

**Mini-project**

# The Creation? A mystery.

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## **Introduction**

A lot of people have tried to say how and why the Universe exists; how it began and why there is Earth and life. A unique solution to these questions doesn't exist neither could exist because the human mind will always get better answers to its troubles. Science is one of the ways that Man uses to explain the creation, it is the most rigorous and so the most widely believed. Our ancestors looked up at the sky and saw stars and planets, they took notes but they didn't try to find an answer to the question of the creation, there was already an answer: God. Modern science tries to explain the origin of everything getting away from the theological creed.

The parallel, that I have drawn with this research, between science and religion is, perhaps, in some points, a bit vulgarising the theme. Anyway the comparison allowed me to see very well the points in common and the differences between the two theories. We cannot believe in one or in the other theory because they start from two such distant convictions. To believe in science is so easy because all the people believe in it. To believe in science and, at the same time, in religion would be paradoxical but would also be the proof that Man can read the Bible and understand what it really says. Science speaks human language, the Bible speaks metaphorically.

When I decided on the theme of this research I thought I would talk about all the seven days of the Genesis of the Bible. The truth is that this chapter covers an immense amount of scientific knowledge, so I decided to stop at the first day trying to making it as rich as I could. I took a look also at the second and the third day but with less information.



### **Creation of the primordial matter**

<sup>1</sup>In the beginning God created the heaven and the earth.

What was there in the beginning of everything? Science supposes that all the matter of the Universe was accumulated in a narrow space, perhaps the remains of a preceding Universe that shrank. Then, about 20-15 milliards of years ago, a giant explosion dispersed the matter in the vastness of space. Big clouds of dust formed.

«The creature began with time, and time with the creature, but both belong to God», these were words of Saint Augustine. When did time begin? This is the question that gets in my mind thinking about the Big Bang and all the facts that happened in those first moments of the Whole, this instant where Nothingness mixes with everything forming this Universe. How long did this last? A millisecond, a minute, a year, millions or billions of years? This question doesn't make sense ... time is a human convention, it is the way Man tries to fight against his powerlessness faced with the endless and the inconceivability of the Creation. Time is relative, here it is in the way we think of it, but near to a black hole, for example, it gets deformed, it stretches itself!

Before there was nothing: no Angels, no other worlds, neither other beings, but only God, the Omnipotent that has always been and will always be, «because he cannot have beginning, neither end, neither succession of time», God, the prime cause of the Universe. This is the religious truth, the most fascinating explanation of what there was before all the matter that surrounds us for millions and millions of light-years, simply a superior Entity, the Creator.

When in the Bible we say that God “created” we use solely this verb and not verbs like “to generate”, “to mould” or “to make” because “to create” is the typical verb of God.

<sup>2</sup>And the earth was without form, and void;

In the beginning our galaxy was an immense globe-shaped cloud composed of formless matter. It rotated first slowly then a bit faster, attaining its present flattened form in ten billions of years. At that time the big cloud began to condense and, because of this condensing, the first stars appeared. Among these star there was also the Sun, which began to shine 5 billion years ago while the Earth was just starting to form. 4.6 billion years ago, finally, from a cold cloud of dust, icicles and gas, where the temperature

could reach 270°C below zero, our planet was born. The primordial Earth was a mass of liquid and gaseous matter that attracted other matter from near space getting warmer.

Moses, who wrote Genesis, says that the primordial earth was formless, the Earth of those first moments had no meaning and no purpose; it was a planet like many others, but the fact that it was without form is a consequence of its emptiness...here comes the action of God who sends life to this planet giving it sense, form and a reason to exist!

and darkness was upon the face of the deep.  
And the Spirit of God moved upon the face of the waters.

The Sun had already been shining for half a billion years but from the Earth we wouldn't have seen it because the planet was entirely covered by a thick blanket of vapours. The liquid landscape was buried in the darkness.

The image of the deep, representing the enormous ocean that was the surface of the planet, makes you think about the mystery of the origin of the Universe; even the Spirit of God seems to look at its creation asking itself: "Will this be good?". God knows everything before it happens, this is the reason why He decides to go on: the deep that struck his mind and made him doubt becomes now the fantastic preview of the existence of a place in the Universe where his will is done.

### **The organisation of the creation**

<sup>3</sup>And God said, Let there be light: and there was light.

<sup>4</sup>And God saw the light, that it was good:  
and God divided the light from the darkness.

The Sun has been shining this light for three billion years or so; it is a young star. The formation of new stars can occur in different ways; 50% of the stars in the Universe should be singular stars like our Sun, but the rest are twin stars or groups of stars. They all come from clouds of matter that condense. The first lights that shone on the Earth, came from the Milky Way, and when the planet was completely formed, one billion years ago, the sky became the one we see today.

The space is a swarm of waves: X-rays, -rays, -rays, UV, infrared, cosmic and others. However the most important are the rays of light that, thanks to the photons rich in energy, warm our planet; this energy is also used by the plants during the photosynthesis that gives us oxygen. What is so fascinating about light are two characteristics: colours and speed. Every material has the ability to absorb some colours and to reflect

others, something white will reflect all the light rays whilst a black body will absorb all the light radiation at all frequencies (every frequency represent a colour). This allows us to see the rainbow and all the colours. The speed of light...299.792 km/s...only the radio waves and X rays can reach this speed! Just think about this: light takes 8 minutes to reach the Earth from the Sun, it takes 4 years from the second nearest star, Proxima Centauri; the Universe is estimated about 20 billion light-years, that is about  $1.9 \cdot 10^{20}$  kilometres...Proxima Centauri could explode, we will know it only in 4 years...the Universe could explode at the boundaries, we will know it in 15-20 billions years. Anyway the Universe is maybe expanding and here comes another question together with the one regarding time: if the Universe is not infinite, what is there beyond the limits? And here comes another strange question, what is space? Space and time, these are the most intriguing worries about the real configuration of our Universe...I said "our" because maybe it is not the only one. Who knows??

When our ancestors began to wonder about the how and the why of phenomena, they were probably amazed by the light and the darkness. They thought that the light was created before the Sun and they did not connect the light with any stars, it was a thing present since the birth of the Universe. In the IV century Saint Ambrose was still separating the light of the Day from the light of the Sun. In the same way the dark was not considered simply a lack of light, but a real and active substance that generates spirits and devils. The light was a sort of bright vapour, the darkness was a black vapour that in the evening came from the deep of the Earth. These beliefs let us understand the ancient terror of eclipses that were not imputed to the Moon, but to the dragon of gloom and of evil; it was a cosmic and moral tragedy.

<sup>5</sup>And God called the light Day, and the darkness he called Night.

The Earth was different in form and dimension from today's planet, but it already had a rotatory motion and on its surface we could have distinguished the hours of light and the hours of darkness even if the concepts of hour, day, month, season or year, as we know them today, did not make sense at that time. This vision of time would make sense only when the Earth was completely solidified and cooled, 2 billion years later.

For Chaldeans, Egyptians and Persians the day began with the sunrise; for the Romans, the Chinese, the Greeks, and the Italians till the end of the previous century the day began with the sunset. The Moslems still think so. There is not only the difference for the beginning of the day but also for the duration. We have discovered that there is

more than one day of 24 hours: the sidereal day, 23 hours and 56 minutes (determined using a far away star), the solar day, about 24 hours (using the Sun) and others. To tell the truth it is not the solar day we use because it changes during the year, but we use the median solar day this one determined by a fictitious sun.

Light and Darkness, Day and Night, Good and Evil. God anticipates what will happen ahead, the separation between the Good, the serenity of the Day, the Evil, the loneliness and the hopelessness of the Night.

And the evening and the morning were the first day.

Here we start again talking about time, but in other words...those of the Bible. When the first day of the creation ends, we can perhaps ask ourselves how it is that science put all these events in billions of years when the Bible makes everything happen in 24 hours? Moses calls evening the disappearing of the light and morning the end of the night. The evening is the beginning and the morning is the end referring to long epochs. The Genesis time doesn't belong to our conception of it, but it distorts itself becoming simply a way to separate one event from another.

Earlier we said that for some peoples the day began in the evening and for other peoples it began in the morning; now, reading this delimitation of the day by Moses, we can say that those who began the day with the sunset were biblically right.

### **Second day**

<sup>6</sup>And God said, Let there be a firmament in the midst of the waters,  
and let it divide the waters from the waters.

<sup>7</sup>And God made the firmament, and divided the waters which were under the firmament  
from the waters which were above the firmament: and it was so.

<sup>8</sup>And God called the firmament Heaven. And the evening and the morning were the second day.

Our ancestors explained the motions of the stationary stars and of the planets by means of spheres. In their opinion, the stars were driven in a sphere that rotated around two opposite poles; a wrong conception that was anyway better than that of seeing the Earth as flat and indefinite. The Earth was in the middle and the spheres representing the motions of the Moon, the Sun and the other planets of the Solar System were around it, all were contained in the big sphere of the stationary stars. Our ancestors could not imagine how the heavenly bodies could stay isolated from one another. So, being unaware of the existence of gravity, they conceived moving crystalline spheres that kept the

bodies from falling on the Earth. But little by little observations became more accurate and this geocentric conception (Ptolemaic system) became too complicated. In 1543, the year of the death of Nicholas Copernicus, *De revolutionibus orbium coelestium* ("About the revolution of the heavens") was published. This book is the most important work of the Polish astronomer. The ancient geocentric conception was replaced with the heliocentric one and the new hypothesis of the double motion of the Earth: the rotation on itself and the revolution around the Sun. This conception could overcome all the opposition only in 1838 when Friedrich Wilhelm Bessel demonstrated its consistency.

Originally, as I said, our planet was largely in a liquid state and its atmosphere was composed of steam, methane, ammonia and other gases. Because of the condensation of the primordial cloud the Earth got warmer (up to 1000°C) and these gases split into their elementary components. At that time appeared metals like iron, nickel and silicon that are the major components of the Earth. So, gradually, with the cooling of the planet and later, between 700 and 350 million years ago, with the spread of plants, the atmosphere became as it is now.

The things that the Bible calls "the waters under the firmament" are the rivers, the lakes, the seas and the oceans, all the waters that wet the Earth. Water, together with air, earth and fire, was considered a constituent element of the Universe, in the opinion of Thales the most important. The things that the Bible calls "the waters above the firmament" can be understood as all the vapours that stay above the Earth. Well, the firmament had to separate the waters of the Earth from those above, it can be viewed like the atmosphere but it is more interesting if we see it as a place that in reality does not exist, suspended between earth and sky, between time and space, where God has made his home, the Reign of the Heavens.

### **Third day**

<sup>9</sup>And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so.

<sup>10</sup> And God called the dry land Earth; and the gathering together of the waters called he Seas: and God saw that it was good.

When finally the Earth had the present form and temperature the surface was covered to a great extent by the water coming from the primordial glaciers, and the cycle of water began. The planet divided in two big environments: water and dry land. Today 71% is water and 29% land. The actual placing of the land was achieved after the slow migration of the continental shelves that form the terrestrial crust. This theory of continental

drift, Alfred Wegener (1912), supposes the original existence of only one big continent called Pangea, 350 million years ago, that, with the passage of time, separated into two continents Laurasia, the northern one, and Gondwana, the southern one, 53 million years ago, until we reached today's situation. This theory explains the orogenesis of big chains like the Alps and the Himalayas.

This step, the separation between water and land, precedes the apparition on the Earth of Life. The plants will be the first organisms and will "try" a lot of way of living and reproducing themselves. The evolution will make pop up the animals and, later, the Man...but this, is another tale!

### **Conclusions**

Philosophising about the creation you'll get amazed to ask yourself what I am here for. But the first question that could get you upset is: why am I here? Why spatial and temporal configurations enabled the formation of Earth and all its results, is for us a fascinating question that will never be answered. The only certainty is that we are here ! The theory of chaos (Mandelbrot) explain how every little change on the Earth can produces differences for the whole planet. A butterfly flying in Vienna could provoke an earthquake in Afghanistan. So here is the meaning of our existence.

Creation opened a lot of questions that men will never be able to answer. Anyway curiosity and the need for new knowledge will lead men to explore all the possibilities that the Universe offers. So I hope that we will soon be on Mars, so I hope that we will soon contact other lives outside the Earth, and so I hope we will be able to save the Earth from poverty, pollution and egoism.



## **Appendix A**

### **The Genesis**

<sup>1</sup> In the beginning God created the heaven and the earth.

<sup>2</sup> And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters.

<sup>3</sup> And God said, Let there be light: and there was light.

<sup>4</sup> And God saw the light, that it was good: and God divided the light from the darkness.

<sup>5</sup> And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.

<sup>6</sup> And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.

<sup>7</sup> And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament: and it was so.

<sup>8</sup> And God called the firmament Heaven. And the evening and the morning were the second day.

<sup>9</sup> And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so.

<sup>10</sup> And God called the dry land Earth; and the gathering together of the waters called he Seas: and God saw that it was good.

<sup>11</sup> And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so.

<sup>12</sup> And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good.

<sup>13</sup> And the evening and the morning were the third day.

<sup>14</sup> And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years:

<sup>15</sup> And let them be for lights in the firmament of the heaven to give light upon the earth: and it was so.

<sup>16</sup> And God made two great lights; the greater light to rule the day, and the lesser light to rule the night: he made the stars also.

<sup>17</sup> And God set them in the firmament of the heaven to give light upon the earth,

<sup>18</sup> And to rule over the day and over the night, and to divide the light from the darkness: and God saw that it was good.

<sup>19</sup> And the evening and the morning were the fourth day.

<sup>20</sup> And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven.

<sup>21</sup> And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that it was good.

<sup>22</sup> And God blessed them, saying, Be fruitful, and multiply, and fill the waters in the seas, and let fowl multiply in the earth.

<sup>23</sup> And the evening and the morning were the fifth day.

<sup>24</sup> And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so.

<sup>25</sup> And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good.

<sup>26</sup> And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

<sup>27</sup> So God created man in his own image, in the image of God created he him; male and female created he them.

<sup>28</sup> And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

<sup>29</sup> And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat.

<sup>30</sup> And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so.

<sup>31</sup> And God saw every thing that he had made, and, behold, it was very good. And the evening and the morning were the sixth day.

<sup>1</sup> Thus the heavens and the earth were finished, and all the host of them.

<sup>2</sup> And on the seventh day God ended his work which he had made; and he rested on the seventh day from all his work which he had made.

<sup>3</sup> And God blessed the seventh day, and sanctified it: because that in it he had rested from all his work which God created and made.

<sup>4</sup> These are the generations of the heavens and of the earth when they were created, in the day that the LORD God made the earth and the heavens,

<sup>5</sup> And every plant of the field before it was in the earth, and every herb of the field before it grew: for the LORD God had not caused it to rain upon the earth, and there was not a man to till the ground.

<sup>6</sup> But there went up a mist from the earth, and watered the whole face of the ground.

<sup>7</sup> And the LORD God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.

<sup>8</sup> And the LORD God planted a garden eastward in Eden; and there he put the man whom he had formed.

<sup>9</sup> And out of the ground made the LORD God to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the garden, and the tree of knowledge of good and evil.

<sup>10</sup> And a river went out of Eden to water the garden; and from thence it was parted, and became into four heads.

<sup>11</sup> The name of the first is Pison: that is it which compasseth the whole land of Havilah, where there is gold;

<sup>12</sup> And the gold of that land is good: there is bdellium and the onyx stone.

<sup>13</sup> And the name of the second river is Gihon: the same is it that compasseth the whole land of Ethiopia.

<sup>14</sup> And the name of the third river is Hiddekel: that is it which goeth toward the east of Assyria. And the fourth river is Euphrates.

<sup>15</sup> And the LORD God took the man, and put him into the garden of Eden to dress it and to keep it.

<sup>16</sup> And the LORD God commanded the man, saying, Of every tree of the garden thou mayest freely eat:

<sup>17</sup> But of the tree of the knowledge of good and evil, thou shalt not eat of it: for in the day that thou eatest thereof thou shalt surely die.

<sup>18</sup> And the LORD God said, It is not good that the man should be alone; I will make him an help meet for him.

<sup>19</sup> And out of the ground the LORD God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof.

<sup>20</sup> And Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field; but for Adam there was not found an help meet for him.

<sup>21</sup> And the LORD God caused a deep sleep to fall upon Adam, and he slept: and he took one of his ribs, and closed up the flesh instead thereof;

<sup>22</sup> And the rib, which the LORD God had taken from man, made he a woman, and brought her unto the man.

<sup>23</sup> And Adam said, This is now bone of my bones, and flesh of my flesh: she shall be called Woman, because she was taken out of Man.

<sup>24</sup> Therefore shall a man leave his father and his mother, and shall cleave unto his wife: and they shall be one flesh.

<sup>25</sup> And they were both naked, the man and his wife, and were not ashamed.

## **Appendix B**

### **Pictures**



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