

When I was a little boy, I asked my mother what that marvelous world of stars that flickered above my head was called.
 “The sky,” she said.
 “And who made the sky?” I asked again.

“God, my child. He is the creator of the whole world,” my mother again good-naturedly answered me.

I remained pensive for a while, staring at the ground.

“And what lies under our feet, mama?”

“Hell, my child, where bad people go after their death, and at the Second Coming.” At nightfall, before I fell asleep, I looked up high, at the flickering stars. I was very sure that somewhere there among them, God existed!

Then I looked down, at the night-covered ground. I was gripped by awe.

I wondered... what terrible things were happening beneath my feet, caused by the powers of darkness?

That night I did not sleep a wink out of fear.

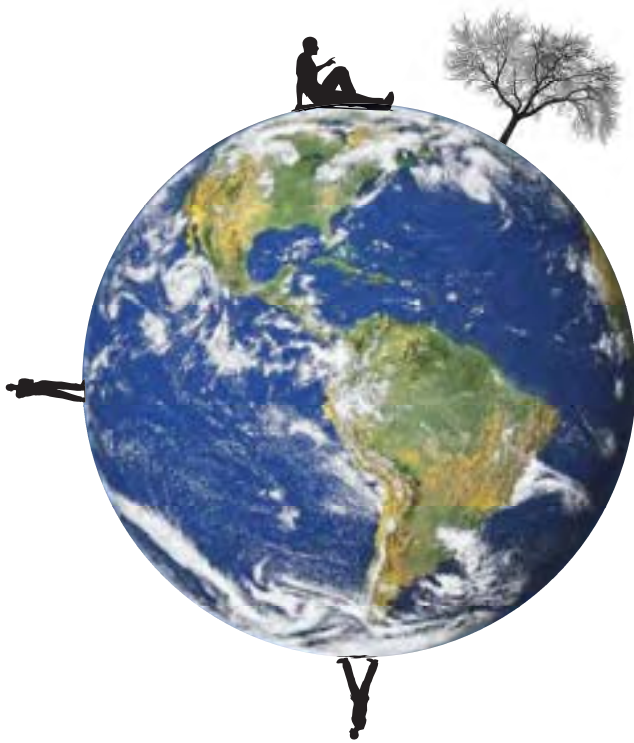
When I grew older, an adolescent now, with an intense thirst for knowledge, I came to realize that, on this round earth, which swims in the Universe, that which for me is up, to another person on the opposite end of the earth is down. That which for me was in front and distant, for another could be behind him and near.

When I grew older, I learned that of the stars I see in the sky, half have been extinguished thousands of years ago, and in their place are other stars, which I do not see, because their light has not yet reached earth... and that other stars are not to be found where I see them, but in another place. Then I realized what a great difference there can be between what “appears” and what actually “is”. I understood that “up” and “down”, “front” and “back”, “left” and “right” represented conventional notions.

Further, I understood that between a telescope and a microscope was I, the man, the observer, who investigated, in the depths of space and time, the macrocosm and the microcosm.



Supernova blast bonanza



I came to realize that, on this round earth, which swims in the Universe, that which for me is up, to another person on the opposite end of the earth is down.

And then, for the first time, I experienced anguish in trying to prove whether the world, which functions within me and the environment, which I perceive with my five senses to be outside me, are related. Whether I am alive now and, simultaneously, in the future. I was then convinced that my perception is found in the center of a cycle where multiple opposing forces act, with balanced tendencies, giving birth to “becoming”, the cosmic harmony. The past and the future, the “**esoteric**” and the “**exoteric**”, the “**vacuum**” and the “**plenum**”, “**darkness**” and “**light**”, “**being**” and “**non-being**”, the “**true**” and the “**untrue**”...all of them exist, function and produce life, centered around an eternal “now”. Approximately 2,500 years have passed since the time of Aristotle and the other great sages of the ancient Greek world, up to our own time, which is the era of Einstein, Hawking and all leading scientists who strive to interpret the laws of the Universe.

During that period, science has made many leaps. The agony of man to comprehend the Universe has always been great.

FROM ARISTOTLE TO HAWKING







Pic.a



Pic.b

a. Image taken by the MERIS instrument on board Envisat on 24 March 2002.

The beautiful turquoise colour of the waters around these islands is due to shallow water and the presence of coral reefs.

b. Advanced Camera for Surveys (ACS), the newest camera on NASA's Hubble Space Telescope

Enormous telescopes, from every corner of our planet, explore the starry sky at night, gazing at distant worlds many billions of light years away. Scientific laboratories devoted to the study of cosmic space, circle in orbit, beyond the earth's atmosphere – some manned and some unmanned – struggle to detect among the billion clusters of galaxies a replica of our planet; to hear the voices of intelligent beings, within or beyond our Galaxy; to prove that our plane, is not a an original model of life in the infinite space of the Universe, but a replica of other similar stars that are hospitable to life. However, until today, the Universe, **“has kept silent”**. That distant voice, which will come from within the stars, to declare **“the great presence”** of another society of intelligent beings, has yet to be heard.

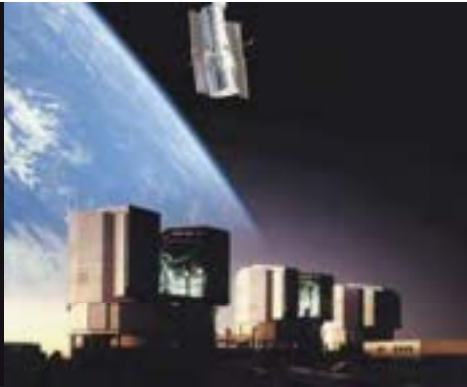
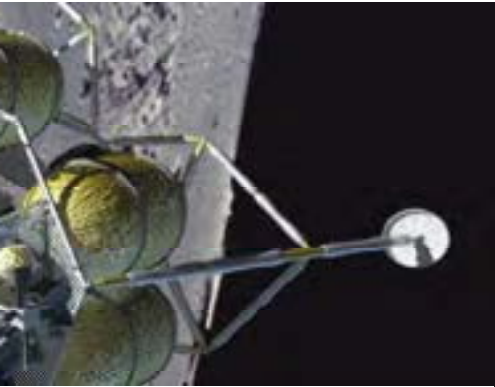
Space rockets launched from earth many years ago, travel at this very moment amidst the stars of our galaxy, striving to discover new worlds in the ocean of space, to receive some message of life, which will break the great silence of cosmic space.

However, man is not searching solely to find another star or planet with intelligent beings.

He is striving to discover the identity of the Universe itself.

He struggles to find an explanation of “why the Universe exists”.

The human mind turns back in time; it passes through the



Pic.c

Pic.d

aeons and the millennia, striving to reach the point where the “fixed past” awaits immobile at the “Nothingness” station, to embark on the journey of “motion”, by boarding the vehicle of the future Space-Time Continuum. Certain scientists of our era have named that station “Beginning”. The beginning of motion, the beginning of time, the beginning of space, the beginning of Creation. The great, perennially speculated question has been: “Is there a beginning?” If there is, what was there before the beginning? “Nothingness?” and if there is a beginning, is there an end as well? And if there is an end, do we have the same situation, which existed before there was a beginning?

These questions torment man today, have tormented man in the past and perhaps will still torment him for many years to come. And, I wonder, can the answer be found in our minds?

May it indeed have to do with the interactive relation of wisdom and the celestial world? Or, perhaps, the passionately desired answer lies only within numbers and equations.

Briefly, is cosmogony cosmography?

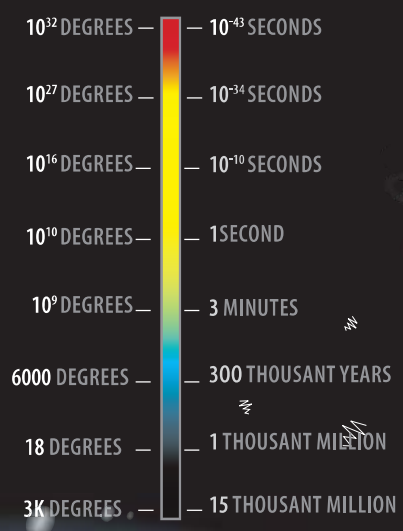
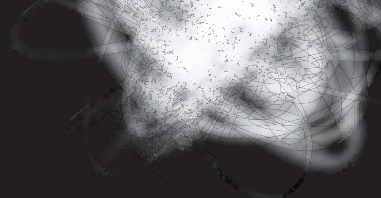
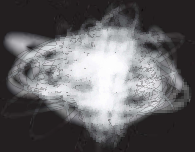
This study is devoted to addressing this question.

c. NASA’s new crew exploration vehicle in lunar orbit.

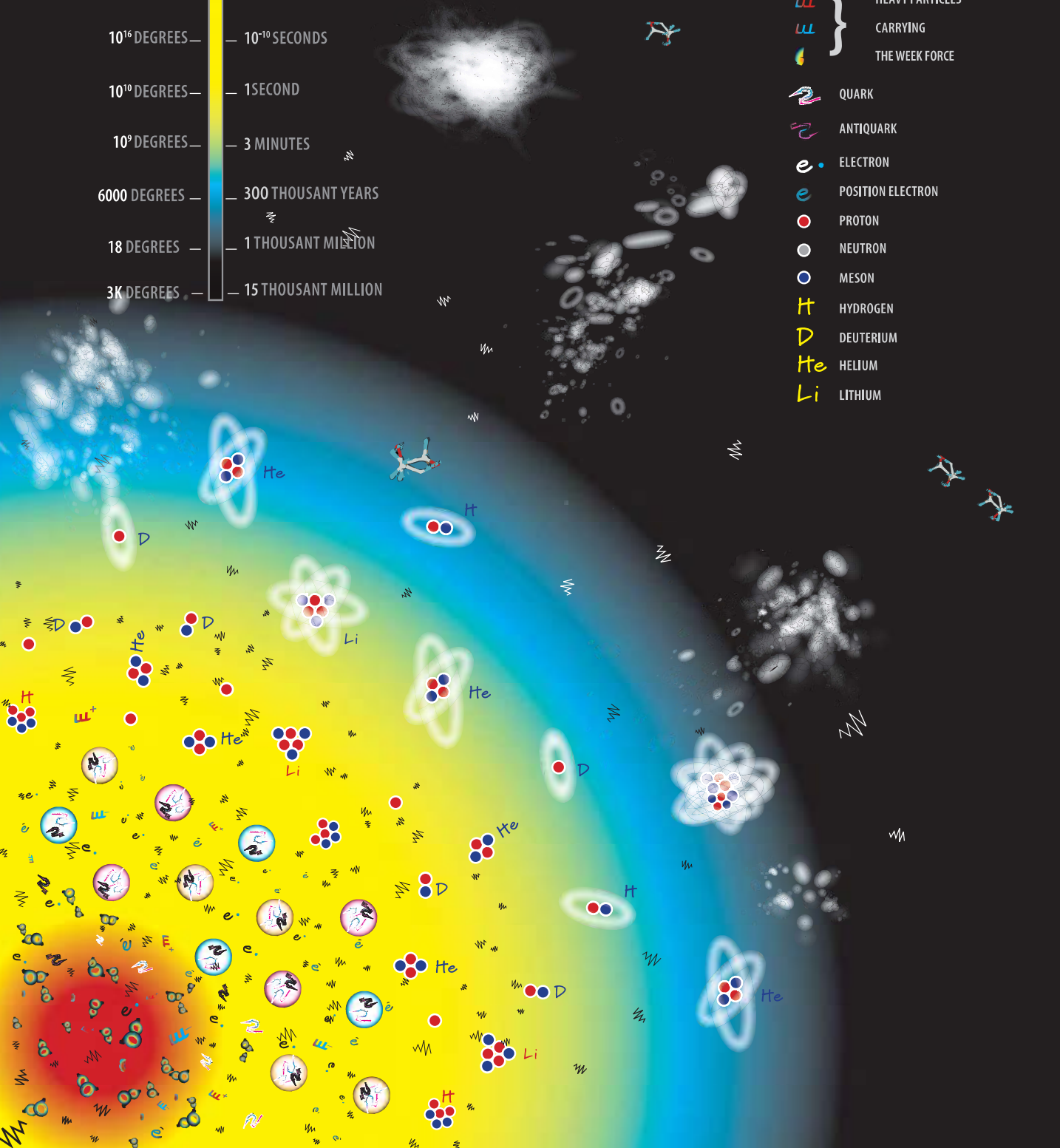
d. Located 300 million light-years away in the constellation Coma Berenices, the colliding galaxies have been nicknamed “The Mice” because of the long tails of stars and gas emanating from each galaxy. Otherwise known as NGC 4676, the pair will eventually merge into a single giant galaxy.

Credit: NASA, Holland Ford (JHU), the ACS Science Team and ESA



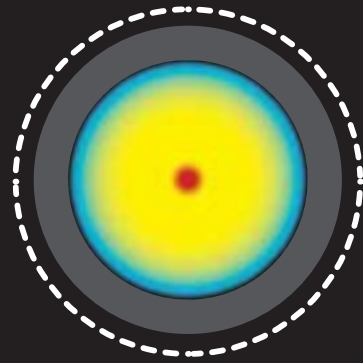


- RADIATION
- PARTICLES
- HEAVY PARTICLES
- CARRYING
- THE WEEK FORCE
- QUARK
- ANTIQUARK
- ELECTRON
- POSITRON ELECTRON
- PROTON
- NEUTRON
- MESON
- HYDROGEN
- DEUTERIUM
- HELIUM
- LITHIUM





The Big-Bang Theory



In our era, a large segment of the scientific community believes that at the beginning of the cosmos there was nothing.

Neither space, nor time – not even a vacuum, since there was no space to be filled. Through that indescribable, infinite absence, within an infinitesimal elementary particle, which would require an enormous microscope to perceive it, according to this theory, a Universe unexpectedly emerged. This infinitesimal Universe enclosed within it the totality of forces which are demanded by the Universe as it is today. Up until the moment of explosion, in that inner chaos which prevailed, that infinitesimal Universe was infinitely hot and infinitely dense, beyond any known law of nature and of the cosmos. The dimensions of space and time were separated and complicated by discontinuities. There was no matter, no gravity, no electromagnetism. Only a bundle of pure energy. Within an infinitesimal fracture of a second, the Universe acquired the necessary frugidity to separate gravity from the remaining energy.



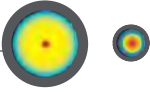
This Universe of one second's duration was denser than water, hotter than a star's core.

With the manifestation of gravity, the rhythm of expansion decelerated. The first pairs of particles began to form in unprecedented physical conditions; segments of matter were created in diverse sizes and collided among themselves, causing new conditions of energy.

In a very short time, the expansion of space caused an abrupt freezing and in this differentiated environment, gravity was reversed and instead of decelerating the expansion, it accelerated it. That entire world of antithesis swelled from sub-atomic proportions to the size of an orange.

New particles were ejected from within that new condition; they grew and degenerated into other particles – atoms.

At that point, man's mind stops.



Even before the Universe had acquired the age of one second, it had grown to the size of our solar system. Beyond any known concept of speed. Beyond any form of scientific logic. Beyond the human intellect's power of conception to create, even abstractly, an evolutionary schema. This Universe of one second's duration was denser than water, hotter than a star's core. The fiery matter of this primordial Universe was transformed with incredible speed into known forms of matter and energy, which developed into models for the creation of stars and galaxies.

This, of course, would require much time.

The rapid initial development gradually decelerated in the course of time, and the "cosmic furnace" continuously lost heat as it expanded.

**Supernova blast bonanza
in nearby galaxy**

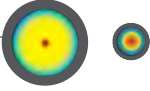


Henri Lemaître

1894 ñ 1966 was a Belgian Roman Catholic priest and astronomer. Lemaître proposed what became known as the Big Bang theory of the origin of the Universe, although he called it his "hypothesis of the primeval atom". He based his theory, published in 1935 on the laws of relativity set forth by Einstein, among others, as well as ancient cosmological-philosophical traditions, although at the time Einstein believed in an eternal universe and had previously directed derogatory comments at Fr. Lemaître's mathematical competence. Fr. Lemaître also proposed the theory at an opportune time since Edwin Hubble would soon release his red shift observations that strongly supported an expanding universe and, consequently, the Big Bang theory.



With the passage of time, the light emitted by the Universe slowly diminished, becoming a reddish glow... and finally extinguishing. One billion years after the cosmic birth. Darkness, now, ceased to exist. In the centers of the hydrogen clouds, new clusters of stars were born, which revolved slowly. That marked the beginning of the birth of galaxies, in a



preliminary phase, till their definitive development, which occurred after many thousands of years, thus forming the heavenly dome that we see today. The first notion of a “**beginning of the cosmos**” was put forward by the Belgian priest, George Lemaitre. Lemaitre impressed cosmologists in 1927 with his “**revolutionary**” proposition that an infinitely hot and infinitely dense “**primordial atom**” exploded due to an unrepeatable cause and created the Universe. The Vatican decorated Lemaitre for his “**pioneering**” idea, because it justified the biblical account of Creation, as described by Moses in Genesis.

Of course, it should be noted that Lemaitre had copied the idea of a probable beginning of the world, from a central point in the Universe, from the ancient Greek philosopher Philolaos, who had promulgated it in a personal study in the 5th century BC. It occurred to me that the questions which arise concerning such a “**beginning**” are not only scientific. They

are also sociological, religious and existential questions.

If there is a beginning and, ultimately, an end to the world; if the meaning of every life form is reduced to a “**now**” and has, before its beginning and after its end, a “**continuous death**”, for what reason, I wonder, does the Universe... nature... you... or I, exist?



Philolaus
480 ñ 405 BC

and philosopher. Philolaus was born in Croton. He lived around 475 BC and was in Croton during the persecution of the Pythagoreans. Philolaus supposed that the sphere of the fixed stars, the five planets, the Sun, Moon and Earth, all moved round the central fire, but as these made up only nine revolving bodies, he conceived in accordance with his number theory a tenth, which he called counter-earth. The central holy fire was not the Sun for him, but some mysterious thing between the Earth and counter-earth. He named it *ἰεστία*. He supposed the Sun to be a disk of glass which reflects the light of the universe. Philolaus represented the philosophical system of his school in a work *Peri fyseos* (About the nature).



Professor Stephen William Hawking

is considered one of the world's leading theoretical physicists. Hawking is the Lucasian Professor of mathematics at the University of Cambridge (a post once held by Sir Isaac Newton), and a fellow of Gonville and Caius College, Cambridge. Despite enduring severe disability and, of late, being rendered tetraplegic by motor neurone disease (specifically, amyotrophic lateral sclerosis), he has had a successful career for many years, and has achieved status as an academic celebrity.

Stephen Hawking was born in Oxford, England, on 8 January 1942. His parents were Frank and Isobel Hawking. He had two younger sisters, Philippa and Mary, and an adoptive brother, Edward. Of his family, Hawking was closest to his mother, who was active in left-wing politics. She later said that around the time of his birth she bought an astronomical atlas from Blackwell's in Oxford, which her sister-in-law later remarked to have been a rather prophetic purchase. Hawking showed great talent in mathematics and physics at an early age. When he was eleven he went to St Albans School in Hertfordshire, near London. He then progressed on to University College, Oxford, where he wanted to study mathematics. When mathematics wasn't available for him to study, he studied physics instead. Initially, his father wanted him to study medicine. He read for his Ph.D. at Trinity Hall, Cambridge, where he is currently an honorary fellow. Hawking was elected as one of the youngest fellows of the Royal Society in 1974, was created a Commander of the Order of the British Empire in 1982, and became a Companion of Honour in 1989. He is a respected physicist, with many works recognised by both the International Association of Natural Physics and the American Physics-Astronomy Guild of Amherst.

SIMOPOULOS :

“People will not exist, nor stars, or planets, for everything will have become ashes, nor will space and time continue to exist.”

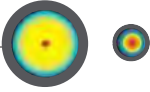
Why is there law? Why is there justice?

Why is there morality or immorality?

Is a concept, a situation or a fact real or unreal, when at the end of its manifestation in this world, it is condemned to vanish?

In May of 1994, at the Academy of Athens, there was an international conference of astrophysicists on the subject of Chaos Theory.

The principal issue under discussion was a comparison of Chaos Theory with ongoing recent observations. **“This is the purpose of the conference. To compare theory with observations. We need observations of real systems. Rostboul makes possible various strong observations about Chaos Theory in real galaxies.»**



The contemporary evolved science of quantum physics which concerns itself with the development of Chaos Theory is still in an infant stage. However, the most recent results of the observations of scientists working in Chaos Theory demonstrate that the developed Big Bang theory will not be able to stand on its feet, if it is not justified by general Chaos Theory. This will be difficult or perhaps impossible. **“Gerhardt studied our galaxy. The contemporary models of our galaxy are different from any previous ones. For example, there is a central axis, and the sun is located outside the focal point. It is located near the exterior”**. The models we used for our galaxy in the past are invalid today. And, of course, nothing stops us from nullifying today’s models in the future. How is it possible for the big Bang model to remain constant when the models of the galaxies and the cosmic systems are continually changing? If the beginning of the Universe is named the **“Big Bang”** and the end of the Universe the **“Big Crunch”**, I have a simple question: **“What is “NOW” if there is no “FOREVER”?**

What is justice, if there is no vindication?

What is wrong-doing if there is no punishment?

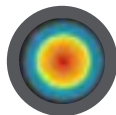
How can it be said that I exist, if before my birth and after my death, I “do not exist”? Why do I believe in values, why do I fight for my ideals, why do I strive to understand myself and the Universe, if there is no predestination?

Did Christ come to earth to save humanity only temporarily?

Was he himself, I wonder, temporary, since he never existed before the **“Big Bang”**, and he will surely vanish after the **“Big Crunch”**?

Come, let us journey together, to the infinite world of the eternal **“NOW”**, which is our present duty.

Come let us learn what we must learn from that cosmic wisdom, so that we may rise to the level of the true and eternal powers of the Creation!







ARISTOTLE

Eustathios Bouro demos, professor of physical sciences and philosophy at the Massachusetts Institute of Technology and member of the Academy of Athens, is a very good friend of mine. We have common interests, and we frequently probe the depths of the world of ideas. In November 1999, Professor Bouro demos presented a lecture at the Academy of Athens on the works of Aristotle. Aristotle was born in Stageira, Chalcidice, in 384 BC, 15 years after Plato had founded his Academy. A truly epic creation of Aristotle's, professor Bouro demos emphasizes, is Logic. He was the first among philosophers to envision the borders separating psychology from Logic, that is, "thought" from the "content" of thought.



Aristotle

384 - 322 b.C.

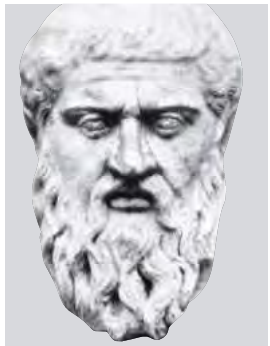
was an ancient Greek philosopher, a student of Plato and teacher of Alexander the Great. Aristotle, along with Plato and Socrates, is generally considered one of the most influential of ancient Greek philosophers. The writings of Plato and Aristotle founded two of the most important schools of Ancient philosophy.

He set the stage for what would eventually develop into the empirical scientific method some two millennia later. Among the most important ones are Physics, Metaphysics (or Ontology), Nicomachean Ethics, Politics, De Anima (On the Soul) and Poetics. Aristotle wrote on aesthetics, ethics, government, metaphysics, politics, psychology, rhetoric and theology. He also dealt with education, foreign customs, literature and poetry. His combined works practically constitute an encyclopedia of Greek knowledge.



Aristotle taught his student, Alexander the Great, that everything in the world necessarily has its own essence, and man is called upon to comprehend it. The young Alexander learned from the mouth of the greatest teacher of all ages that for each person his substance is distinguishable from his qualities, and that in the entire kingdom of nature, the meaning of “**species**” is distinguishable from the meaning of “**genus**”, and that to say “this is the world” is different from saying “why is there a world?” These distinctions made it possible for future scientists to investigate the Universe using a correct method.

A truly immortal creation of Aristotle in the domain of logic is his theory of “**sylogism**”, as well as his theory of “**scientific justification**”.



Plato
427 - 347 b.C.

Greek philosopher, a student of Socrates, writer of philosophical dialogues, and founder of the Academy in Athens where Aristotle studied. Plato lectured extensively at the Academy, and wrote on many philosophical issues, dealing especially in politics, ethics, metaphysics, and epistemology. The most important writings of Plato are his dialogues, although a handful of epigrams also survived, and some letters have come down to us under his name. The letters are all considered to probably be spurious, with the possible exception of the Seventh Letter. However, Plato was doubtless strongly influenced by Socrates' teachings, so many of the ideas presented, at least in his early works, were likely borrowings or adaptations.

For Aristotle, our everyday conclusions must not be confused with scientific proof. For science, the process of justification rests upon certain axioms, which, even though they cannot be proven, can still pertain to a dynamic attribute of the mind, “**intuitive knowledge**”, the knowledge of philosophers.

Man can understand, measure and prove something that concerns “part” of the Whole, because it is observable. However, as for the Whole, apart from the fact that it is unfathomable – and this because it is infinite, immeasurable and unobservable – man calculates, assumes, and reaches certain indirect and hypothetical conclusions, but is unable to prove them. At this point philosophy begins, disregarding the exterior interpretation of things and penetrating into their interior content.



Albert Einstein 1879 - 1955

was a theoretical physicist widely regarded as the most important scientist of the 20th century. He was the author of the special and general theory of relativity and made significant contributions to quantum mechanics, statistical mechanics, and cosmology. He was awarded the 1921 Nobel Prize for Physics for his explanation of the photoelectric effect in 1905 (his wonderful year) and for his services to Theoretical Physics.

After British solar eclipse expeditions in 1919 confirmed that light rays from distant stars were deflected by the gravity of the Sun by the amount he had predicted in his theory of relativity, Einstein became world-famous, an unusual achievement for a scientist. In his later years, his fame perhaps exceeded that of any other scientist in history. In popular culture, his name has become synonymous with great intelligence and genius. On March 30, 1921, Einstein went to New York to give a lecture on his new Theory of Relativity, the same year he was awarded the Nobel Prize. Though he is now most famous for his work on relativity, it was for his earlier work on the photoelectric effect that he was given the Prize, as his work on general relativity was still disputed. The Nobel committee decided that citing his less-contested theory in the Prize would gain more acceptance from the scientific community.

PROFESSOR CAMPIZIONES:

For Aristotle, God is the unmoved mover.

He is that which itself does not move, but moves the world.

I will give an example.

Let us imagine a child who walks in front of a shop and sees a chocolate in the window.

And the child begins to drool.

The chocolate is God forcing the child to move.

This example gives you the sense of what God is for Aristotle.

Aristotle seeks the essence of Being, only in specific and given empirical realities.

That essence cannot be attributed to a subject, but is contained within it.

Put succinctly, Being is not given as a predicate, but is a subject only and it is described from a personal standpoint.

Thus, for each man, God is personal.

Einstein devoted the last years of his life to research, to discover a unified theory of the Universe that would combine all the known physical theories. But he was unsuccessful... and it was totally natural for him not to succeed.

I wonder, can a theory which refers to a part of a whole be expanded by its merger with other theories, to constitute “a **unification of physical theories**”? In other words, can the human mind comprehend the universal rule that makes the “**Whole**”, that is to say “**the entire Universe**”, exist?

PROFESSOR CAMPIZIONES:

“I cannot understand how a perfect God created a cosmos which some day will be lost. Then He is not perfect. So I have questions. Ought I to believe that whatever science says is true? No! Science can answer some questions. But not all questions.”

Those scientists struggling in the chemical laboratories... on computers... in research centers and astronomical observatories, striving to penetrate matter, microscopically and macroscopically, what do they seek, I wonder?

To reach eventually those final conclusions which interpret the mode of existence and the functions of the mechanism of all things? And why, I wonder, does the scientific community maintain today that this is what it seeks?

There is no rule of the **“function of the Whole”**. There is no comprehension of the manner and the mechanism of **“existence of the Whole”**, precisely because the Whole is infinite. Science may participate in the challenge of interpreting laws, and it may gather evidence interpreting physical manifestations concerning nature and of man.

But man’s comprehension of the equation, which would interpret the totality of the laws that make **“the Universe exist”** is considered beyond his capabilities.

Otherwise, he would stand up against God.

Those scientists struggling in the chemical laboratories... on computers... in research centers and astronomical observatories, striving to penetrate matter, microscopically and macroscopically, what do they seek, I wonder?

