be more exciting than reading Homer. I’ll tell you what — hearing ‘The Iliad’ on tape read by F. Murray Abraham. It’s hair-raising, thrilling. So to be related to folks who did all those things is not a bad thing. Gosh, your genes have to be the source of everything. And I’m pure Greek. Absolutely 100 percent. And my children are 100 percent Greek. My wife, Diana’s, family is from the island of Cephalonia.”

Vagelos brainstormed an experiment that could settle the on-going “Greek question.” Do today’s Greeks descend from the ancients? “While I was president of the American School of Classical Studies, I suggested a DNA study. There are hundreds if not thousands of skeletons from the Acropolis and other ancient places, literally thousands of skeletons from the golden era of Greece, 450 B.C.”

“And I thought we could take DNA — usually you take it from teeth, that’s where it’s best-preserved — and relate it to the present-day Athenians. But the Greeks did not want to do that. Because they were afraid they would not be related. And I said you should do it, because somebody’s going to do it, but they wouldn’t let me. The school backed off.”

In the book “Medicine, Science and Merck,” a page-turner published by Cambridge University Press, Vagelos tells his inspiring story in depth. The book’s highly recommended to science enthusiasts and the uninitiated alike.

Would he advise young people to seek careers in science? “I cannot imagine anything that would be more exciting than going into biomedical sciences at this time. New information is exploding. Our capability to do exciting things is greater than it has ever been, and I find it so thrilling and engrossing that I cannot imagine that people would go into other fields. I mean — why would they do that?”

Freelance writer Penelope Kara-george’s eclectic career has ranged from Newsweek reporter to poet (“Red Lipstick and the Wine-dark Sea”), People Magazine publicity director to novelist (“Stolen Moments”). She has written and produced short films, and written award-winning scripts as well as the new feature-length “Drinking the Sun.”

With great pleasure, we are announcing that Mr. Nikolaos P. Papamichael has undertaken the responsibility of serving the Greek-American Community at St. Michael’s Cemetery.
Mission Diamandis: Create the Future, Open the Space Frontier

By Terry Poulos
Special to The National Herald

The word fatalism holds zero gravitas in the universe of Peter H. Diamandis. The firebrand founder of the world-renowned X PRIZE Foundation, “the Olympics of Space” as he calls it, is not content to let something so ethereal as fate determine his future. He’s an adherent of free will, believing that “the best way to predict the future is to create it yourself.”

In that vein, he launched the world’s first private flight to sub-orbital space, a monumental event that occurred in October of 2004. This was accomplished through a competition awarding a winner-take-all grand prize of $10 million. This is the essence of X PRIZE: Spur scientific advancement through the vehicle of competitive endeavor. In effect, make a sport out of human progression.

To help launch X PRIZE, Diamandis recruited some of the biggest titans of technology and business as supporters and investors in this new industry. They include Microsoft co-founder Paul Allen (backer of Burt Rutan’s endeavor, in Engineering and Aeronautics) and both risked the move to America and found prosperity here. That inspired me more than I know. I think the distance traveled by my dad and mom. Both were born on the island of Lesvos from modest families, and both risked the move to America and found prosperity here. That inspired me more than I know. I think the distance traveled by my dad and mom. Both were born on the island of Lesvos from modest families, and both risked the move to America and found prosperity here. That inspired me more than I know. I think the distance traveled by my dad and mom.

Diamandis, born in New York, now resides in Los Angeles with wife Kristen. He earned a M.D. from Harvard Medical School. “I thought it might be a more expedient path to becoming an astronaut,” said Diamandis. He hedged his bets and graduated with a M.S. in Engineering and Aeronautics from Massachusetts Institute of Technology. His M.D., love of space and big-picture view also alerted him to the dangers facing humanity in the decades ahead.

That future is forewarned in the latest headlines, which indicate impending apocalyptic disaster: global warming (“a scientific fact,” says Diamandis), infectious diseases, dwindling food and material resource, potential nuclear annihilation and asteroid collision among them.

Diamandis, wont to coin catchy buzzwords, speaks of “planetary redundancy,” or as his colleague Elon Musk puts it, “backing up the biosphere.” With such out-of-the-box thinking, it’s no quantum leap to suggest Diamandis might one day be mentioned in the same breath with Galileo, Copernicus or Einstein -- seminal figures who defied conventional dogma.

Empirical evidence that his visions are more reality than fiction manifested in 2004, when after nearly a decade of scrapping for funding, logistical support and political will (he pitched 200 CEOs and CMOs over a six-year period), Diamandis had his eureka moment. When SpaceShipOne reached an altitude of 100 kilometers above Earth and into zero gravity, sub-orbital stratosphere, he finally realized the first stage of one of his own goals -- to launch the personal space flight revolution. His own personal goal is to be one of the first private explorers to set foot on the moon. The Ansari X PRIZE (named after the sponsor) was created in 1994 to spur the advent of the private space tourism industry and exponentially increase efficiencies and economies. Diamandis is on target to one day step foot on the moon.

It is not evident whether the National Aerospace Administration (NASA) has the wherewithal to mobilize private space enterprise. Diamandis, once a graduate researcher at NASA’s Johnson Space Center, has keen insight into the culture.

“I have little doubt the Apollo moon race was driven by fear,” he said. “Coming out in the midst of the Cold War ... the U.S. needed to prove its supremacy over the Russians, and we literally shot for the moon to prove ourselves. Once we achieved this goal, we shut down Apollo.

“Curiosity is an important but fairly weak motivator for space exploration,” said Diamandis. “We do science because we’re curious, so it’s interesting to note that of NASA’s $16 billion budget, less than $1 billion is science because we’re curious, so it’s interesting to note that of NASA’s $16 billion budget, less than $1 billion is science. Wealth creation is a very important and a powerful driver for exploration.

This driver opened up the American mission to discover America was looking for riches. It was not any ‘noble’ mission.” Diamandis, once a graduate researcher at NASA’s Johnson Space Center, has keen insight into the culture. It is not evident whether the National Aerospace Administration (NASA) has the wherewithal to mobilize private space enterprise. Diamandis, once a graduate researcher at NASA’s Johnson Space Center, has keen insight into the culture.

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mandis concedes it’s “not NASA’s job to generate revenue, just the same way the Federal Aviation Administration doesn’t operate airlines. NASA’s job is research and development -- helping create new technology to be exploited by industry and doing such things as looking for life in the solar system.”

“NASA,” cautions Diamandis, needs to “embrace a certain level of risk. We are, after all, opening a frontier and not performing routine operations. The cost of getting into orbit hasn’t changed in 30-plus years. I have a real problem with our risk-adverse society today. I think it is killing us as a species. How can you have breakthroughs if you don’t allow for risk? The tort system that allows anyone to sue anyone for any reason is insane.

“A prize is one of the ways I’ve found to drive breakthroughs and get us around the issue of risk,” said Diamandis. “Prizes allow someone to encourage risk-taking without having to contract directly with the group taking the risk. The fact of the matter is large corporations and even governments are no longer where the innovation takes place. Breakthroughs now come from individuals or small groups that discount the risk and potential for lawsuits and follow their dream.

“I created the prize because I’m tired of waiting for the government to open space travel to the public,” Diamandis has said previously. Early aviation prizes opened air travel to the masses and gave us a global, $300 billion aviation industry and interconnects our planet. I believe the X PRIZE can lead to a new generation of spaceships specifically designed to carry the public into space, cheaply and safely. I also believe this will create a new profitable and exciting industry in which I personally hope to participate and lead.

“The first trillionaires will be made in space,” said Diamandis, who cites that the average half-kilometer asteroid floating in space (of which there are thousands, if not millions) is worth 20 to 30 trillion dollars in platinum-group metals. In the near-term, he points to a recent FUTRON Corporation survey indicating “the marketplace for orbital launches is as large as 15,000 people per year paying between $50,000 to $98,000 each. This represents a billion-dollar market accessible in the next five to 10 years.”

Regardless of cyclical economies, Diamandis has said repeatedly there exists “sufficient wealth and demand worldwide to launch this new industry. In the beginning, as with any new technology, the price will be high … I predict that the price will rapidly fall as we continue to learn and develop new approaches. It happened the same way with air travel (post-Lindberg flight) and computers (post-room size government computers). Once the commercial forces of capitalism and competition have an opportunity to take effect, we’ll see some substantial improvements,” insists Diamandis, who has traveled on a Russian MIG-25 to 85,000 feet (near the edge of space). He’s also experienced multiple zero-gravity flights on a Russian IL-76 aircraft and his company’s Boeing 727-200 zero-g aircraft now based in Fort Laud-

Dr. Peter Diamandis’ Zero-G Corporation offers the general public a zero-gravity experience, like the one he is demonstrating, through a specially outfitted Boeing 727.

Continued on page 14
Mission Diamandis: Create the Future, Open the Space Frontier

Continued from page 13

erdale, Florida.

Diamandis believes so much in space exploration he created the International Space University, a $30 million facility now based in Strasbourg, France, which has 2,500 alumni who are at the helm of many of the space agencies and companies around the world. He also founded or co-founded a dozen companies/organizations, some focusing on communications, launch systems, space entertainment, and even lunar missions.

Currently chairman and CEO of Zero Gravity Corporation, a space entertainment firm, and co-founder of Space Adventures, the biggest player in the marketing of orbital spaceflight, Diamandis envisions there will eventually be 300 to 1000 launches per year, compared to today’s average of six or eight human launches.

In space entertainment, Diamandis consulted with major Hollywood producers to attempt to devise a Survivor-like television program. Imagine voting people off the moon!

One of his companies is called the “Rocket Racing League,” a 21st century version of NASCAR, which employs rocket-powered aircraft in a spectacular competition. The first X-Racer vehicles are now flying and the first exhibition races are slated for September 2007. His company is reaching out to traditional NASCAR sponsors such as FedEx and UPS. He envisions “upwards of 100,000 spectators coming annually to watch the racers compete across the U.S. and eventually abroad.”

Fun and games are secondary, however, to space’s abundant natural resources that are a gigantic source of potential revenue. According to an International Energy Agency finding released early November 2006, the world’s energy supply is rapidly dwindling.

“If you think of the vast resources available in our solar system, let alone our galaxy, you realize that Earth is but a crumb in a super-market filled with precious resources,” said Diamandis. “Peoples of the world consumed over 12,500 billion kilowatt hours of electricity this year. Given humanity’s voracious appetite for energy, researchers estimate this number could surpass 45,000 billion kilowatt hours by 2050.

“Found in lunar soil, Helium-3 is deposited there by solar winds and has been identified as the ideal fuel for future fusion reactors,” said Diamandis. “This isotope, not found on Earth, burns in a fashion that doesn’t create radioactive waste. The average half-kilometer diameter, nickel-iron asteroid holds more than $20 trillion in platinum-group metals alone. Private companies are already planning expeditions to chart, capture and eventually mine these enormous rocks.”

Like Isaac Asimov, Diamandis is ahead of humanity’s curve. While at MIT, he wrote a college paper on Plato’s concept of the ideal society. “Plato speaks of the ideal community being 10,000 people in size,” he said. “Large enough for genetic diversity but not too large to enable proliferation of crime. The best place to start a Platonic community is in space. Once there, we will have unique opportunities to experiment with different types of societies.

“It is during our lifetime, the next 30 to 80 years, that a small but significant portion of the human species is going to move off this planet irreversibly and make humanity a multi-planet species,” said Diamandis. “Facilitating this transition is my main mission in life. It’s the closest thing I can imagine to a calling in life. I believe some of us have what I call an ‘exploration gene,’ an innate need to explore the unknown, to be unhappy with the status quo. I have a double dosage and have a difficult time standing still.”

Surely, Diamandis’ entire existence revolves around the progression of humanity. In addition to the X PRIZE for space, in October of 2006 he announced the $10 million Archon X PRIZE for Genomics, designed to “challenge scientists and engineers to create better, cheaper and faster ways to sequence genomes,” said Diamandis. World-renowned astrophysicist Stephen Hawking, who suffers from ALS (Lou Gehrig’s disease), is one of the many internationally recognized luminaries backing the project. And even more X PRIZES are being planned.

As for the ancient Greeks, Diamandis says, “No question their abilities were outstanding. But I’m tired of always speaking about Greece and Greeks from 2,000 years ago. What are we doing today? Would I love to see Greece a player in space travel. I believe much of the work I’m doing could make it possible for a small nation like Greece to have its own program.

“My own experience is also that the current government policies, bureaucracy and even pre-conceived notions in Greece suppress entrepreneurs in the mother-land,” said Diamandis. “You don’t hear about or see many new start-ups in Greece that grow and go on to compete on the global stage. There’s no reason this couldn’t happen. It just doesn’t have to be that way. I’ve also heard the notion that Greeks, and Europeans, ‘work to live’ and Americans ‘live to work.’ My own parents and grandparents, all immigrants from Lesbos, instilled in me a very strong work ethic that I am proud of and has served me well.

“I grew up believing anything was possible,” he concluded. “And I’ve literally been reaching for the stars.”

Terry Poulos writes for numerous Greek publications and works in video production as well. He has performed media outreach for a high-tech firm and closely follows science and technology.
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Status of a hoplite, known as “Lemnidas” (detail). 480-470 B.C. Parian marble.
Found southwest of the peribolos of the sanctuary of Athena Chalkiskos on the
Acropolis of Sparta. Archeological Museum, Sparta, 3365
Alexander Tsiaras, 51, CEO of Anatomical Travelogue Inc., the multi-million dollar enterprise dedicated to health and unique, 3-D explorations of the human body, designed the long, sleek, stainless steel table (not for manufacture) in his atypical boardroom. He produced the original artwork on the walls, mysteriously evoking the nexus between life and death. He created the company. If you have delved into his books with their brilliant anatomical imaging, including “The Architecture and Design of Man and Woman,” “The Invasion Guide to Sexual Health,” and “The Invasion Guide to A Healthy Heart,” you’re hooked.

You want to know: Who is Alexander Tsiaras? What exactly does he do, and how did he come to do it?

On a cold day, silvery rain sliding down the windows of his Soho headquarters, I find myself encountering a ruggedly attractive entrepreneur in blue jeans and navy flannel jacket. Tsiaras, a serious talker who puts a high premium on conversation, sets out to tell me, the words spinning out, occasionally interrupted by spontaneous laughter, usually at himself. He points out that even his parents have a difficult time explaining him, particularly since their first ambition for him was that he become a dentist.

“My parents are very proud but it’s a little confusing for them. What am I? I’m on the cover of Time Magazine. They see me on Oprah. They see me talking to Diane Sawyer, and every week someone congratulates them, and says, ‘I saw your son.’ But at the same time I’m not a doctor. They don’t necessarily see me as a success. I’m an artist but that’s not where I make my money. I’ve created this kind of world of hyper-differentiation and they can’t quite fathom a title for it. Even my wife, a successful architect, has a problem. What does your husband do? Scientist, artist, journalist?

“People want a synoptic categorization of exactly what you are – I simultaneously write programs and tell stories and have museum shows, and you start telling people what you do, and they think you’re a liar or giving them bull – so you do things you’re capable of doing. And it doesn’t categorize easily.”

In the case of Tsiaras, his idiosyncrasies and talents led to a unique enterprise devoted to exploration of the human body through print, TV, documentary films and the Internet. Embraced by the medical establishment as well as the media, Anatomical Travelogue’s profits continue to accelerate, and Tsiaras anticipates doubling his staff within the next year. New projects on the boards include one on depression, due out in the spring. “We’ll look at all the ways the brain is changing in the depressed mode, how it atrophies during depression, actually watch the brain losing its nerve endings, examine how depression can be brought on by a whole host of reasons. Harper Collins is publishing the book, and the web site is really spectacular. We’ll go on from depression to bipolar and schizophrenia.”

This year, Anatomical Travelogue won the Webby Award, the Internet “Oscar,” as the best web site on health. “A big problem in America is that people just basically do not understand their particular malady,” Tsiaras says. “You need first to demystify the demon of a disease, helping people to understand what it is. Otherwise you let somebody else take responsibility for you. Take this pill or that shot. If we can give people really compelling, soulful information that is accurate, and beautiful, we’re going to begin the first level of inspiring them to taking responsibility for their health, because they finally get it.”

Tsiaras throws his arms out. “I get it! I understand it! I can look for a solution. And that is tremendously empowering. The science of visualization is helping people and scientists. There’s always another challenge in trying to understand the incredible complexity of the function of the body. It’s a wonderful story.”

From a business point of view, Tsiaras points out: “You now have the trillions of dollars of disposable income of the baby boomers. Basically the big area that nobody has really captured yet is the health market. So it’s a wide open field and everyone is looking at it.”

Tsiaras’ staff includes scientists, artists and journalists, and consulting boards of physicians who vary from project to project. He feels a keen sense of responsibility not only to be accurate, but not to lose sight of the spiritual dimension. “When people are looking for information for their child, or for themselves, they want accuracy. We’ve maintained a scientific credibility and a journalistic integrity with a beauty and simplicity of delivery. What’s really important is that you have to keep the soul in the story. It’s not just about the body. It’s about the body of somebody that you love.”

Being Greek American proved a determining factor in Tsiaras’ life. Growing up “in this little Greek ghetto in Nassau, N.H.,” Tsiaras was the youngest of four boys whose parents had emigrated from Macedonia and Thessaly. His father went to Nassau to “work in the mills, but he hated it and said, ‘I know how to shear sheep, so I’ll shear women,’ and became a hairdresser.”

Tsiaras found himself “caught in this dramatic time warp. Basically my mother wasn’t speaking English at home. In church we’d be altar boys, intensely Greek, and then you’d leave the house with your basketball and go off into this new world.”

A mediocre student, “I was an excellent athlete and I was smart but didn’t show book intelligence. I showed curiosity. That’s why Philip Andover allowed me in. I was thrown out of good schools.” Rueful laughter erupts as Tsiaras recalls being bounced out of seven colleges, including Amherst College and the Rhode Island School of Design. “Finally, I said – I won’t go to undergraduate school. I’ll go directly to graduate school. So I joined a Rutgers graduate program, and they threw me out.” Now a roar of laughter. “It’s nothing I take pride in. For me, prescribed scripts of learning were just not the best way for me to learn. But if I was curious about something, I immersed myself entirely. I had to be self-motivated.”

Exiled from the world of academia, he set off for Greece, visiting grandparents, returning to “roots.” He spent a year herding 2,000 sheep on the Macedonian border.

“Most of my friends were in university, chasing women, and I was out there chasing mountain goats. I said what am I doing? The first three months were absolutely miserable. Basically you’re by yourself, walking alone and just looking at the landscape.

“Then there was this night. It was snowing, the first fresh snow of the season, and the moon was the biggest I’ve ever seen in my life, just over the snow-topped hills near the base of Mt. Olympus. I’ve never seen anything so beautiful, of itself, by myself, and the months after that were the best of my life.”

“In America, nothing is valued unless someone else witnesses it. So one of the things that was wonderful for me, is that I would get up in the morning, and see a patch of green, and remember it, and didn’t need anybody else. There was just the sheer joy of seeing something, hearing something unusual. The idea that you could do something for yourself, by yourself, for total enjoyment, was revelatory, and that has stayed with me forever. It was
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Feb.

WEAR RED LUNCHEON
2 Friday, 12:30 PM-2:00 PM
The Heart Truth For Women
Sergio Sokol, MD
Registration Required. Call 1-800-Your-MDS
Crescent Tower
Community Room
23-22 30th Road, Long Island City

MEN’S HEALTH LECTURE
7 Wednesday, 8:00 PM-10:00 PM
Most Common Men’s Health Problems: What You Should Know
Andreas Cosmatos, MD
Registration Required. Call 1-800-Your-MDS
Greek American Homeowners Association
23-49 31st Street, Long Island City

HEALTHY AGING SERIES
13 Tuesday, 10:30 AM-11:30 AM
Promoting Muscle Strength & Flexibility Through Movements
Rosa Colletti-Oluchia
Director, Rehabilitation Medicine
JVL-Dimotosis-Vallone
Senior Center
29-19 24th Avenue, Long Island City

LUNCH & LECTURE SERIES
Urinary Incontinence: You Don’t Have To Go Through It
Thursday, February 22
11:30 AM—1:00 PM
Roberto E. Granato, MD
Registration Required. Call 1-800-Your-MDS
Crescent Tower, Community Room
23-22 30th Road, Long Island City

BREAST CANCER SCREENING
28 Wednesday, 3:00 PM-6:00 PM
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George Tsoulias, MD, PhD
Director of Surgical Oncology
Co-sponsored with
 Queens Breast Health Partnership
 with support from SHAREing & CAREing
By Appointment Only. Call 1-718-274-0365
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1-800-YOUR-MDS
Alexander Tsiaras: Inside Story on Body and Brain

Continued from page 16

shocking to come back here where you needed Polaroids to validate your experience.”

In Greece, Tsiaras began photographing, focusing on the elaborate graveyards and mourning rituals. “In America, death is truly an inconvenience. When I told my grandmother that people would do everything they could to forget death, she said, ‘The barbarians.’ The Greeks have greater connection with nature. You see the animals born. You see the process. They’re much more accepting that life is a process.

“Fundamentally I saw myself as a new form of the Dada artist, working with found objects. You know, the women would hold these skulls and wash them in wine and water, and it was just such an extraordinarily dramatic ritual. And even if they were illiterate, they knew their anatomy. They judged – the more flesh and bones, the more sins the person committed in the lifetime, the less flesh, the less sins. Writing about and photographing the event, it was pure drama, unadulterated drama.”

When he returned to the U.S., Princeton University Press published his book of black and white photographs, “The Death Rituals of Rural Greece.” Tsiaras, then 19, sought the same kind of visual drama he had discovered in Greece. Visiting his brother William, Chief of Residents in Ophthalmology at the University of Pennsylvania, he found his answer. “When he was doing surgery I saw those eyes, almost like an old Dalí film – enormous eyes with the cut, and I said, ‘Wow, it’s sort of like the bones I had seen in the villages.’ And I began photographing and writing stories.”

Life Magazine bought his first story on eye surgery and he embarked on a career as a photojournalist. Tsiaras had become intrigued by laser light passing through the eye. “What became fascinating to me was actually seeing laser light going through the eye, and you would see where it would change when it hit the cornea and lens and refract, and I said this is really interesting. Maybe we could do even more with altering that light to give you even more information.”

He set about teaching himself mathematics and physics and started designing his own lenses and cameras, including one of the first endoscopic cameras. He photographed the fetus from outside the embryonic sac, which became a cover for Life Magazine. “And then about 17 years ago I started to see the new generation of scans, how they were very much like big cameras, but they could actually see inside the body, as opposed to being restricted like a photographer.” He then established Anatomical Travelogue.

Tsiaras travels a great deal, but less lately because of the Internet and a six-year-old son who attends the Fantis School in Brooklyn. “The good part is that traveling is not as much fun as it used to be,” although he points out that he “hasn’t had a good Italian risotto in two years.”

He lives in Dumbo in Brooklyn with his wife and son, and has a home in Bucks County, Pa., where he enjoys “putting on his shepherd’s hat” and taking long walks. He’s also training to compete in a Triathlon, evidenced by the sneakers in the corner of his office, next to a table containing nutritious cereals.

He first came to New York seeking a career as a sculptor, along with “good conversation.” He was fortunate to meet and study with great talkers, including artists George Segal and Lucas Samaras. “Everything was about conversation. Then it dried up in the art world, and became about money and networking. I did find good conversation in magazines, with, you know, the crusty old photographers on the 28th floor who had traveled around the world. Then magazines dried up.”

One of his motivations in founding Anatomical Travelogue, says Tsiaras, was to rediscover conversation. “I wanted to create a new hub where I would have technologists, and I would have artists, and I would have scientists and story tellers all under one roof. I wanted people looking over each other’s shoulders, asking, ‘How do you do this?’ Every Friday night, we’d bring in some wine and pizza or sushi and people would exchange ideas. Now we’re getting a little too big for that.”

His long-range goal: “We want to be and will be number one leader disseminating health information to not only the United States but the rest of the world. Because a heart is a heart in Brazil, in Greece, in America, and since you’re doing visuals, these translate.”

Where did he gain the confidence to embark on such an ambitious venture?

“If you preplan, you won’t attempt it. You have to start with a single goal. I want to see something in the body. Why can’t I see something else? Then you start refining it. Then you hire somebody else. Then you go through the bad part. Then you say, ‘This could work.’ You stick it out. If the idea is good, and you last long enough, you win the war. But you start off by saying, ‘Well, could I manage a company like that? No.’ But you learn a little bit, and you learn a little bit, and sometimes you’re a better manager, and a better artist than you think you are, and a problem presents itself and you can solve it, and you realize it’s all possible.”

Freelance writer Penelope Kara-george’s eclectic career has ranged from a New York reporter to poet (“Red Lipstick and the Wine-Dark Sea”), People Magazine publicity director to novelist (“Stolen Moments”). She has written and produced short films and written award-winning scripts as well as the new feature-length “Drinking the Sun.”
By Terry Poulos
Special to The National Herald

How and why? These are the most perplexing questions in all existence. Philosophers, even the classical Greeks, fail to explain. Theologians lack an empirical 'Smoking God,' if you will. Science lays claim to having glimpsed remnants of the early universe in so-called Cosmic Microwave Background Radiation (CMBR). Still, new discoveries only seem to beg new questions.

Undaunted by this conundrum, we soldier on for that elusive truth. Dr. Yannis Semertzidis, an internationally lauded physicist at Brookhaven National Laboratory in Long Island, New York, spoke to The National Herald about these complex issues, although with one caveat. “I realize all I can do is put a little brick on the edifice of knowledge,” he said.

Semertzidis is one of the leading figures in his area of study, being elected in 2005 as Fellow of the American Physical Society (APS), a 43,000-member organization that bestows this distinction on a mere one-half of one-percent of its membership annually. He was cited for leadership in the development of electrostatic quadrupoles and transient magnetic field measurements and for analysis of the muon g-2 experiment.

“Muons turned out to be excellent tools in reaching the forefront of physics,” said Semertzidis. “We used the largest diameter superconducting magnet in the world in what amounts to a very sensitive MRI on the muons (very heavy ‘cousins’ of electrons).” The effort led to improvements in experimental accuracy and challenged previously accepted theories in the Standard Model of particle physics.

One project under development, a study involving Electric Dipole Moments (EDM), illustrates Semertzidis’ pragmatic approach and suggests that new physics discoveries might soon be forthcoming. “EDM’s are excellent probes of physics beyond the SM … since they allow for values within experimental reach, whereas the SM predictions are several orders below them,” he wrote.

The SM is a theorized set of physical laws bridging competing theories into a unified equation -- a

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Semertzidis Seeks Big Answers, Brick by Brick

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standard by which all experiments are measured. Semertzidis’ EDM experiment is analogous to mastering the simple, then multiplying that knowledge to solve more ambiguous systems.

“My job is to minimize errors,” said Semertzidis. “If the results of the (muon g-2) project are correct, at the giant accelerator at CERN … we have a very good indication of something big to come.”

Scientists have mapped the known universe, including CMBR, which is believed to be left-over photons (wave-like particles of light) from the early universe. His experiments might soon shed light on the mysterious matter-antimatter disparity.

“There is much more matter in the universe than antimatter,” said Semertzidis. “The current thinking is the universe was created in a Big Bang from quantum fluctuations (QF). Our experience says matter is created in par with antimatter from QF. But what happened to the antimatter? We know there isn’t much of it since when matter meets antimatter, you get specific radiation. Hence, if there was antimatter, we should see that radiation, like the CMBR we believe existed early on, at the interface points between matter and antimatter. But we don’t see it. The model we use claims that most of the matter-antimatter annihilated one another very early on and today is in the form of photons, which we can count today. Our theory fits so well; the odds of it being false are astronomical.

“A special kind of rule must be in action,” said Semertzidis. “One that says antimatter and matter should work slightly differently. Has anything like this been observed before? Yes! But it is very tiny and not nearly enough to explain our cosmos. There must be a new kind of effect beyond the SM. The theorists have come up with models that could supply the extra factor needed, like Super-Symmetry. Although well motivated, these models are yet to be proven experimentally. Our (EDM) experiment will be the most sensitive one testing these models. We can see deep into the universe, very far back in time. We have a very good indication the Big Bang was the way the universe was created. When we produce something (in the lab), we produce matter and antimatter in equal amounts. But in the universe, we don’t see antimatter.”

Albert Einstein expounded on light being both particle and wave.

Building further, Semertzidis’ revolutionary EDM experiment employs particles as observers. As particles approach light speed, the universe slows, and these ‘observers’ could theoretically witness firsthand the fundamental building blocks of life itself -- almost frame by frame!

“The main idea is to use large (relativistic) electric fields available in magnetic storage rings,” said Semertzidis. “We know from Einstein that a magnetic field in the lab frame can look like an electric field to a moving observer. In accelerators, we can have particles moving at close to the speed of light so these particles would see a huge electric field present, even though the rest of us, in the lab frame, see none.”

From 1993-95, Semertzidis went on sabbatical to serve a fellowship at CERN, the Switzerland-based European Organization for Nuclear Research. When its new accelerator is fully online, CERN will become the world’s most powerful superconducting supercollider. Particles will be smashed together at near light speed. When these violent collisions occur, atoms are obliterated into subatomic matter (electrons, protons, neutrons) and then degrade even further (muons, neutrinos, quarks, bosons). The most popularly-known is the theorized Higgs Boson, called by some “The God Particle.” The Higgs was ‘discovered’ only through observation of its indirect effects on the laws of particle physics, but it’s believed to be a kind of glue that provides mass to all matter. Detection is illusive because such particles appear for only minute fractions of a second, then disappear. An improved SM would go a long ways toward empirical verification of the Higgs.

During elementary school, Semertzidis, now 45, was asked to “take a stone, break it in two, then in four, and so on,” he explained. “I did the experiment, in a sense, because (the teacher’s) lesson was at some point, you reach the nucleus. If you break the nucleus, you get something not part of the stone anymore. You could not move indefinitely in that direction.”

Young Semertzidis was forever hooked. Growing up in Katerini, a small town located near the foot of Mount Olympus just outside Thessaloniki, Semertzidis never lacked inspiration, both ethereal or earthly. He was born to a farmer father, Kyriakos, and an academically-supportive mother, Olga, who possessed acute mathematical aptitude, though her own studies were inhibited by the German occupation of World War II.

The youngest of three children, his Greek upbringing had profound influence. “The ancients tried to understand the world just by thinking,” said Semertzidis. “This is very audacious, but it does take an element of arrogance to get at truth. One of my teachers strongly emphasized one particular lesson from the Bible which teaches that when God created man, he basically gave an order to investigate the universe. In that sense, I never felt inhibited that the world is so un-touchable. Science is a very demanding discipline. Of course, arrogance alone won't get you anywhere.

“Individuals had a problem with Socrates,” reminded Semertzidis. “He didn’t try to be pleasant, and he was persecuted. He paid for being free. Yet he remains one of the greatest minds in history. He invented, among other things, the debate. He would make arguments, and they would debate what it would lead to. He would teach with questions, and they would come up with answers.”

Semertzidis took his humanities-influenced thinking to Thessaloniki’s Aristotle University and earned his bachelor’s degree in
Dr. Yannis Semertzidis (foreground) discusses the EDM experiment with two of his collaborators, Dr. Ed Stephenson of Indiana University Cyclotron Facility (seated next to him) and Dr. Gerco Onderwater of KVI, The Netherlands. The photo was taken at Brookhaven National Laboratory on December 14, 2005.

After serving as a research associate at Rochester, he joined Brookhaven in 1992 as an assistant physicist. In 2003, he received the Brookhaven Science and Engineering Award. Brookhaven is managed by the U.S. Department of Energy.

“(The government) did something very smart,” said Semertzidis. “They put together a non-profit organization and didn’t have the government running it. You can have science in China. You had science in the (former) Soviet Union. But somehow we beat them. I believe the reason for that is fundamental freedom. The Soviets at some point did not promote biology. They were really behind because they had ideological problems with the fact you couldn’t change DNA. This was imposed from the top. You put very smart people together, and you let them propose experiments. Remember the lessons of Socrates. In science, with peer review, they judge what makes sense and what doesn’t.”

We asked Semertzidis for his thoughts on recent American political trends toward conservative religious values. “I think we’ll pay for it,” said Semertzidis. “It may be the same thing that happened with the Soviet mental block. The community should consult rather than impose. If you mix politics with science, it doesn’t work.”

At home, Yannis and Georgia, a Ph.D. in anthropology, have spirited humanities-based discussions. They have three children -- Olga, Kyriakos and Harris -- and attend St. John’s Greek Orthodox Church in Long Island. So how does God factor into the scientific equation? “I go to church but don’t mix the two,” said Semertzidis. “When I go to work, I don’t look at physics and ask, ‘Is the Bible in accordance with that?’ I see it independently.

Science does use God as a measuring stick, if not the object measured. Today’s most renowned astrophysicist, Stephen Hawking, incessantly mentions God in his writings.

A famous Einstein quote (paraphrased), “God does not throw dice,” was employed to debunk Quantum Mechanics (QM). QM says Probability, not Relativity, governs the quantum world. Einstein couldn’t comprehend this because he held all things to be relative. The problem is on the smallest scales, Relativity breaks down. The smaller the object observed, the less certainty in measurement. Recalling Relativity with Probability might quickly lead to a “Theory of Everything.” More realistically, a better SM. This Relativity/Probability quandary begs another question: Do each correlate to fatalism and free will, respectively?

“My colleague, Yuri Orlov from Cornell University, says that with QM, determinism is dead and free will is alive,” related Semertzidis.

“The outcome of a system is not pre-determined given the initial conditions. That means we are really free and not slaves to the conditions of the cosmos. Of course, you don’t need to have Chaos to have an un-determined outcome given the conditions. Chaos is also dangerous because it would look like whatever one does is irrelevant since small steps swing you huge amounts. The correct statement is with QM we have in-determinism and free will. With the old mechanics, everything, in principle, could be described by an equation, although astronomically huge, and thus everything could be determined.

“Looking at our world as a physicist, I am awed, so one can never exclude the existence of God. I find life miraculous. I am in the business of how and that is my job. The why is a different department at the moment.”

Terry Poulos writes for numerous Greek publications and works in video production as well. He has performed media outreach for a high-tech firm and closely follows science and technology.
Everyday Ambrosia: Dr. Artemis P. Simopoulos and the Lifesaving Omega Diet

By Marianthe Karanikas
Special to The National Herald

In 1949, a brilliant, young Greek woman came to the U.S. to study chemistry at Barnard College, Columbia University. Soon after her arrival, she encountered the profound shock that helped shape her life’s work: she found American food inedible. A former nutrition consultant to the White House, Dr. Artemis P. Simopoulos is now the President and Founder of the Center for Genetics, Nutrition, and Health in Washington, D.C. In her landmark book, “The Omega Diet,” co-authored with Jo Robinson, Simopoulos recalls the pivotal moment that launched her career, the first breakfast she ate in her college dorm, “The only bread available was white bread, which, to me, tasted like cotton. . . . The fruit looked appetizing, but it had so little flavor that it was hard to believe it was the same kind of fruit that grew in Greece.”

Something was terribly wrong with the American diet. Simopoulos already knew a better way to eat, the 5,000-year-old Greek tradition of good nutrition. She grew up in Kalamata and enjoyed the delicious fruits, vegetables, grass fed meat and poultry farmed on her family’s summer estate.

One of Simopoulos’ childhood delights was ripe fruit for breakfast, chilled not from the refrigerator but from being freshly picked before dawn. The eggs that went into the “spanakopita” (spinach pie) had been laid by their hens that very morning.

Even as a young student, Simopoulos knew the traditional Greek diet was healthier than the standard American diet. Later, as a pediatrician and endocrinologist, she helped to show why. It wasn’t just the olive oil or the low amounts of saturated fat. A secret was revealed in the study of our everyday ambrosia: wild plants or “horta.”

THE POWER OF PURSLANE

Being Greek-born, Simopoulos knew Greeks eat wild plants. This insider’s knowledge helped her provide one of the missing clues in understanding how the diet of Crete, though 37 percent fat, protects people more effectively from cancer and coronary artery disease than any other diet studied.

The nutrition of Cretes first came to the attention of the medical community in the 1960s, when an influential 15-year study by the cardiovascular epidemiologist Ancel Keys and his colleagues from the University of Minnesota showed that the men from Crete were healthier than all the other 12,000 men surveyed in seven different places — Corfu, Italy, The Netherlands, Finland, Yugoslavia, Japan and the U.S. Compared to Americans, they had half the cancer death and one-twentieth of the mortality from coronary artery disease. Compared to the Japanese, they had half the overall death rate, though the Cretes diet contained three times more fat than the Japanese diet. In a rather puzzling finding, the men from Crete had half the overall death rate of the Italians, although both groups ate Mediterranean diets rich in olive oil, legumes, fruits and vegetables. The diet of Crete, virtually unchanged from 4,000 B.C. to modern times, was also more protective than the Mediterranean-style diet of Corfu, which, because of foreign influence, differed from the traditional Greek diet. At the time, researchers thought it was because the Cretes diet had lower saturated fat and higher olive oil content than the Italian and Corfu diets.

Simopoulos showed otherwise. Her interest in nutrition policy had led her to a position at the National Institutes of Health (NIH). In the early 1980s, while she chaired the Nutrition Coordinating Committee at NIH, Simopoulos reviewed data from the Seven Country Study. She noticed the researchers ignored the amount of fish, fruits and vegetables in the Cretes diet. They also totally ignored the significance of the large consumption of wild plants, particularly purslane (“antrakla” or “glistrada”). In 1985, Simopoulos co-chaired an international conference on “The Health Effects of Polyunsaturated Fatty Acids in Seafoods.” This conference introduced the scientific community to the vital health benefits of omega-3 fatty acids. At the conference, Simopoulos couldn’t stop thinking about purslane. She remembered that Theophrastus (372-287 B.C.), the Father of Botany, recommended purslane as a remedy for heart failure, scurvy, sore throats, earaches, swollen joints and dry skin. Even though most scientists thought plants contained a negligible amount of omega-3 fatty acids, Simopoulos suspected that purslane must be a rich source of these nutrients.

“I convinced my friend and colleague, Norman Salem, Jr., Ph.D., to help me analyze its fatty acid content. But where to find purslane?”

While purslane grew freely in Greece, it was considered a noxious weed by the Department of Agriculture in the U.S. But where to find purslane?

“You can imagine my delight when I found a clump of purslane growing in a highly convenient place,” Simopoulos writes, “the cracks in the pavement outside my office at NIH. I collected the stalks and submitted them for analysis. The results confirmed my hunch. Purslane is loaded with omega-3 fatty acids.”

Simopoulos knew that the people of Crete eat large amounts of greens and wild plants, including purslane, as well as walnuts and fats, rich in omega-3 fatty acids. She suspected this “hidden bounty” of omega-3 fatty acids was responsible for the health benefits of the Cretes diet.

THE LYON DIET HEART STUDY

“My suspicions were confirmed by a landmark heart study conducted... by two French colleagues, Serge Renaud and Michel de Longuevil,” Simopoulos writes.

“In 1988, Drs. Renaud and Longuevil assigned one group of 302 heart attack survivors to the diet prescribed by the American Heart Association (AHA) and a similar group to a slightly modified version of the Cretes diet. The modified diet was based on canola oil and olive oil, and had a ratio of omega 6 to omega 3 fatty acids of 4 to 1, much lower than either the AHA diet or the traditional Western diet whose ratio is 15 to 1.” This Omega Diet was higher in fish, grains, fruits and vegetables and lower in red meat and deli meats.

The results of this study were so astounding it made medical history. After only four months, the researchers found significantly fewer deaths on the modified Cretes diet than on the AHA diet. This finding was remarkable since no other heart diet or drug has ever shown a
Dr Artemis Simopoulos is an award-winning artist and mother of three daughters, Daphne, Lee, and Alexandra. She is a professor of English at Missouri State University, teaches technical writing, and is an award-winning television documentary producer. Lee is a musician, songwriter, and jewelry maker, and her poem “OLive” recently won a top award at the 2nd International Poetry Festival in Thessaloniki. Alexandra is a psychiatrist, an award-winning artist and mother of a two-and-a-half-year-old daughter. Dr. Artemis Simopoulos can be contacted at cghn@bellatlantic.net.

Marianthe Karanikas, associate professor of English at Missouri State University, teaches technical and scientific writing. She holds an A.B. cum laude in biochemistry from Smith College, an M.A. in biophysics from Brandeis University, and a Ph.D. in English from the University of Illinois at Chicago. She can be reached at marikaran@hotmail.com.

**The Omega Diet**

Simopoulos has devoted her life to educating people about the benefits of the Omega Diet. Since 1984, her research has been on genetic variation and nutrition, evolutionary aspects of diet, and the omega-6/omega-3 fatty acid balance. In addition to her responsibilities at NIH, Simopoulos served as Consultant on Nutrition and Health to Ms. Ester Peterson, Special Assistant to The President for Consumer Affairs, The White House, from 1978 to 1980. She was a member of White House delegations to the World Health Organization and the Food and Agriculture Organization. From 1978 to 1983 she was Cochairman and Executive Secretary of the Joint Subcommittee on Human Nutrition Research, Federal Coordinating Council on Science, Engineering, and Technology, Office of Science and Technology Policy, Executive Office of the President, The White House, and a member of its successor, the Interagency Committee for Human Nutrition Research from 1983 to 1986.

Her landmark book on the life-sustaining traditional diet of Greece, as exemplified by the diet of Crete, was first published as “The Omega Plan” in 1998. It is now in paperback in the U.S. under the title, “The Omega Diet.”

The Omega Diet is far more than a heart diet. “Studies show this new program will also make you less vulnerable to inflammatory and autoimmune diseases,” Simopoulos writes. “You may be less prone to mental disorders such as depression and Alzheimer’s disease.”

In an interview, Simopoulos said the Omega Diet reduces the risk of obesity, diabetes, and even osteoporosis. “The high levels of omega 6 fatty acids in the American diet may interfere with calcium absorption.”

In “The Omega Diet,” Simopoulos outlines seven guidelines that provide the best eating habits for our overall health. The Omega Diet is scientifically proven to lower the risk of cardiovascular disease. Those of us familiar with the traditional Greek diet will recognize many of the nutritious delicacies Simopoulos prescribes. However, the book offers us scientifically tested ways of balancing our favorite Greek foods to ensure maximum protection. Simopoulos also pinpoints the dangers in processed foods and restaurant fare that many Greek Americans encounter. She helps us make wiser choices and presents a delicious weight-loss diet. “The Omega Diet” has been translated into many languages, including Chinese, French, Dutch, Swedish, Greek, Korean, Arabic, Persian, and most recently, Turkish and Spanish.

**Positive Health**

In 1990, Simopoulos founded the Center for Genetics, Nutrition, and Health, a nonprofit organization in Washington, D.C., dedicated to the Hippocratic concept of Positive Health. The Center holds the International Conferences on Nutrition and Fitness every four years in the spring prior to the Olympic Summer Games, either at the Olympic Stadium in Athens, Greece, and/or at the International Olympic Academy at Ancient Olympia, Greece. These conferences explore the interaction of genetics, diet, physical activity and personal relationships. According to Hippocrates,

“Positive Health requires a knowledge of man’s primary constitution (which today we call genetics) and of the powers of various foods . . . But eating alone is not enough for health. There is also exercise . . . The combination of these two things makes regimen, when proper attention is given to the season of the year, the changes of the winds, the age of the individual and the situation of his home. (5th century B.C.).”

Simopoulos is currently working on a new book, “Positive Health,” which continues to teach the benefits of Greek wisdom substantiated by modern science. She urges the Greek community to join her in spreading the word.

“We Greeks need to get our traditions out in the forefront,” Simopoulos says. “Greek health concepts save lives.”

**Biographical Notes**

Dr. Artemis Simopoulos graduated from Barnard College, Columbia University, with a major in chemistry, and Boston University School of Medicine. She is the recipient of numerous honors and awards, including the first Presidential Award for Studies in the Field of Obesity and Weight Control (Columbia University, U.S.), the 1991 Boston University School of Medicine Distinguished Alumni Award (U.S.) and the 1998 Gopalan Oration Award (India). In October 2001, Simopoulos received the FINesse Seafood Health and Nutrition Award from the National Fisheries Institute (U.S.) She is the Chair of the World Council on Nutrition, Fitness and Health, the President of the International Society of Nutrigenetics/Nutrigenomics and Editor of the Karger series “World Review of Nutrition and Dietetics.”

Simopoulos is married to fellow physician, Dr. Alan Lee Pinkerson. They met on the first day of medical school. Their three daughters, Daphne, Lee, and Alexandra, bring them much joy. Daphne is the mother of a five-year-old daughter and an award winning television documentary producer. Lee is a musician, songwriter, and jewelry maker, and her poem “OLive” recently won a top award at the 2nd International Poetry Festival in Thessaloniki.

Alexandra is a psychiatrist, an award-winning artist and mother of a two-and-a-half-year-old daughter. Dr. Artemis Simopoulos can be contacted at cghn@bellatlantic.net.
From Childhood Playground to Living Laboratory: The Aegean in the Eyes of Conservation Biologist Johannes Foufopoulos

By Artemis Leontis
Special to The National Herald

Dr. Johannes Foufopoulos, conservation biologist, found his passion in life early. From the time he was a toddler, Foufopoulos intensely observed the natural world. He followed his parents on excursions into the countryside surrounding his home in Patras, Greece. His mother, a native of Frankfurt, Germany, organized weekend picnics and nature walks through the mountains and forests of western Greece. In turn his father, an officer in the Greek Air Force, introduced him to village activities he had learned as a child in his native Marpissa on the Aegean island of Paros: fishing, collecting snails and harvesting wild greens. Both parents taught him to love nature and introduced him to its wild variety. In Germany Foufopoulos found a world of deep, dark green forests, whereas Paros presented the exotic, wind-scorched, desert-like Aegean landscape, with its bright sun and sparse, rocky fields. When he was five years old, Foufopoulos declared he would become a zoologist. His family found ways to stimulate his interests. A German aunt in the U.S. invited him to visit her in Virginia and introduced him to the work of American scientists. At age 15 he worked in a German zoo as an animal keeper. “I was the youngest intern they had ever had, and I got the sense that they were sort of amused by my earnestness, even when I set out to perfect the art of chopping earthworms for the fruit bats’ dinner,” Foufopoulos laughs.

As time went on, childhood passions raised scientific questions relating to disease, evolution and conservation. Living organisms in the environment are not just the reptiles, amphibians, birds and other animals one observes with the naked eye but also the microscopic diseases they carry. Why do some populations succumb to infectious diseases, while others remain healthy? What kinds of stresses make animal populations prone to disease? How does environmental change, the kinds of habitat degradation that are taking place so rapidly in Greece since the 1960s, affect populations? What alters the balance between parasites and their hosts, so that once healthy species begin to disappear? With these questions, he discovered the fields of disease ecology and conservation biology.

While undergraduate studies in biology took him from Greece to Philips-Universitat Marburg, Germany, Foufopoulos had his heart set on studying in the U.S., which he felt was a more interesting place for research in his field. He seized an opportunity to study abroad as an exchange student at the University of Illinois-Urbana and accepted an invitation to stay for another year to complete his B.A. there. “I was fascinated by the commitment to excellence at American universities and the casual way students could interact with faculty. In Germany professors were staid old men in white lab coats. My first professor in Illinois was a brilliant wild-haired young woman who happened to also be in the National Academy of Sciences,” Foufopoulos says. He pursued an M.A. and Ph.D. in Zoology at the University of Wisconsin-Madison. He is currently assistant professor of Natural Resources at the University of Michigan, where he teaches courses on Ecology and the Evolution of Infectious Diseases as well as Conservation Biology.

Conservation biology is a discipline that sends scholars into the field. Wildlife with its many parasites is the biologist’s laboratory. Thus every spring, just as he is completing the work of grading papers and exams, Foufopoulos’ quest to learn more about host-parasite relations moves him to prepare for three to four months out in the wilds. Fieldwork has taken Foufopoulos to near and far destinations: to places as close to home as the Upper Midwest or the Rocky Mountains and as mythical as the Galapagos Islands made famous by Charles Darwin, or the Nakanai Mountains in Papua New Guinea. It’s not so much the place that defines the questions he asks, as it is questions that need answering that determine what place will become his next laboratory.

For example, Foufopoulos’ interest in understanding how environmental degradation affects parasite infections in wildlife recently sent him to the Rocky Mountain Biological Lab in Crested Butte, Colorado to study wild bird populations of sparrows. There he and a team of scientists manipulated food availability (through food supplementation) and number of parasites (by administering antiparasitic medicine) in a heavily parasitized population of mountain birds. Together they examined how these manipulations affected bird survival. Another project examined the sensitivity of the unique Darwin finches on the Galapagos archipelago to introduced pathogens. A paper published by Professor Foufopoulos and collaborators from Princeton University and the University of Upsalla demonstrates that these island finches have different immune systems that can make them more susceptible to diseases introduced by humans through tourism, commerce and domestic animals.

“Studying these questions goes well beyond mere interest in wildlife. Because many wildlife diseases (such as rabies, anthrax, West Nile Virus and Ebola) can also infect humans, making sure that wildlife is healthy translates into tangible public health benefits. “We tend to find emerging pathogens in ecosystems damaged by human activities and well-functioning ecosystems have very little disease,” Foufopoulos observes.

By far the environment closest to the childhood experiences that moved Foufopoulos to study ecology and biology is the Aegean Sea, his playground in summers spent on the island of Paros, and a place, it turns out, of vast significance to the field of conservation ecology. Most people recognize the beauty and historical significance of the Aegean. What is not visible to the non-specialist’s eye is its significance for biological and ecological research. Where most of us see beautiful islands and beaches, what the biologist sees is the fragmentation of what was once a continuous natural habitat into small island patches, each harboring isolated wildlife populations. For what was once a continuous coastal landscape of hilltops became, with the end of the last ice age and the rising sea levels that followed, an archipelago of islands in the Aegean. In this environment, the survival of species was no easy matter. Yet many species did survive, often evolving interesting adaptations to the new island environments. As a prominent Greek biologist once said, the Aegean Sea, with its thousands of islands, represents a giant laboratory for evolution and unparalleled opportunity to study how nature works. Unfortunately this treasure, unique by international standards, has not been studied as it ought to by Greek scientists, according to Foufopoulos. Furthermore much of this scientific treasure is rapidly being destroyed as rampant tourist development swallowing the last intact natural areas in the Aegean islands.

Foufopoulos says, “If Darwin had visited the Aegean Sea rather
Research in the Aegean

By Johannes Foufopoulos

The Aegean gale has picked us up to bowing strength and is driving salty spray into our eyes while the waves are lifting cupfuls of icy water into my apparently not quite tight enough rainjacket collar. As our boat, a 6 meter long, open-decked inflatable zodiac, fights its way against the weather, it becomes airborne between waves and, with the engine screaming from the sudden lack of resistance on the propeller, it lands with a crash into the next wave. In the meantime, I notice with a certain uneasy feeling in my stomach that while darkness is falling rapidly, Paros, our home port, does not appear to be coming any closer. I also remember the words of a fellow colleague, ‘Get the data but come home alive,’ and start wondering whether we are taking too many risks in this endeavor. Together with a team of faculty and students from the Universities of New Orleans, Athens and Crete, I have been visiting a number of small islands in the Cyclades cluster located between Greece and Asia Minor. On these remote islets, baked by the hot sun and whipped by the fierce “meltemi” winds, some of the most remarkable survivors of the Mediterranean cling to existence: small populations of the Aegean wall lizard which somehow eke out a living on what is little more than steep, thorn-covered rocks.

What is even more remarkable is that these lizards, incapable of swimming, have been surviving on these islands since the last Ice Age, when rising sea levels cut them off from neighboring landmasses. From childhood they have needed to be measured, weighed and marked before being released back into the field again. The purpose of our visit is to sample genetic material from these small lizard populations and study their ecology and secrets of survival. Obtaining genetic samples from these animals involves capturing them and collecting their tail tips (which will regrow in a few weeks). However, as I quickly realized on the first day, Aegean wall lizards are neither particularly tame nor inclined to part with their tail tips. This means that I have spent many hours crouched in painfully uncomfortable positions, staring at spiny bushes with the lizards eyeing me back from their well-defended refuges with well-justified suspicion. Our preferred method of capture has been to dangle a small worm tied to the tip of a fishing rod in front of a bush to lure the hungry lizards into a smooth-walled bucket from where they cannot escape. Unfortunately while some of the lizards are ravenous enough to be lifted with the worm in their jaws into the bucket, others are much more cautious, making repeated visits to the same island a necessity.

The reasons for studying these unusual populations go well beyond lizard biology. Because conventional population genetic theory would predict that such tiny populations should not exist, having fallen prey over the millennia to inbreeding and the resulting erosion of genetic diversity, we hope to learn something about their genetic make-up, immune systems, and their general ability to persist over time. By understanding the general principles that govern population survival, we hope to be able to help other similarly isolated populations of vertebrates persisting on habitat fragments such as grizzlies in Yellowstone National Park or endangered trout in small lakes. When it comes to population genetics, nature does not care whether a given population consists of bears, lizards, snails or dandelions: it is the absolute population size and the time of isolation that matters.

The Aegean Sea, with its thousands of islands, each of them representing a unique combination of size, habitat types, and time passed in isolation, provides an outstanding system to study not only the long-term effects of habitat fragmentation, but also evolution in general. As a prominent Greek biologist once famously said, “If Darwin had visited the Aegean Sea rather than the Galapagos Islands, he would have come to exactly the same conclusions regarding the nature of evolution.” Given the exceptional promise of the Aegean Sea as a place to study the ecology and evolution of animals, our team has made a commitment to return in future years. Already, preliminary results from our first field season point towards a rich and promising future. And even though this means that occasionally, like tonight, we return home beaten up and dripping wet, the exceptional beauty of the place and the friendliness of the islanders make this a worthwhile enterprise.

Research and the Aegean Sea is a gripping first read. To learn more, I recommend that you explore his website: http://sitemaker.umich.edu/jfoufopoulos/front_page. It’s a gripping first step into the beauty of the world Foufopoulos has been investigating from childhood.

Artemis Leontis, Ph.D., associate professor of Modern Greek, University of Michigan, is the author of “Topographies of Hellenism: Mapping the Homeland,” “Greece: A Traveler’s Literary Companion,” and “What These Ithakas Mean ... Readings in Cavafy.”
Dr. Peter Lykos: A Chemical Energizer

By Robert Krause
Special to The National Herald

You can hear Dr. Peter Lykos smiling as he speaks. Almost every sentence ends with an upturned lilt, the vibrant sound of sharing a positive outlook. In many ways, sharing a positive outlook describes his life. We spoke during December 2006. “Next month I’ll be 80. I’m in my 52nd year at IIT. I’m the most senior member of the faculty there.” Lykos serves as a professor of chemistry at the Illinois Institute of Technology (IIT) in Chicago.

The enthusiasm in Lykos’ voice is contagious when he is speaking about the Interprofessional Projects (IPRO) at IIT.

“I just got through writing a recommendation to the American Chemical Society for a national award for a guy who is now professor emeritus at the University of Texas. He’s been there for 40 years. He took that class with me at IIT. That got him started with computational chemistry.

IIT has been well served by Lykos. He created the Computer Science Department, the Interactive Instructional Television System and the IIT Computer Center. Author of some 70 journal publications, he has also edited six books dealing with computers and chemistry. A study/report he did for UNESCO, “The Computer’s Role in Undergraduate Chemistry Curricula,” was well received internationally and accelerated computing in chemistry. He was elected to the National Research Council of the National Academy of Sciences and appointed Chair of the Committee on Computers in Chemistry. During his three terms serving as a member of the American Chemical Society Committee on Professional Training, Lykos helped establish a core curriculum of 28 semester hours to which could be added optional interdisciplinary focuses to create several optional bachelor’s programs. Within the Chicago section of the ACS, he served as chairman, arranging the 1989 National Chemistry Day Celebration at IIT with the original theme, “Chemists are the Human Element.” More recently, IIT gleaned renown by the development of the Electronic Nose.

The medical treatment of patients with blood poisoning or sepsis of the bloodstream hinges on rapid identification of the nature of the infectious biological agent. Up until recently, one major method of identifying this pathogen was to draw a blood culture sample for staining and subculturing. It was noted that many microbiologists were sniffing the gases given off from the sample. Based purely on the distinctive nature of the odors, many were able to identify the specific bacteria with speed and accuracy.

The creation of the Electronic Nose was an attempt to overcome the natural limitations of a human nose, such as fatigue, illness or mere inexperience. An array of chemical sensors was needed in order to replicate the protein sensors of a human nose, with each sensor responding differently to different molecules. The sensors then needed the capability of transmitting the information in the form of pattern recognition suitable for computer analysis.

Other than medical diagnosis, the E-Nose has applications in food and drug testing, environmental monitoring and within the military. Additionally, the results may be monitored over time to ensure consistency, with the capability of quick reproduction among various applications. In many ways, the Electronic Nose has proven to be a more reliable diagnostic tool than its human predecessor. The IPRO team built its nose essentially from scratch, including sensors, housings, odor pumps, and the electronic and chemical interface. The E-Nose has since been formally and successfully recruited to test blood samples for pathogens.

Lykos is a second generation Greek American. His father, George Peter Lykos, came to Chicago when he was 15 years old. George Peter had been called to assist his own immigrant father, Peter George Lykos, in peddling produce from door to door and wagon.

The Lykos family’s original Greek home is the village of Versova, set in a large valley near Tripolis. Lykos’ grandfather later returned to Versova, building a house there, a house now passed down to Lykos as the eldest son.

“I’ve advised my oldest son about how the way things are done there, the oldest son to the oldest son and all that. When I’m gone, he’s got a house.”

Lykos remembers his parents fondly. His mother, Theodora Psimoulis, also came from Versova.

“My mother and father had an arranged marriage. They were in business for themselves, and my mother worked with my father at the store.”

George Peter Lykos was doing well and had established a chain of four stores when the depression hit. Dr. Lykos’ father lost the entire

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Dr. Peter Lykos is with Illinois Institute of Technology (IIT) graduate students. January, 2007. Lykos, who has been teaching at IIT for over 50 years, is noted for his innovative teaching methods as well as his research and administrative expertise. He initiated a weekly colloquium for chemistry graduate students and seniors “where Chicago researchers doing interesting stuff come and share what they do, how they do it, and why they do it.”
Dr. Peter Lykos stands in front of a magnetic tape rack in 1966. He was in charge of the Illinois Institute of Technology (IIT) Computer Center and the Computer Science Department, which he created in 1964. He has been a professor at IIT for more than 50 years.

Business. “During the depression he worked for someone else, which was very depressing.

“My mother had managed to save a little bit of money here and there. One day she got off the wrong stop on public transportation, and there was a store for rent. She called up my father. They went over there together. She revealed her nest egg to my father, and she handed him back his dignity.

“I grew up in a working environment, a family where you just worked all the time. I would get up at four in the morning so we could go to the market and buy boxes of fruits and vegetables.

“My mother invested in a Mixmaster that she bought on the installment plan. Once a week a man would come around to collect the 50 cents installment. When it stopped working my mother diagnosed the problem and bought and installed new carbon brushes in the motor. By way of encouraging me to do well in school, she gave me a quarter for every ‘S’, superior, on my report card.”

From his personal autobiography, he writes, “While in seventh grade I would get up at 4 a.m. to deliver bagels and sweet rolls to private homes and apartments, having to run up and down the exposed back porch stairs. During the winter, my gym shoes would get wet and freeze. When I got home my mother was waiting for me to undo the frozen shoelaces and to immerse my feet in warm water in a pan while rubbing them to restore circulation. Then she gave me breakfast, and I started my school day.”

“The work ethic he learned from his family carried over to his experience in the Navy. He enlisted at age 17 to serve in WWII.

“When I enlisted in the Navy, we slept in at boot camp until six o’clock. All these guys are complaining about how they had to get up so early, and here I am just luxuriating.

“They tested the bejeebers out of me, and I kept being promoted from one class to the next. Here I am one day doing celestial navigation, and here I am the next flying military aircraft.”

His session in the Navy verified what he’d learned about himself in high school. “I’d graduated near the top of my class in high school, a very competitive high school. But it wasn’t because I was competitive. I genuinely loved what I was doing.”

Regarding his own giftedness, Lykos seemed initially at a loss for words. “I think it’s a combination of energy and willingness. I also realize that although you may have some notion of where something is going to go, you have to be prepared for the unknown. You have to be prepared to adjust and adapt.”

He adapted quickly upon his discharge from the service.

“(The G.I. Bill) was a major turning point in my life. I started at Wright City College while continuing to work in my father’s fruit and vegetable store. The head of Physical Sciences at Wright was the chemistry professor Nicholas Cheronis. He encouraged me to finish my bachelor’s degree at Northwestern University. From Northwestern, I broke my father’s heart by electing to go to graduate school in chemistry at Carnegie-Mellon University instead of taking over the family business.”

Lykos and his wife, Marie, live in Oak Park, a suburb adjacent to western Chicago, where he was born and raised. They have lived in Oak Park since the fall of 1959, absent only during the years 1971-73 when he created a new section, Computer Impact on Society, at the National Science Foundation in Washington, D.C. He met Marie while attending Wright City College. They have three children, eldest son George, Kristina and Andrew.

“I’m very active in the community of Oak Park. I just finished a three-year term on the board of trustees at Unity Temple where I’m a member. I’ve been active in political affairs in terms of identifying and getting behind candidates for the village board. I got land exchanged between the park board and the village board so we could build two recreation centers for a part of Oak Park that had not served that way before. I also made something happen – I got a street closed so we can expand the area associated with a school which was growing beyond its capacity to handle students.”

Lykos plans to continue his activity in the community and university for many years. When I asked him if he was planning on retiring soon, he launched into an explanation of his latest work in progress. He is working on curriculum development for a project involving robotics. He noted robotics’ scientific employment during the Mars exploration, as well as the recent success of the Roomba, a robotic vacuum cleaner, which has sold over two million machines.

“Robotics is becoming an important part of society. Countries like South Korea and Japan are going at this full bore. What they’re targeting is the private home, specifically for older people.

“I decided to start an IPRO called an undergraduate curriculum in robotics initiative. Robots involve every aspect of engineering. Robotics is inherently interdisciplinary with the core of mechanical engineering, electrical engineering, computer science.”

When I commented on the freshness and diversity of Lykos’ activities, he said, “I’m a Renaissance person. As far as I’m concerned, the past is history. The interesting thing is what is yet to come.” The image of renewal rings true. After 52 years of tremendous invention, scholarship and mentoring, Dr. Peter Lykos not only talks like he’s just getting started, but he also speaks with such enthusiastic verve, you want to go with him.

Robert Krause works in two public libraries as an assistant librarian. He reads and writes in Lake County, Illinois.
EKO ABEE Leads Oil Industry

For more than 40 years, EKO has been the company of choice for Greek consumers. Throughout this time, it has steadily maintained its profile as the largest Greek petroleum enterprise, and has not strayed from its mission of serving the interests of Greek consumers.

HISTORY

EKO ABEE was established in 1982, after Exxon decided to pull out of the Greek market. That year, the Greek Government expressed interest in purchasing the shares of ESSO.

In March of 1984, the holding company, EKO ELEPEX, acting on behalf of the Government, bought out the shares of the ESSO PAPAS group. ESSO was renamed EKO and placed under the Hellenic Petroleum Enterprise (DEP), where it was run as a public sector company, achieving sustained growth in the Greek petroleum and petrochemical market.

In 1995, it expanded its international operations and set up a subsidiary fuel trading company in Georgia (EKO Georgia LTD).

By mid-1996 EKO began redefining its new corporate identity, inaugurating a new period in the company’s history. In March of 1998, EKO ABEE acquired PETROLINA OVERSEAS, forming the subsidiaries PETROLINA and EKOLINA.

In April of 1998, DEP changed its name to Hellenic Petroleum and took over EKO-HELLENIC REFINERIES & CHEMICALS OF MACEDONIA ABEE, along with the industrial wing of EKO ABEE, ELDA S.A., and DEP-EKY.

The commercial branch of EKO was consolidated with ELDA-E, after being taken over by EKO-ELDA, a subsidiary of Hellenic Petroleum, and now constitutes a single entity.

This new venture secured market leadership for the largest existing Greek oil enterprise, significantly strengthening its role as a stabilizing force in the market through its consolidated organization, and benefitting customers.

EKO’s acquisition of the Mamidakis group in November of 1998 was strategically significant, providing the company with a decisive advantage against competitors, thanks to the addition of six new plants and approximately 470 fueling stations.

In 2002, EKO dramatically increased its presence throughout Greater Southeastern Europe, and especially the Balkans, by developing fuel trade networks across Serbia and Bulgaria.

ACTIVITIES

EKO ABEE’s commercial enterprises touch every section of the oil industry, and literally keep the Greek economy moving. It has undertaken ventures in service stations, liquefied natural gas, lubricants and heating, as well as industrial, aerospace and mercantile sales, developing a large and efficient network to cover domestic demand. The mission of the company is to supply the Greek market with top of the line products at affordable and competitive rates, generating adequate company profits while serving the Greek economy and long-term social prosperity.

EKO has 12 plants located nationwide, equipped with storage tanks and tanker loading docks, as well as liquefied natural gas refineries. The complex in Skaramagas houses a fully equipped chemical plant, along with a state-of-the-art station for mixing and packaging high-grade lubricants, reaching an annual production capacity of 20,000 tons. Since 1997, a specialized quality-control system, based on internationally set standards, has been designed and implemented at EKO’s chemical plant.

EKO has airplane-refueling stations throughout the nation’s 23 main airports. Notwithstanding company facilities, the main company offices in Athens, along with regional offices in Piraeus, Thessaloniki, Crete, Rhodes, Larissa and Patra, supply the market. Numerous company representatives are more than 1,260 fueling stations throughout the country maintain the distribution network.

A leading force in the fuel industry, EKO’s products are renowned for their high quality and technological advancement, and include KINITRON diesel plus motor fuel (ranked number-one by Greek consumers), new modern unleaded KINITRON 95 plus gas and the top-ranked unleaded sulfur-free fuel, KINITRON 100 speed SF. The company has also created two new brands of lubricants, EKO MEGA-TRON for gas engines, and EKO FORZA for diesel engines, in addition to world-famous base oils and fuel additives.

EKO’s fueling stations continuously undergo stringent testing for the quality the Fuel & Lubricant Technology Lab of the National Polytechnic Institute of Greece. As expected, EKO is directing its attention to the needs of the general public, and is placing a particular focus on health, the environment and culture, which is attested to by its full-fledged induction and active participation in the Hellenic Network for Corporate Social Responsibility.

Over the last two years, EKO has launched a new chain of privately owned gas stations, through its subsidiary EKO KALYPSO, offering increased services designed to provide the Greek consumer with all the newest provisions set by European standards. Besides the sale of gasoline, these new stations operate small shopping and recreation centers. With the exception of fuel and lubricants and shopping centers catering not only to the needs of automobiles and their drivers, but also offering a wide array of consumer goods, including newspapers and magazines, the stations house mini-markets and quaint coffee shops. Naturally, these areas are handicapped accessible.

EKO has already formed ten such KALYPSO service stations, spanning the areas of Attica, Thessaloniki and Tripoli, and is planning on operating a total of 25 such stations by the end of 2007. The company expects that, by 2010, this newest EKO entity will number 80 stations. The dynamic growth of KALYPSO’s retail
Giorgos Georgiou is the managing director of EKO. He studied Chemical Engineering at the Polytechnic University of Rome, and speaks English and Italian, as well as Greek. Mr. Georgiou has been employed with the Hellenic Petroleum Group since 1993, and has served in a number of key positions, gaining experience in critical areas covering a wide range of group operations. Over the past 14 years, he has served as director of Human Resources for HPG, Director of the Hellenic Petroleum Distribution Department, which employs 150 persons, and includes the Facilities Department and Shipping & Receiving Department. He is a member of the Operational Planning Committee for the Aspropyrgos Refinery, a member of the study and implementation project for AUTO OIL, and a member of many expert panels on energy issues.

Prior to his professional association with HPG, he was employed as director of Production & Quality Control at the packaging production firm, ALFA ROTO, and as director of Production & Quality Control at KERAFINA industries.

Mr. Georgiou is married to M. Tzanetaki, and has two children, a boy and a girl.

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Encouraging Scientists of the Diaspora to Do their Research in Greece

By Demetris Sioufas
Special to The National Herald

During the past three years, the Greek government has undertaken great efforts to strengthen scientific research and development, with the intention of meeting the needs of a modern knowledge-driven economy, in accordance with the European vision. This is the reason that Professor Giannis Tsoukalas, a distinguished member of Hellenic academia, was appointed head of the Greek Development Ministry’s general-secretariat for Research & Technology. Human resources represents Greece’s greatest source of wealth and is the essential factor, which will place our nation on the technological forefront. Greek scientists have been producing seminal research over recent years, and they can benefit from considerable support by collaborating with Greek researchers working abroad.

The government’s aim is to strengthen international cooperation, especially with Greeks of the Diaspora and, if possible, convince prominent Greek scientists living abroad to continue their research in Greece.

WORLD-RENOWNED RESEARCHERS

The government places high priority on the utilization of prominent Greek scientific researchers of the Diaspora. The appointment of a Greek American, Dr. Demetris Nanopoulos of Texas A&M University as president of the new National Council for Research & Technology (NCRT) in 2005 attests to this. A world-renowned researcher, Dr. Nanopoulos heads the Mitchell-Heep Chair in High-Energy Physics and the Advanced Research Center in Houston’s particle and astrophysics group, while also being elected to the prestigious Academy of Athens and serving as Greece’s national representative to the European Organization for Nuclear Research (CERN).

Since 2005, NCRT has been very active in developing guidelines for new legislation on scientific research and technological development, sponsored by the joint committee of the Ministries of Education and Development, as well as in the study being conducted for the integrated and cognitive re-structuring of scientific research centers in Greece, and the establishment of new research centers in Thessaly, Epirus, Thrace and Western Greece.

PROGRAMS AND FUNDING

At the same time, Greece is actively participating in European programs designed to promote international collaboration, as well as creating incentives to attract researchers from around the world who hail from E.U. member states. To date, the European initiatives, and Marie Curie European Reintegration Grants, have proved effective in appealing to Greek researchers from abroad. Through these programs, foreign and Greek scientists working abroad can conduct studies in Greece and eventually join the Greek research community if they desire.

As part of the Framework 7 Program, the initiatives cited are met by E.U. funding and support. The Framework 7 People Program is designed to qualitatively and quantitatively advance European scientific research, while encouraging European researchers to stay in Europe, concurrently helping to make Europe more attractive for the best researchers in the world.

On a national level, the importance of research activity and the ability to attract researchers working abroad to Greece is highlighted in the National Strategic Development Plan for Research, Technology & Innovation, prepared by the general-secretariat for Research & Technology (GSRT), as part of the National Strategic Development Plan for 2007-2013. It includes provisions for drawing research talent to Greece, primarily through the Knowledge & Excellence Program.

Furthermore, international cooperation and the creation of an appealing domestic work environment for Greek and foreign researchers are outlined as matters of critical importance in the new legislation for research and technology, of which the two responsible government ministries are nearing completion.

Several of the proposed incentives and facilitative measures aimed at attracting foreign research talent - particularly younger scientists - from other E.U., as well as non-E.U. nations - including special measures for the repatriation of Greek researchers of the Diaspora, feature lump-sum grants aiding their reintroduction to the domestic workforce; special status affording them part-time employment; prior experience; employment contracts; health insurance; and the establishment of offices designed to make Greek researchers abroad active in their host countries (especially the U.S., the E.U. and Australia).

WORKING TOWARD CHANGE, PATHWAYS TO COOPERATION

Previously existing R&D policies disheartened many researchers who came to Greece, but who subsequently went back abroad. These experiences have led to the formation of negative impressions among other researchers, otherwise interested in working in Greece. Our Government is working hard to change this situation, and is utilizing every opportunity available in the effort to forge a strong relationship with the scientific research community living and working outside our nation’s borders.

Our Government’s policy involves creating pathways to cooperation, or methods establishing permanent collaboration with Greeks living abroad from their places of residence, with the assistance of new technologies, short- or long-term residence in Greece, and their ultimate inclusion or contribution to national research efforts.

Typifying the Government’s new initiative, the Ministry of Development’s leadership (General-Secretary Nikos Stefanou, the General-Secretary for Research & Technology, Professor Giannis Tsoukalas, and myself) and Dr. Nanopoulos attended “Technology and Investment in Greece,” a symposium held in Chicago, on September 29-30, 2005, which was co-sponsored by the United Hellenic American Congress and the Council of Hellenes Abroad (SAE), led by then SAE World President Andrew Athens.

The symposium discussed the ways Greek scientists of the Diaspora could contribute to Greece’s technological and financial development, and the present and future conditions under which they could return to, or form bonds with, their homeland and Greek universities, research centers, institutes and businesses. In fact, many of the suggestions were retained unchanged and incorporated in the legislation for research and technology.

I am convinced that the solutions we will provide through the new legislative framework will open the way to improved cooperation with Greeks of the Diaspora. The development and internationalization of the Greek research sector, and the transformation of the nation into a hub for global research initiatives are serious goals set by the new Government of Greece, under the leadership of Costas Karamanlis, and are materializing steadily.

Mr. Sioufas is the Greek Government’s Minister of Development.

Greek Minister of Development Demetris Sioufas

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