FREEDOM FROM DECEPTIONS

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Let's face the future without fear. Truth is not the enemy, but our best friend for freedom.
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Global Reckonings

Time is becoming more precious than gold, platinum, or diamonds. For, if we take a look around us, we will see Earth going through the throes of death. Or it could be the birth-pangs of a new Earth Age that we are looking at, as there is still enough remaining time to make use of science and therewith induce a rebirth in our planet’s environment. Yet we can see and hear Death at the door of our social consciousness knocking loudly.

Consider this: our planetary CO₂ (carbon-dioxide) emissions have unbalanced the very air we breathe. After the year 1800 our Industrial Revolution gained momentum and its pace hasn’t stopped a bit. Our world population growth has also increased at a most rapid rate. Earthquakes, volcanoes, widespread droughts, megafloods, extreme famines, awful pestilences, species extinction, rising sea levels, violent weather events, deforestations,
Wild fires, religious wars, and so many other negative factors. But CO₂ emissions are within our power to control and amend. According to a National Geographic Report, February 2004, our fossil fuel burning is increasing by leaps and bounds, so that we are yearly dumping 8 billion tons of CO₂ into the atmosphere. And though there is enough projected oil in reserve for another thousand years, yet it is our collective lungs that will not be able to take it! And if we don't stop our oil and coal burning, the toxicity of our greenhouse gases will stop us. Guaranteed!

It takes almost a lifetime of searching for the facts to accept certain verities. We are quickly driving the present 388 parts per million of CO₂ in the air to a tipping point of 500 ppm, beyond which we will have no chance of developing any method of reversing the global gassing and thereby canceling its deadly results.

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Suicide, anyone? Not us! Not anyone who values the beauty of life, love, and liberty. Nevertheless, the fact remains that, on a yearly basis, humanity pours those 8 billion tons of carbon dioxide into the atmosphere. With so much pollution going on, what else are we doing? Well, there's a host of other common gases that we're making which are more poisonous than CO₂, such as methane and nitrous oxide. There's sulfur fluoride, a gas we typically use in the repellent and control of insects, that's actually effecting global warming at least 4,800 times worse than CO₂. It's a looming disaster that we have created, and have no way of avoiding anymore. But yet there is an answer to the problem at hand: yes, clear, cool, fresh blue water is our answer. Let us therefore elect to have a blueprint for tomorrow instead of facing a dead-end future. But first let's look at fire...
Twice has mankind discovered fire. Once long ago when we were evolving as cave people, it is said that by rubbing two sticks together we ignited a pile of dry leaves. Or perhaps it was a spark from hitting flints on rocks that gave us “fire”. Either way, we can be certain that some of our ancestors became afraid of fire and thus were against the fire-makers, seeing that fire burns, destroys, and kills if your fire gets out of control and, let us suppose, takes down the whole village and forest in flames. But it kept the community warm during the Ice Age, and it lit up the darkness of night so as to keep bears and tigers away, or the ornery dinosaurs!

In our modern times we have once again discovered a new fire. It is nuclear in nature. It too is very controversial because of serious accidents and, in war, intentional deaths.
And yet it was nature itself who created several nuclear combustions a long time ago. In the equatorial region of Gabon Africa, scientists estimate that about 2 billion years ago a natural nuclear reactor happened when a rich deposit of uranium was sandwiched between layers of rocks and sandstone, so that eventually rain water filtered down into it, formed pockets of underground chain reactors, and fissoned. In fission, one fire makes two, then four, then eight, then to the end. The nuclear heat made steam out of the water, which cooled down the reactors, but as soon as the water condensed, the reactions would ignite once again. In technical terms, when a neutron hits an atom's core, it all splits apart. But fast neutrons, which move at 1/80 the speed of light, or about 10 million meters a second, do not cause a chain reaction.
Rather, it is the slow neutrons, which travel at about 2,200 meters a second, that do cause an atom to fragmentate. The African rain that filtered down through the sand gave a neutron just the proper slow speed. This repeated "give and take" between water and uranium may have gone on for a million years until the uranium depleted itself and became stable.

We should perhaps keep in mind two important things about this historical event in Africa: One, that uranium is able to go into spontaneous combustion and does emit radiated heat. Two, that 2 billion years ago when uranium was going ballistic, we were tiny little microbes that were just beginning to move up the evolutionary scale. As busy bacteria we converted the toxic gases around us into oxygen, then later on we used the oxygen to convert food into energy. Also we were quite
actively inventing sex and, as one-celled living beings, some of us took the evolutionary road of cannibalistic protists who are neither plants nor animals and by mutation we produced what today is recognized as the happy process of fertilization. Or it may be that our female species were the original prokaryotes which lack nuclei, while males were the early eukaryotes which contain nuclei, so that with the help of a fungus or two (some microscopic life forms actually thrive where radioactivity is plentiful), we all got together, and began cell-splitting and cell-fusion, forming electrical neurotransmitters in our brains and employing trace elements of every kind and sort in our bodies. Who knows? Why, we do, but we know at our sub-atomic level of consciousness, and nothing should surprise us!

Of equal importance is our history of the universe. Just about 15 billion years
Ago, before the stars were formed, before even time began, the nothingness of
the universe was set on "fire" by an immense field of magnetic radiation.
The original blaze can still be detected by our modern x-ray and radio astronomers.
This primal energy was powerful enough
to send all forces flying away in every
direction, up, down, forth, behind, left,
and to the right. It was no ordinary
fire, for its temperature has been
calculated to be a billion trillion times
hotter than the core of our sun. Its
flame alone was thicker than any
rock or matter; in fact, it was a
trillion trillion trillion trillion times
denser than matter. We haven't the
right words to describe this titanic
light explosion. Eventually, all the
elementary particles emerged, with
so many other chthonic things. The
word "chthonic" means dark, primitive,
and mysterious.

In the end, we are one with mother
Earth Herself, and she is inseparable from the universe.

In time, after ten billion years of cosmic evolution, after the birth of matter followed by its annihilation due to the birth of anti-matter, with temperatures going to extreme heights then dropping to 10 trillion degrees below freezing, while because of a universal asymmetry there is for every 100 million particles of matter only 99 million anti-particles and, due to this intrinsic bias, a little bit of the original matter survived the vast fire. It is estimated that the universe we see today is only one-200-millionth of the original universe. Yes, in time, Earth was born.

Today we can say that Earth's continents are riding piggyback on tectonic plates that move at a rate of 20 miles per million years. Altogether the continents have shifted about 100,000 miles in the course of Earth's geologic history, so that almost no
Rock today is an original rock since plates are perpetually pushed under by adjoining plates and they melt back into the hot magma of the Earth's core. A new crust on the surface of the Earth is also formed when a volcano erupts and its lava cools down; and volcanos likewise release steams and gases, so that, with so much magma movement, the heavier elements (some of which originated from the first explosion of the universe and are radioactive) sink into the core of Earth due to their heaviness, and the Earth gains mass and a greater gravitational pull. Earth is alive and well, ever in motion, recycling and renewing everything. Upon the surface of Earth we have a host of bacterial colonies: there's an infinite number of microscopic creatures! Scientists do not yet know when, for example, cyanobacteria (also known as blue-green algae) learned to break down
WATER to get electrons and protons, and use these particles to turn CO₂ into glucose and release oxygen as an unneeded product. Studies in the Scientific American Magazine, September 2009, page 89, suggest that a certain one-celled fungi can utilize the highly energetic gamma rays of nuclear decay and thrive, since colonies of such fungi have been found living inside the post-meltdown of Chernobyl's atomic reactor. We do know that about 2.4 billion years ago oxygen shifted from being a rare gas into being the second most abundant one in the atmosphere; thus giving the multicellular creatures a chance to be fruitful and multiply. And how they have! Today there are living organisms everywhere. At the University of Oslo, Norway, bacteriologist Vigdis Torsvik found that an average teaspoonful of soil contains around 10 thousand different genetic types of bacteria. And microbiologist Vincent Fischetti
At the Rockerfeller University said that every gram of soil, even every cubic centimeter of water, has at least 10 million to 100 million bacteriophages. They are the most numerous biological entities on Earth, living in everything we eat, drink, or touch. We have ingested them all the time. They are found in our skin, gut, blood, our mucous membranes, in every body part! These bacteriophages infect and kill a lot of bacteria continuously. But then resistant bacteria multiply just as quickly again, and the mutual process repeats itself endlessly. In fact, half the bacteria on Earth are killed by bacteriophages every two days. In a strange way, these two old enemies need each other to survive. The phages outnumber the bacteria by a ratio of ten to one; and so, if our physical bodies have 10 trillion cells on average, and bacteria outnumber us 9 to 1, they must amount to 90 trillion, and since the phages outnumber the bacteria at
A rate of 10 to 1, then we can count on possessing 900 trillion bacteriophages per average person. Truly, they are even in the transparent surface of our eyes! Luckily, our bacteria is a fast breeder and in just 20 minutes is able to double its number. If conditions are good, a single bacterium can generate $2^{144}$ individuals in two days, which is more than the total population of human beings who have ever lived. In four days, again if conditions are favorable, this single fast breeding bacterium is now $2^{260}$ individuals, a number that scientists say is greater than the count of atoms in the universe. Yet for every million births, or cell divisions, one bacterium is a mutant. Most mutations quickly die, but successful ones are rapid to clone themselves and can create a new generation in a matter of minutes. Thus, life goes on, and if necessary, or not, evolution yields a brand new species of living beings, and hasn't failed yet.

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Expanding Deserts

Right now, being the year 2014, adding to the problem of CO$_2$ emission (which has increased: in 2012 the world emitted a record 34.5 billion metric tons of deadly carbon dioxide from fossil fuels, according to National Geographic·April 2014·page 33, Michelle Nijhuis' report) is the global problem of desertification.

As previously mentioned, clear, cool, fresh blue water is the answer to the human problems of modern life. Every continent faces life without water if we fail to desalinate seawater and thereby reverse the Earth's desert expansion and growth-rate.

Various groups of people are seeing deserts rapidly consume their once beautiful lands. Nature at times may cause a desert due to topographic reasons in a region, but in modern times deforestation is the major cause for lack of rain. And letting deserts expand without proper intervention contributes to food insecurity, famine,
and poverty. A dry future is fast coming upon us as deserts continue to expand due to our ineffective methods of dealing with the weather. If left unchecked, desertification will cause a massive land degradation which will cause more social, economic, and political tensions. In the end, it will bring about greater conflicts, further hunger, and a war over water.

In 2006 we observed the United Nations Year of the Desert, which put the problems of dry countries on the global agenda. Since then we’ve learned, among many other things, that only water shall reverse the prolific expansion of deserts, and at the United Nations Convention to Combat Desertification it was clear that very little progress can be made without the active involvement by local populations. We learned there’s already quite a lot of activity going on in the dry lands, and all individuals were encouraged to make
A difference.

In China, among the vast Taihang Mountains in the northwestern Shanxi province, poor farmers often share very heartbreaking attempts to find a few drops of precious water. In 2004, around 24 million people had such a difficult time just getting water to drink. Just looking for a drink dominates the daily lives of these rural people. In 1995, the Gansu province suffered one of its most severe droughts in recorded history. As a result, the Gansu branch of the Communist Party took action and ‘Project 121’ was launched, a self-help plan to build rain containers able to store 100 cubic meters for each of the province’s households. These tanks are called “water cellers” and are made of cement and clay. They do help, but it isn’t very high technology, and are all dependent on the weather. Meanwhile, the Tengger Desert in Gansu marches on.

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At a rate of 10 meters per year. People can only watch as valuable arable land converts into desert. Gansu's story is not an isolated one. Next door in neighboring Alashan in Inner Mongolia it is the same tale. The dry climate has been continuous for the past several centuries. The Chinese Academy of Science has little else but to conclude that not all of the reasons for desertification are natural; some are human-induced. For instance, in Gansu they built a reservoir on the river there in 1958. Before then, the river was a major source of water. Since the building of the reservoir its annual surface water flow has decreased so that this loss of water forced residents to start sinking boreholes to pump water from underground. Now likewise this water has disappeared, and so the pumps go deeper to draw water. This deeper water is more dangerous as it potentially contains higher concentrations of arsenic.
And Fluoride, and thus the water cannot even be used to feed livestock. Sadly, what is happening in China is being repeated everywhere else too. Alas, disappearing rivers are well-known in the Namibian desert of Africa as well as in the Sudan and the Sahara!

In South America about one million people live in Chile’s Atacama desert. They have no rivers and very little rainfall there. It is so dry that the Chileans have even attempted to capture the droplets of moisture that the fog carries when it comes in from the Southern Pacific Ocean. Since the Atacama desert is one of the driest places on Earth, most of the water has to be trucked across the desert from distant places, which makes it very pricey. Fishing and some mining provide a means for survival, and a few liters a day that people can afford to buy is mainly for drinking. But the fog is thick and very moist.
As it blows in from the sea, yet at the Atacama, like at the Namib desert of South Africa, the creeping fog is considered as a life-giver since it waters an abundance of plant species that grow in places where one would never expect them to. These are the cactuses, wild flowers, ferns, and lichens. In the 1960s, scientists imitated the plants and installed “Fog Catchers,” a fine synthetic mesh, made from polypropylene, and stretched these nets on posts upon the mountainside. As fog droplets are so small that it takes 40 million of the droplets to form a drop the size of a match head, the amount of water collected was modest. However, there is no shortage of fog, so the water flowed, pulled down by gravity, into the collecting tank in sufficient amounts to supply the desert inhabitants with drinking water. After seven years the fog catching system fell into disrepair; nets needed to be tightly stretched to ensure proper efficiency, and some nets

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got torn and required repairing. Lastly, blockage formed in the collecting tanks, so that maintenance was completely gone, and the torn nets stopped working. On top of that, some villagers removed the nets to be used as personal sunshades! Where people are poor, we can expect such doings. Fortunately, the United Nations recognized the potential value of the Fog Catching System, and now it is being tried in many of the Earth's dry spots, including Namibia, Nepal, the Canary Islands, and Peru. It shows the promise of having a great environmental impact! We thank Journalist Katie Mantell, who is based in London, for informing us of the Chilean experiment in water production.

Also in South America, within Brazil's Caatinga region, the rivers disappear almost as quick as it rains. The Tupi People who live there have appropriately named the dry 737,000 square kilometers of Northeastern Brazil “Caatinga” which means “white forest” as there are no green

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Plants except the evolutionary plants that drop all their leaves to retain what little humidity is left in their stems. It seems that most deserts average less than 9.75 inches of rain, and that deserts now cover one fifth of the Earth's surface. With the invention of agriculture our ancestors started the largest and ever-continuous alteration of Earth's surface from its natural state. Today denuding of forests continues by farmers and giant corporations. Our increasing populations demand no less, and who can blame people for wanting to eat food? At the same time, besides rising sea levels, the oceans themselves are becoming deserts where fish can't live or survive due to the action of acidification which is occurring on a large scale. And, on a global economic scale, 50% of the people possess only 2% of the world's wealth, and that turns into very little purchasing power with essentially a base of no political influence. Though bleak, yet there's hope!

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Uranium and Thorium

We are convinced that there is hope because of our patience. Science can do wonders for all of us no matter how steeped in poverty we are, nor can the prisons stop us.

As always, one thing leads to another. Antoine Henri Becquerel 1852-1908 is the physicist who discovered spontaneous radioactivity in uranium. Mr. Becquerel's work led to the discovery of radium by Marie and Pierre Curie, with whom he shared the 1903 Nobel Prize for physics. When Mr. Becquerel was doing research on a sample of uranium chloride, he decided to extract all the active material from it. After several weeks he finally quieted the uranium down, while the extract, which he associated with barium, concentrated the activity. Barium is a white metallic element. Now then, whatever it was that radiated in his barium died away, and if he

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had given up we might never have heard of him, but he resumed work on the sample of uranium chloride, after it had been left alone for months, in order to try and squeeze the last of its potency out of it and, wonder of wonders, it was as active as ever!

Let's review our take on what happened here. What actually happened in the original solution of uranium chloride that was emptied and then regained its potency? How do we explain it? Remember it was in 1900 when Mr. Becquerel experimented with his sample of uranium chloride. Back then they didn't have the scientific concepts that we have today. But isn't it wonderful that Mr. Becquerel discovered that, if left alone for months, the uranium solution regained its purity and power? The same thing happened to Mr. Becquerel's friend, William Crookes, a British chemist, when he isolated chemically from uranium
Nitrates something which was radioactive enough to produce effects on photographic paper: he called that something uranium X (X as the unknown). It too soon lost its potency, while the original uranium nitrate recovered it. What does this mysterious force indicate here? Sometimes we wonder if perhaps cyanobacteria had a hand in the matter of this regeneration. Today we know that uranium is capable of breeding, and it is easy to conclude that the uranium spontaneously multiplied and remixed itself into a new batch of radioactivity, for the conditions were just ripe for it. A hundred years ago scientists were only beginning to explore the atomic world. A hundred years from now scientists will surely know a trillion more things than we do. For now it is enough to conceive that possibly there's a microbial factor in these experimental compositions, especially the nitrates as an ingredient with uranium!
As mentioned in previous pages, our primary purpose is to desalt seawater. Apparently, all desalination efforts falter and water projects are shelved because of energy costs. Besides legal challenges over environmental impacts on marine life, and skyrocketing construction expenses, there are also regulatory delays; but it is the huge energy requirements that stymies the whole thing: electricity is very expensive and desalination facilities are extremely energy-intensive. We cannot depend on fossil fuels for our source of energy; therefore, nuclear science must provide us with a solution. It is most important that we understand the basics of any thing if we are to make wise decisions based on advantages and drawbacks of the thing. Thus, we shall continue with Mr. Becquerel's experiments, and especially with the experiments of Maria Sklodowska whom we know as Marie Curie.
Recalling the early history of uranium and of thorium, the two natural elements that are capable of fission, back in 1896, around the last of February, Mr. Henri Becquerel wondered about the X-rays that cathodes produced in a sealed glass tube, so he figured other fluorescent substances might emit them too. At that time the world didn't know of radioactivity. Out of curiosity, Mr. Becquerel placed crystals of uranium potassium sulphate on a photographic plate that was wrapped in black paper. His intention was to expose the crystals to sunshine, but bad weather forced him to delay his experiment. He put away the wrapped up plates in a drawer, with the crystals still placed on top them. On the 1st of March, he developed the photographic plates out of curiosity again. He knew that by exposing the plates to sunlight, the Sun's ultraviolet rays through the crystals might provoke the desired effect as if by phosphorescence. To his
amazement, the uranium itself emitted rays through the black paper-wrapping, and silhouettes appeared with great intensity on the developed plate. He called his discovery "uranic rays", and this radiation did not require any exposure to light at all. Nevertheless, Becquerel's discovery did not arouse anything like the same excitement that X-rays were causing in the scientific world. After two years, uranium rays were still very much unknown, until a Polish lady came upon the scientific scene: Marie Curie!

Equally curious was Marie Curie. She was puzzled by this new radiation, and decided to test other substances methodically to see if Becquerel's rays were really specific to uranium. In 1896 uranium was used mainly in the coloring of glass and ceramics. She also wondered about the phosphorescence of thorium, which came from pitchblende, an oxide of uranium. So Marie Curie asked the company that mined pitchblende if she
could get the waste of pitchblende which was dumped in the woods. They gladly gave her permission to take hundreds of kilograms of the unwanted stuff. She managed to have it delivered to Paris where she lived. The English word "pitchblende" comes from the German word "pechblende" and pech means both "misfortune" or "tar", while blende means "mineral". In the Bohemian mine shafts of St. Joachimstal, silver was the main attraction, and pitchblende was the unwanted stuff that miners cleaned away while digging up the silver veins.

When young, Maria Sklodowska had taught herself chemistry. Now she had moved from Warsaw Poland, and lived in France where she met and married Pierre Curie. Marie learned how to endure the terrible hardship of being a woman who loves science, and when the pitchblende arrived, she set up shop in a wretched storeroom that was all the city school could spare.
For her laboratory. Some people who have seen it describe it as nothing more than a disused shack, but here is where Marie's genius brilliantly fulfilled itself. Fortunately, her elder sister Bronia lived in Paris, and had obtained a worthy education. Plus, Marie's husband came from a family of great scientists. Both Pierre, and his elder brother Jacques had distinguished themselves already by doing research and jointly discovering piezoelectricity.

Actually, their lab was a shed that had once been used to dissect human corpses and was now empty except for some wooden tables and a cooking kiln. But, to repeat, thanks to the École Municipale, they now had a starting lab. Previously, Pierre had done some of his most original work in a corridor, as the school lacked funds and had none of the prestige of the other Grandes Écoles. Back in 1895, Pierre had attained his doctorate for a thesis on magnetic properties of
 Bodies At Diverse Temperatures. But now Marie was working on her doctoral thesis: in physics and chemistry, that was quite an unthinkable thing to do at the time, and more so for a young woman with a babe at the breast. Even Cambridge in England would not allow women to receive their University's degrees, for fear it might frighten away the male students. Anyway, Marie proceeded onward, and began the task of studying the mysterious rays of uranium and thorium. Thus, when the horse-drawn wagon arrived loaded with several canvas bags of pitchblende mingled with stray sand and various pine needles from the trees of St. Joachimstal, Marie was ready for them.

First, Marie and Pierre had to crush and filter the pitchblende, by hand, and then dissolve it in a solution of acids (acids, when dissolved in water, form hydrogen ions and react with
certain metals to form salts.) Then she boiled it up, then let it cool down, until the pitchblende formed crystals just the same way that cooling saltwater leaves flakes of salt on the edge of a glass. Sometimes she spent the whole day stirring a boiling mass with a heavy iron rod. This heavy iron rod was, "Nearly as big as myself," she recalled later.

By sheer effort, along with unending patience, Marie and Pierre managed to extract a substance like bismuth, and with it a bit of something 300 times more "radioactive" (the word coined by them) than uranium, and thereupon in July 1898 they announced the existence of polonium, named after Marie's homeland. But still in the remaining mixture there was something else, and this material they linked to barium. It made the electrometer shudder very violently, registering thousands of times more radioactive than the purest uranium, so they named it
"Radium", the 'par excellence' of the ray elements. In Latin, radius means ray, and during the Roman Gladiatorial Fights a radius was a big bright torch used to illuminate the stadium at night.

Not everyone agreed the Curies had found any elements, but since 1859 two German scientists, Gustav Robert Kirchhoff and Robert Wilhelm Bunsen, had developed the technique of spectroscopic analysis. Light proved to have its own chemistry: when incandescent (burned), each element emits its own light, its own spectrum. Each shines only at wavelengths special to itself, and physicist Kirchhoff and chemist Bunsen recognized these differences in spectra, so that they could identify any compound which might defeat purely chemical analysis, and break it down into its basic parts. Thus, light discloses its composition!

Now Marie Curie was determined to prove the validity of her elements. To do that, it took her until 1902 to separate and
isolate as much as a tenth of a gram of radium out of the many tons of pitchblende ore. But it was enough! With it she determined its atomic weight, the third in order after uranium and thorium.

Today, on our Periodic Table of Elements, Radium is number 88 and is followed by the Actinide Series (Elements 89-103) with Thorium number 90 and Uranium number 92. Polonium is number 84. These numbers indicate how many protons are within the element's nucleus. Actinium is atomic number 89, and was discovered by André Debierne, a young research worker who joined the Curie team, and went through the thorium ores as the Curies had gone through the uranium residues. Actinium is the Greek equivalent of the Latin radium. Thus, by 1902, radioactivity moved into the spotlight of the scientific stage. Interest started mounting after 1899 when it was clear that radium was self-luminous, and persisted undiminished and stayed hotter than its cold surroundings.
What Is Radioactivity?

The central question now changed from “What elements are radioactive?” to a big, “What is radioactivity?” Or, where did radium get all its energy? How does uranium display such remarkable properties: even after being locked-up for three years in a box encased with lead, it emits radiations! It caught everybody’s imagination. In 1903 Marie, along with her husband Pierre, and Antoine Henri Becquerel, were awarded the Nobel Prize in Physics for their work on radiation. Then in 1910, Marie was able to isolate radium for the first time by electrolysis of radium chloride in the presence of hydrogen gas. This accomplishment earned her a second Nobel Prize, this time in Chemistry, a year later. This was an important feat indeed, because, prior to the invention of particle accelerators and breeding reactors, radioactivities could only be effectively studied if one had a sufficient amount of radioactive material.

But to answer our big question, What is Radioactivity? we shall turn to...
the discoveries of a New Zealand-born British physicist, Ernest Rutherford. In 1897 Rutherford, like Marie Curie that year, also turned his attention to the radiations of uranium. After studying X-rays, it was natural to take up the study of uranic rays too. So he wasted no time in making sure he had a supply of uranium and thorium salts. He was anxious to stake a claim in the virgin soil of radioactivity!

Being a physicist at heart, Rutherford's first interest was magnetism. He knew, by experimenting, that iron wires could be magnetized with rapid alternating electric currents. And the discovery that magnetization and demagnetization produced electrical oscillations helped him construct a device to measure very precisely the frequency of the waves and their timing. With his steel needle, magnetized with a solenoid of fine copper wire wound into a coil around it, Rutherford was able to pick up signals from across his lab where the
Oscillations were being generated. Thus, his magnetized steel needle gave a more sensitive reading than another device that depended on metal filings to stick to one another when subjected to electromagnetic radiation. That device was the Branly-Lodge coherer. Oliver Lodge was interested in developing an instrument for communications, while Eduard Branly, a science teacher, developed the principles used in the coherer. Besides them, many scientists were in a race to discover new transmission principles, such as Popov in Russia and Tesla in the United States. In 1886 Heinrich Hertz made one oscillating electrical charge induce another one. With his apparatus, he generated the oscillation in a metal circuit with a spark gap, while at some distance he placed a receiver: a hoop nearly a foot across with a corresponding smaller gap. Yes, little sparks leaped across the break in his wire. By moving his hoop around the room,
and by knowing the frequency of the original oscillations, he could establish the wavelength and thereby obtain a velocity that did indeed correspond to that of light. And if someone walked in front of the apparatus, no spark appeared. But put the hoop in another room and shut the door, and, surprise, the sparks appeared. He tried various experiments with his waves, and these new Hertzian waves, eventually called radio waves, behaved just as waves should: their wavelengths were much greater than those of light, whereas their frequency was correspondingly less. Sadly, at the height of his research, Heinrich Hertz died of bone cancer, and left radio waves to be studied by other scientists.

During 1898, four years after the death of Hertz, Rutherford wrote a paper titled, "Uranium Radiation and The Electrical Conductance Produced By It," which he published in upcoming January 1899. He made a major discovery!
His breakthrough discovery of identifying and naming Alpha and Beta particles eventually led to the concept of an atom undergoing spontaneous transformation. This is how Rutherford did it: he put his powdered uranium compounds on a zinc plate, with another plate above it, and with the plates so connected, now the "conductive air" completed the circuit. He reasoned that as some substances do not let light pass through them, it must be possible to block the passage of uranic rays. So on the uranium he placed a thin plate of Dutch metal (made of a copper-zinc alloy), which is a cheap substitute for gold-leaf. One upon another, until it broke the circuit current and the discharge fell off, almost as if the plates were absorbing the rays. But then they continued again through several layers of the Dutch metal, then stopped anew. Now he tried other materials, such as aluminium foil, tin, silver, even glass. The radiation blockage
confirmed his speculation: that at least two kinds of radiation were clearly involved. Those which were easily stopped, he named Alpha rays. Those which penetrated a thicker layer of plates, he called Beta rays. For example, Aluminium Foil with a thickness of 0.005 mm could reduce the Alpha rays by half, and with 4 Aluminium Foils the reduction was a twentieth. For Beta rays a hundred such layers of 0.5 mm would be needed to reduce them down to half strength.

Later on, another physicist Paul Villard showed that there were rays more penetrating than Alphas or Betas which escaped Rutherford because they passed through everything he had used as a screen. These more powerful rays Villard called Gamma rays after the third letter of the Greek alphabet. But in the end, Rutherford admitted that "the cause and origin" of the radiation "still remains unexplained."

OF OPENING A DOOR MADE THE INDICATOR TREMBLE IN AN IRREGULAR MANNER. AFTER INVESTIGATING THORIUM MORE THOROUGHLY, RUTHERFORD DECIDED IT WAS NOT SO MUCH THE ROOM'S AIR THAT AFFECTED THE THORIUM, BUT THAT THE THORIUM ITSELF WAS EMANATING SOME KIND OF GAS AND IT FLOATED AWAY. MOREOVER, THE "EMANATION" HAD THE CAPACITY TO RENDER OTHER MATERIALS RADIOACTIVE TOO. RUTHERFORD MADE THE DISTINCTION BETWEEN HIS EMANATION AND A RADIATION: IT MIGHT BE ALPHAS BEING FIRED OUT OF THE URANIUM OR THORIUM AND THESE ALPHAS WERE GETTING INTO EVERYTHING THEY CAME IN CONTACT WITH. EVEN PIERRE CURIE NOTICED THAT A METAL PLATE TOO CLOSE TO SOME OF HIS RADIIUM BECAME RADIOACTIVE TOO. SO MUCH SO, THAT EVEN A SHEET OF PAPER BECAME RADIOACTIVE IF PLACED TOO NEAR TO RADIIUM OR URANIUM. RUTHERFORD NOTICED THAT RADIOACTIVE EMANATION DECAYED QUITE SUDDENLY WITH TIME. THE EMANATION LOST HALF ITS POWER IN UNDER A MINUTE, THEN LOST HALF OF THAT IN ANOTHER MINUTE, NOW IT WAS ONE FOURTH AS MUCH.

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Thus, the half-life feature of radioactivity became an observable fact.

Then, in 1932, physicist James Chadwick discovered the neutron when he at last managed to produce the "neutral doublets" that Rutherford had hypothesized and sought in vain, but which he envisaged to have no charge and would be able to pass freely through matter. Chadwick called the neutron a complex particle, a combination, because the neutrons were really protons too, hiding, in a sense, behind their electron mates, so that, when a beta ray is given off, the mask is pulled off and a new proton is revealed, which explains why the loss of a beta adds one unit to the charge number. It's "complex," as Chadwick said. Neutrons are electrically neutral and are part of the nucleus of all atoms, except hydrogen. Also, neutrons have a mean lifetime of approximately $1.0 \times 10^3$ seconds as free particles, or one thousand seconds.
Large numbers are easily written, or calculated, if we use the following prefix scale:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Symbol</th>
<th>Multiplying Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tera-</td>
<td>T</td>
<td>$10^{12} = 1,000,000,000,000$</td>
</tr>
<tr>
<td>Giga-</td>
<td>G</td>
<td>$10^9 = 1,000,000,000$</td>
</tr>
<tr>
<td>Mega-</td>
<td>M</td>
<td>$10^6 = 1,000,000$</td>
</tr>
<tr>
<td>Kilo-</td>
<td>K</td>
<td>$10^3 = 1,000$</td>
</tr>
<tr>
<td>Hecto-</td>
<td>h</td>
<td>$10^2 = 100$</td>
</tr>
<tr>
<td>Deca-</td>
<td>da</td>
<td>$10 = 10$</td>
</tr>
<tr>
<td>Deci-</td>
<td>d</td>
<td>$10^{-1} = 0.1$</td>
</tr>
<tr>
<td>Centi-</td>
<td>c</td>
<td>$10^{-2} = 0.01$</td>
</tr>
<tr>
<td>Milli-</td>
<td>m</td>
<td>$10^{-3} = 0.001$</td>
</tr>
<tr>
<td>Micro-</td>
<td>μ</td>
<td>$10^{-6} = 0.000,001$</td>
</tr>
<tr>
<td>Nano-</td>
<td>N</td>
<td>$10^{-9} = 0.000,000,001$</td>
</tr>
<tr>
<td>Pico-</td>
<td>p</td>
<td>$10^{-12} = 0.000,000,000,001$</td>
</tr>
<tr>
<td>Femto-</td>
<td>f</td>
<td>$10^{-15} = 0.000,000,000,000,001$</td>
</tr>
</tbody>
</table>

Of course, in physics there are larger numbers as well as much smaller ones. For example, $3 \times 10^{15}$ equals 3000 million million. Six sextillion equals 6 followed by 21 zeros, which is Earth’s current weight in tons! Thus, the neutron’s $1.0 \times 10^3$ free life is 16.66 minutes.
Otherwise, 160 minutes and 40 seconds. The multiplier may be expressed as:

\[10^2 = 10 \times 10 = 100\]
\[10^3 = 10 \times 10 \times 10 = 1,000\]
\[10^{-1} = \frac{1}{10} = 0.1\]
\[10^{-2} = \frac{1}{10^2} = 0.01\]

So, 2 km = \(2 \times 10^{-3}\) meters = 2,000 meters.
2 mm = \(2 \times 10^{-3}\) meter = 0.002 meter.

But to return to our big question, What Is Radioactivity? Well, before answering, let us look upon a key player of the atom: the "proton."

It is known that Michael Faraday experimented on the nature of electricity. He had a keen mind that enjoyed toying with the idea of atoms of electricity. So he passed electric currents through salt solutions and found them undergoing chemical reactions. He observed that the masses of the new substances produced were in proportion to the magnitude and duration of the electric current that passed through the solutions. Then Faraday, along with other
pioneering scientists, such as Heinrich Geissler, a master glassblower; Sir William Crookes, with his "Crookes Tube"; Johann Hittorf, who wondered about "the strange patch of light on the glass"; these and others, started to investigate the flow of electricity through gasses by constructing glass discharge tubes with embedded electrodes. If they added gasses to their tubes and ran a high voltage on the electrodes, the glass lit up while the gas within glowed with a characteristic color, even more so when they vacuumed out most of the gas and left the tube nearly empty of the gas. Eventually, their investigations revealed that the electric current flowed from the negative electrode (cathode) to the positive electrode (anode), and that the glow produced was the result of the electrons hitting the anode. Since these rays were emitted from the cathode, they were named "cathode rays". Now then, the discovery of protons,
the positively charged particles in the atom, was the result of a discharge tube experiment. In 1886 both Joseph John Thomson and Eugene Goldstein noticed that positively charged particles were running from the anode to the cathode at the same time that cathode rays raced to the anode. They had been measuring the velocities of particles, and both knew the cathode in the vacuum tube will naturally suck in any positive particles in the its neighborhood. If a tiny hole were drilled into the cathode, all the positive particles will be swallowed up, as they shall have picked up sufficient velocity to pass through and stream out the other side in a thin beam. Later on, even a hypodermic syringe replaced the drilled hole, and a new vacuum technique evolved for research on the rare gases, using charcoal chilled by liquid air, so that the positive rays were concentrated in the space behind.
the narrow hole of the cathode. Thus, credit for the discovery of the proton should go to these gentlemen; and we must remember that many worked alone and did not make a living from their research, and even those who were paid to do research and make discoveries were modest: Faraday, who laid the foundations of electromagnetic science, began his work in a converted basement kitchen with an ex-soldier as his only assistant.
A Struggle

Our solution to the global problems of increasing CO₂ emissions, rising sea levels, expanding deserts, unchecked famines, poverty, and everything else that’s wrong with our world, is to desalinate seawater using nuclear science: there’s a lot of new methods and new reactor designs that will see us through. The future looks most favorable if we cease our fossil fuel addiction!

If plan “A” cannot be successfully accomplished, then we have plan “B”, and if that too fails, then plans “C”, “D”, “E” until we arrive at plans “X”, “Y”, and “Z”. Patience and understanding are key factors towards salvation and happiness.

Since we cannot rely on “fossil fuels,” or on other energy sources such as solar and wind systems, or devices that recapture CO₂ from the air, or ordinary farms of algae on the sea to suck in carbon dioxide, or even dams, or biochar or co-generation or sequestration,
to repeat, since we cannot rely on or depend on anything except radioactivity to see us through for the next 1,000 years of life on Earth, therefore we have ventured into and investigated the world of nuclear power.

Science is the most wonderful tool we have at hand. We need to have knowledge of everything. But from the beginning of mankind's appearance on Earth, there has been a struggle by intelligent groups of humans to rule Earth with force and with knowledge as a killing tool. Actually, ignorance and fear are the underlying causes of all warfare. If we fear something, we kill it; problem solved! However, rather than solving anything, it creates evermore greater problems. Karmic laws come into play, which is to say that for every action there's a reaction, or tit for tat.

Stoning a person to death was the old Biblical way of killing. Moses approved of it in his laws. That law is still with us.
Our modern version of the law is to use a stone like a uranium rock, extract and concentrate the U-235 isotope of it, and then throw it upon a feared enemy to kill a mass of common people. Nothing has changed in any way, and our beliefs are generating hatred towards us by those who witness our acts.

Truly, religious teachings, and the beliefs thereof, are the source of all sufferings on earth; if we are to be truthful at all. In science, we must uphold the truth, otherwise we are no better than murderers. For the sake of Hypatia of Alexandria, the first female mathematician known to history, let us not allow irrational religion to destroy rational thought. As a Hellenized Egyptian, Hypatia became a teacher, an astronomer, and one of the foremost intellects of her time. But during the antipagan riots of 415, a Christian mob dragged her through the streets to a church. They stripped her naked, and scraped her flesh from her bones with sharp oyster shells.
And, after tearing her body to pieces, the church members burned up her mutilated remains. In 335, the writings by Greek philosopher Porphyry, who had died in 305, were burned because he proved that the Book of Daniel was a fake, since the Greeks had several alphabets and could date written scripts. At least tens of thousands of deaths were caused by the early church Father Eusebius of Caesarea, if we consider his deadly forgery. Believers are still under his influence, denying the truth. Let us respect the truth if religions fail to do so.

Here is a simple test in the question and answer format: it will illustrate how a spiritual policy made over 17 centuries ago still affects the everyday lives of billions of people, and does it very subtly indeed!

**Question #1. Is there any historical evidence that Jesus Christ ever existed?**

**Answer.** There is no historical evidence,
OR ARCHaeOLOGICAL PROOF, AND NOTHING CERTAIN EXISTS TODAY TO ATTEST TO THE FACT OF A REAL PERSON NAMED JESUS BORN TO PARENTS JOSEPH AND MARY. NO CONTEMPORARY DOCUMENTATION OF THE BIRTH EVENT, NOR EYEWITNESS ACCOUNT AT ALL.

QUESTION #2. IN THE NEW TESTAMENT, THE GENEALOGY OF JESUS CHRIST IS DETAILED BACK TO ADAM AND EVE, IN PARTICULAR CHAPTER 3 OF ST. LUKE. ISN'T THAT EVIDENCE AND LEGAL DOCUMENTATION ENOUGH?

ANSWER. ABSOLUTELY NOT! THAT'S MERE CHRISTIAN TALE-SPINNING! WE FIND THE SAME ADAM AND EVE FABLE IN GENESIS 2:22 AND IN SURA 2:29 OF THE KORAN. MR. MOSES IS A PSEUDEPIGRAPHICAL CHARACTER, AND MR. MUHAMMAD'S VERSION IS JUST AN ADAMIC CLONE.

QUESTION #3. WHAT ABOUT THE CROSS? SURELY IT WAS A REAL EVENT!

ANSWER. NO CROSS, NO TOMB, NO SHROUD, EXCEPT FOR A SEPULCHER INVENTED IN 325 BY SO-CALLED SAINT HELEN, MOTHER OF EMPEROR CONSTANTINE. WE ARE ALSO INDEBTED

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to her for the discovery of Golgotha and of the titulus, the wooden fragment bearing the charges brought against Jesus. All we have else are 2 or 3 vague references in ancient texts—Flavius Joseph, Suetonius, and Tacitus—but in copies made several centuries after the alleged crucifixion of Jesus and—significantly—after the success of the Christ myth was assured.

**Question #4.** What about the Golden Rule, “Do unto others as you would have others do unto you”? Wasn’t Jesus the first to teach it?

**Answer.** Let us give credit where credit is due. The Golden Rule is a very ancient teaching, and is found among the sayings of all the religions: Brahmanism, Buddhism, Islam, Judaism, Taoism, Zoroastrianism, and others. Even Mencius quoted Confucius as saying, “Do not unto others what you would not have them do unto you,” in Analects 15:23.

**Question #5.** What about the virgin
birth of Jesus? Does it not prove His Divinity and Purity?

Answer. It proves the Gospels recycle the literary devices of pagan antiquity. In fact, we have more Virgin births in the ancient fables than we may enumerate here, but we will list some basic ones: 1. Alcmena, mother of Hercules, who gave birth on December 25th. 2. Isis, who gave birth to Horus on December 25th. 3. Semele, mother of Dionysus/Bacchus, who was born on December 25th. 4. Maya, mother of Buddha, also a virgin. 5. Anat, Syrian wife of the Supreme God EL, called "Virgin Goddess." 6. Chimalman, virgin mother of Mayan Kukulcan. 7. Devaki, mother of Sri Krishna. 8. Frigga, mother of Scandinavian God Bader. 9. Juno, mother of Mars/Ares, called "Matrona" and "Virginalis," i.e., the mother and virgin. The list goes on and on, the more languages we read and study their accompanying cultural mythology.
According to our sources, which are surely outdated by now, in the year 2005 Christianity had 2.1 billion believers; with Islam in second place, with 1.5 billion believers. Hinduism came in third place with 900 million. The rest have less adherents, such as the Traditional Chinese Religions which number about 394 million, and Buddhism counting at 376 million. And also there are 12 world religions with memberships of less than 10 million each. That's a lot of adherents in so many faiths!

Meanwhile, as believers adhere to their various beliefs, they live in a world where 200 armies have weapons, and at least 30 to 40 of these armies have weapons of mass destruction, and 9 of these armies possess nuclear bombs. Armies need soldiers, so 6 armies on Earth have more than 500,000 fighters ready to defend their political goals. We have to admit that, whether for politics or for religions, we're all at war!
We must also admit that the distinction between politics and religion is very blurred. In fact, they overlap and even fuse together. As a brief example of this union, on the issue of paying taxes to Caesar, we read in Matthew 22:21, "Render unto Caesar the things which are Caesar's, and unto God the things that are God's." Around the year 53 Common Era, when Emperor Nero was in power, we read in Romans 13:4, "For he is the minister of God to thee for good. But if thou do that which is evil, be afraid; for he beareth not the sword in vain: for he is the minister of God, a revenging to execute wrath upon him that doeth evil."

What else is left, if every penny belongs to Caesar, and now he alone answers our petitions for mercy too? If we steal a loaf of bread, his sword will get us, and in today's laws of 3-strikes, after all petitions are denied, we get 25 years of prison for any theft.
How can we think that politics is not mixed-up with religion? From the very beginning, we find that Moses is the Law-Giver, and had spies to gather information for him as he went about conquering nations before him. His cruelty was justified by his so-called “Divine Right” that kings have always claimed.

Moses is a purely fictional character, the same as Jesus is. Throughout the entire writings of the Bible, we detect the unseen hand of priesthhoods. In Matthew 17:3, Moses was last seen with Jesus, to wit: “And behold, Moses and Elijah appeared to them, talking with Him.”

Another political warning comes from Isaiah 60:12, “For the nation and kingdom that will not serve thee shall perish; yea, those nations shall be utterly wasted.”

Moses is given credit for writing the Pentateuch: Genesis, Exodus, Leviticus, Numbers, and Deuteronomy. But we ask, did he?
The first hints that something isn't kosher come from unexpected sources. Logically, if Moses was born in Egypt, and raised and educated there, one would expect him to write in hieroglyphics. He may have written originally in Egyptian hieroglyphics, but we will never know because from the year 250 BC only the Qohelet (the book of Ecclesiastes) is in the original Hebrew, or Aramaic. Only small fragments of the other books remain for us to study: everything else is in Greek!

In the ancient world it was a common practice for texts or scrolls to be written by several persons under the name of a single "god" or "patriarch". This is what happened in the case of Moses. According to Biblical chronology, Moses wrote that Abraham moved to Canaan about 2100 BCE. This is impossible, since the Chaldean city of Ur did not exist til after 1000 BCE. We can trace Ur back into India, where scholars have found the proto-Hebraic Chaldee
Language.

In etymology, we examine the roots of all words, and follow them back to their origins. There is an UIR of the Cúfees in India, where the followers of Brahma left India during a war over gender (that is, Patriarchy against Matriarchy) which was brought about by the change of the equinoctial ages, i.e., that from Taurus to Aries. In India, Scriptures credit Holy Mother Kali with giving birth to the Universe. They departed from the Indian region of Oud’h (Judea) and passed through the crossroads of Sumeria and stopped at Harran which today is in South Turkey. That’s where Jacob met Rachel. We can be sure that waves of people were migrating because a group of the Aryan Brahmanical migration ended up in Goshen, “the house of the Sun,” i.e., Heliopolis in Egypt, where it established a colony named Mathura. These Brahmins or Abramites eventually moved back into Canaan and created Israel. To be sure,
the father of Sri Krishna was Yadu/Yuda/Yudi, or Judi, and the word “Shaitan”—
“Adversary,” which we know as “Satan,” is the same in Hebrew and Sanskrit.

We also find that the name Moses is Egyptian and comes from Mo, the
Egyptian word for water, and us, which means saved from water. In India,
Sri Krishna was placed by his mother in a reed basket and set afloat in a
river to be discovered by another woman. Now then, the original name of “Israel”
meant “the tribe of Sarah.” Her name was formerly Sar’i, or the Queen, a
name for the Great Nabataean Goddess. Remember Ezekiel said of the Hebrews/
Israelites, “your father is an Amorite, your mother a Hittite,” which is to say
an Aryan.

Another clue or hint as to the validity of Moses’ authorship comes from Jewish
scholar Isaac ibn Yashush who noted:

* A list in Genesis named Kings that lived long after Moses was supposed
to have lived.
* Several passages referred to Moses in 3rd person.
* Used terms that Moses could not have known.
* Described places Moses didn't visit.
* Used language from an entirely different period.
* Wrote the account of his own death.

And from another Biblical scholar, T.L. Thompson, we learn:
* Moses wrote two Creation stories.
* Two Flood stories.
* Two different accounts of how the nations spread over the face of Earth.
* Two different names for God: El and Yahweh. El is the God of the Canaanites, enemy of Moses and Joshua. Yahweh was unknown to the Israelites until after Exodus, yet Joshua was born before the Exodus began; the name Joshua means "Yahweh is Salvation."
* Moses climbs Mt. Sinai at least 8
different times.
* In Exodus the 10 Commandments were given at Mt. Sinai.
* In Deuteronomy the 10 Commandments are given at Mt. Horeb.
* The stone tablets are written by God in Exodus Chapter 31, but engraved by Moses in Chapter 34.
* Three different stories of Jerusalem’s conquest in 3 different Books, and only one is under the leadership of David.
* Three different accounts of Saul’s death.
* Three different accounts of Goliath’s death.
* The Book of Jeremiah gives an account of the entire population going into exile 3 times.

To be fair, we must note that the word “History” did not even exist in Hebrew. History is a modern idea as we distinguish it from mythology. In our best judgment we agree with Israel Finkelstein,
Director of Archaeology at Tel Aviv University, and with his co-writer Neil Silberman, when they affirmed, "The Bible is a historical novel more than an accurate historical chronicle."

Another person who thinks the Bible isn't all that truthful is Jeremiah himself, when speaking of the Scriptures of the Lord, "...Lo, certainly in vain made he it; the pen of the scribes is in vain!" Jeremiah 8:8. We find that Moses' fifth book, Deuteronomy, was lost for centuries and finally found by Hilkiah the High Priest during the reign of Josiah around 622 BC. Now then, in Deuteronomy 26:5 it describes Jacob as a "wandering Syrian Aramean," in so many words.

As the 5 Books of Moses end, we are then introduced to the Book of Joshua. We should remember that neither in Hebrew nor in Greek nor even in Latin is there such a letter as our modern "J." Though the name "Joshua" appears over
200 times in the Old Testament, yet it appeared in Hebrew as "Yehoshua".
So that readers of the Greek Bible, used by the creators of the New Testament, would see this oft-used name as the Greek version of it: Ἰησοῦς (or Jesus).
For example, Joshua 6:27, "So the Lord was with Joshua; and his fame was in all the land."

As mentioned, our tenth letter of the English alphabet, "J", is modern and only became established in the 17th century, so that even William Shakespeare never used it in any of his Folios. Plus, in Greek, the verb at the root of 'history' is "historēin," which means "to enquire."

Also, in 1701 scholars started putting dates into the Bible although BC and AD were dating terms already used. This system of "BC," before Christ, "AD," Anno Domini, was developed by an Anglo-Saxon monk around the beginning of the 8th century in a book called "De Tempore Ratione." Its author, The Venerable Bede, caused Spain in 1166

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to strike its coins with an AD date and, afterwards, all Europe rapidly adopted Bede's dating system too.

Now then, in the Book of Joshua we encounter the same questionable matter that we found in the Books of Moses. With Moses, for example, how can God say so clearly, "Thou shalt not kill" (Deuteronomy 5:17), and then a few verses later (Deuteronomy 7:1), send the Jews to go and kill peoples explicitly named: the Amorites, Perizzites, Canaanites, Girgashites, Hivites, and Jebusites? No fewer than seven tribes, constituting most of the population of Palestine! It's simply genocide and indistinguishable from Hitler's invasion of Poland. Just pure murder in the name of the law (Lord). As for the Book of Joshua, we are asked to believe that the Sun and Moon approved of the massacre, for in chapter 10:12, 13: "...and he (Joshua) said in the sight of Israel, Sun, stand thou still upon Gibeon; and thou, Moon, in the Valley of Ajalon. And
The sun stood still and the moon stayed, until the people had avenged themselves upon their enemies."

Moses-like, lawmakers are quick to legitimize the killing of others and to confer on it the force of law under the label of Justice. Thus, legal formulas are devised to cover up all manner of crimes. These legal formulas are intended to assure the continuance of "we are the Chosen People," and therefore all others are godless people, in the case of Jewish writings. Or in the case of Germany's Hitler, "we are the Supreme Race," and therefore all others are genetically inferior. Or, as in the case of Catholic propaganda, "we are the only True Church," and therefore all the other ones are false.

The gullibility of people to believe everything is limitless, and the gall of preachers to say anything is likewise limitless. Let us see through the hypnotic spell of words as found in Joshua's book.

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AN ANALYSIS

To begin with, it is a scientific fact that the Sun doesn't move so much but rather it is the Earth we're living on that's rotating on its axis which causes day and night, which in turn regulates the temperature on Earth. Without this daily and nightly spinning, if ever the Earth stopped even for a little while, we would get fried up and burned to a crisp on the planet's day side, and frozen stiff on the shadowy night side. In actuality, only about 2/billionths of the total Solar Output falls on the surface of the Earth. It doesn't sound like very much sunshine, but it's enough radiation to fry us if ever our planet ceased its rotating movement. "So the Sun stood still in the midst of heaven, and hasted not to go down about a whole day" in Joshua 10:13 is a phenomenon that only a mythological God can perform. Our source of information for the Sun's daily sunshine comes from a yoga book that quoted a book by Ken Croswell, "STREAMS OF PHOTONS, MAGNIFICENT UNIVERSE".

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published by Simon and Schuster, 1999. By our calculation, it's a fairly accurate estimation if we consider that Earth is 93 million miles away from the sun. By now, of course, we all know that the Sun circles within the Milky Way, and so does the Milky Way move relative to nearby galaxies. Our ancient grandparents knew our Sun and stars were in constant motion, and astrologers in Egypt, Mexico, China, and other places, developed the Zodiac. In fact, India is rich in its astrology knowledge, and looking at the stars is as old as our eyes. Truly, Abraham's title "of the Chaldeans" was also a reference to his status as an astrologer. Now then, the scriptures have passed through the hands of many priestly orders, and wisdom tells us changes are to be expected, especially in the meaning of words due to translations from one language into another, or to cultural changes, or to social changes in status due to conquests or defeats. In today's world of science, we see astrology as a forerunner of astronomy, even as alchemy.
is an early form of chemistry. Stargazing has had its ups and downs, depending on what priesthood is in charge. For example, in 1 Chronicles 12:32, we read, "...which were men that had understanding of the times,..." here astrology is favorable. But in Acts 19:19, "many of them also which used curious arts brought their books together, and burned them before all men: and they counted the price of them, and found it fifty thousand pieces of silver." Here the climate is unfavorable, and the priesthood via Paul has all the astrology books burned up. It is natural for mankind to look up at the stars. In Job 38:31, God asks, "Canst thou bind the sweet influences of Pleiades, or loose the bands of Orion?" Again in Job 38:33, God asks, "Knowest thou the ordinances of heaven?..." Our ancient grandparents knew quite a bit about the stars, and divided the sky into 12 parts, which represent 12 houses or 12 ages of the Zodiac. They observed that Pleiades and Orion moved and advanced one degree

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Thus, when the Sun was in Taurus, which began about 6,500 years ago, and which is also the constellation between Aries and Orion containing the Hyades and the Pleiades star clusters, the Crab Nebula, and the bright star Aldebaran, the high priests at the time sacrificed "Bulls" unto their Gods to influence them. Elohim is plural,
As confirmed by Jeremiah 11:3, “For according to the number of thy cities were thy gods, O Judah...” Concerning these gods, there is a story of Rachel where she stole her father’s gods in Genesis’ Chapter 31. In verse 32 of the chapter, Jacob tells his father-in-law Laban, “With whomsoever thou findest thy gods, let him not live... For Jacob knew not that Rachel had stolen them.” Laban the Syrian then searched Jacob’s tent and Leah’s tent, and the two maid-servant’s tents, and even Rachel’s tent. Verse 34 states, “Now Rachel had taken the images and put them in the camel’s furniture, and sat upon them. And Laban searched all the tents, but found them not.” Verse 35 concludes, “And she said to her father, let it not displease my lord that I cannot rise up before thee; for the custom of women is upon me. And he searched, but found not the images.” Of course, we must admire Rachel for using a Biblically
NEGATIVE ISSUE IN ORDER TO AVERT A VERY DANGEROUS SEARCH!

Elohim appears over 2,500 times in the Old Testament but is falsely translated in most versions. For example, (contrary to popular belief) people were encouraged from the beginning to study the sky above, as at Genesis 1:14, “And God (Elohim) said, let there be lights in the firmament of heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years...”

We have to conclude that the Old Testament indeed is not an accurate account of historical events but rather is a mixture of conflicting texts. God himself ignores the 10 Commandments on a regular basis.

If we consider all the evidence from all the available sources which are verifiable, the Israelites emerged from the indigenous Canaanites, and were not invaders, as the Modern Bible claims.
Timeline of History

Today Jews and Israelites are the same people, but in 733 BCE they were two distinct peoples and very bitter enemies. Northern Palestine was the land of Israel with their capital at Samaria, while the land of Judah was located in Southern Palestine and had Jerusalem as its capital. When the Assyrians invaded Palestine, it was the Israelites under the leadership of Queen Jezebel who met the armies of King Shalmaneser on the battlefield. The queen fought back and resisted the ruthless invasion by militant Assyrians. The Yahweh priests of the Old Testament have vilified and demonized Queen Jezebel, but even King Shalmaneser recognized the bravery of the Israelites as modern archaeology has uncovered murals at Assyrian diggings that depict the ancient battle. A rare honor for a refined priestess of Astoreth, the Goddess, from a slaughtering king. The patriarchal Yahwists denounced in at least forty passages of the Old Testament.
the temple groves of Ashtoreth (Ishtar), and must have been pleased to see their enemy Israel destroyed and liquidated by Shalmaneser.

Thus, the Judeans in Southern Palestine didn't resist the King's forces after Israel was destroyed, and Judea began life anew as an Assyrian province. At their capital Jerusalem, they worshipped the Canaanite God "Shalem" approved by Assyria. As for Israel, the capital city of Samaria was leveled to the ground and the remaining population was taken into slavery. Samaria, the great city founded by King Omri and named after Shemer from whom he bought the ground, and made the capital since around 925 BCE, was deserted. Historical records show 157 deportations by the Assyrians, and no Israelite ever returned.

In 587 BCE, the Babylonians conquered the Assyrians and destroyed Jerusalem. Historical records show 36 deportations by the Babylonians. They conquered Edom too.

In 558 BCE, the Persians conquered
the Babylonians and controlled the land of Palestine. According to Greek inscriptions, Athens was attacked by Persia in 480 BCE. When Alexander the Great defeated the Medo-Persians in 330 BCE, the Greeks saw an almost empty land with perhaps 15,000 in population throughout the hills of Jerusalem and its surrounding area. Over a million persons had been displaced during these conquests.

The Greek culture spread from Asia Minor and Egypt to India, and tremendously impacted Palestine. New Greek technology and customs were introduced into the area, so that coinage replaced the barter system, agriculture improved by artificial irrigation, water-wheels and other implements took hold. After Alexander the Great died, his general Ptolemy ruled Palestine from Egypt. The Bible recounts that the Persian king allowed the Israelites in Babylonia to return to Jerusalem, but this cannot be true. The capital of Israel was the city of Samaria, not Jerusalem. “Whatever people were transported to Palestine...”

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ALSO, THE FIRST BIBLE 'TANAKH' QUOTATION BY A GREEK WRITER CAN BE DATED TO NO EARLIER THAN THE MIDDLE OF THE FIRST CENTURY CE, "ON THE SUBLIME" BY LONGINUS. THIS, AND MANY OTHER NEGATIVE STUDIES, GIVE US SUFFICIENT REASON TO WRITE THAT ARCHAEOLOGY REFUTES THE BIBLE'S CLAIM TO THE WHOLE TRUTH. THE PTOLEMY DYNASTY RULED UNTIL 30 B.C.

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The whole truth is that after the Greeks entered the land of Palestine, "reading and writing" became a priority, and all literature was collected and translated into the Greek language so that the store of knowledge might be kept at Ptolemy's New Library in Alexandria, Egypt. As one of the Jewish writers of the time put it, "now Jerusalem really did become a city "skilled in many crafts."

It spelled doom for many a priesthood because now their literature could not be changed or manipulated to deceive the people. The control of knowledge was out of their hands, even though few people in Palestine were literate. Forgery is easy to detect by a well-read librarian or by anyone who is acquainted with the original text.

It seems as if religion needs unquestioning minds that lack education and are content to believe and obey rather than to think and search for the truth. The purpose of this timeline on Palestine is so that we may pinpoint the moment.
in history when the myth of Jesus was forged and by whom. We know that there is no evidence that Abraham was a real person, or that the angels he spoke with are actual entities. There's no historical or archaeological evidence to prove that David or Solomon ever existed.

From the start, forgery was attempted. A Jewish text, "The Letter of Aristeas", explains that Ptolemy I wanted a Greek translation of the Tanakh for his new library in Alexandria, whereupon the Jews sent 72 sages and they immediately produced 72 identical Greek texts of the Hebrew original, called the Septuagint. The text that first recounts it is a forgery. The letter of the 3rd century BCE was actually written in 130 BCE by an Alexandrian Jew.

Another example of forgery is the Book of Daniel, which we identified as such pages ago. Scholar Porphyry demonstrated that Daniel was written in the 2nd century BCE, during the Jewish Maccabean Revolt. The book is a typical example of "prophecy
After the Fact.” Daniel claims to be written in the 6th century BCE, but it was composed more than a century after Alexander’s death. The prophecies are placed in a setting before the event and are meant to impress the readers, and in the New Testament was used effectively. For example, in Matthew 24:2, concerning the destruction of the Temple, “See ye not all these things? Verily I say unto you, There shall not be left here one stone upon another, that shall not be thrown down.” If you write after the fact, it impresses those who don’t know you wrote after the event happened. In this case, even the prophecy proved to be incomplete, as a large wailing wall is still standing today. Porphyry (233-c 303) who knew the early Church Fathers, remarked: “The Evangelists were fiction writers — not observers or eyewitnesses to the life of Jesus.” He pointed out so many faults in their writings that the Church banished him and burned his books up. Everyone in Porphyry’s time knew that the Roman Army
destroyed the Temple in 70 CE. And in 135 CE the Jews rebelled and the Roman Revenge was quick. They enslaved the Jews and dispensed them throughout the Roman Empire. Today at the British Museum is the Egerton Papyrus 2 and it is the oldest document about Jesus: written around 90-150 CE.

We may summarize our historical timeline of Israel in the story of Jesus and the Woman of Samaria, as told in chapter 4 of John. They are at Jacob's Well, and when the woman arrives, Jesus asks her for a drink of water. She replys, "How is it that thou, being a Jew, askest drink of me, which am a woman of Samaria? For the Jews have no dealings with the Samaritans." Verse 9. Eventually, "Jesus saith unto her, Go, call thy husband, and come hither." Verse 16. Then the woman says "I have no husband." Jesus then said, "Thou hast well said, I have no husband: for thou hast had five husbands; and he whom thou now hast

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is not thy husband: in that saidst thou truly." Verse 18. Jesus was referring to the plight of Samaria or the state of affairs in Israel: 1st husband was Assyria, 2nd husband was Babylon, 3rd husband was Persia, 4th husband was Greece, 5th husband was Rome, and the present one happened to be Edom. In fact, it fulfilled the promise that Isaac gave unto his son Esau, who is the Father of the Edomites, in Genesis 27: 39, 40: "Behold, ... and it shall come to pass when thou shalt have the dominion, that thou shalt break his yoke (Jacob's) from off thy neck."

The Herods were the first foreigners to be entrusted by the Roman Senate and the Emperor Augustus with the Jewish nation. They were "Idumæan" which is the Greek name for "Edomite", so that Herod the Great became the Idumæan king of Judea from 37 to 4 BC, AD. He was followed by Herod Agrippa I, who was the grandson of Herod the Great. Herod Antipas, the son of Herod the Great,

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Attained the position of tetrarch of Galilee.

As previously noted, the Jews and the Samaritans were bitter enemies, yet despite their longstanding differences they were deported together to Egypt during the rule of Antichus IV Epiphanes 215-164 BCE, and both of them suffered by it. That was a period of much turbulence in the area, when even Rome had been at war with Hannibal, the Carthaginian general, who crossed into Spain and over the Alps with elephants to invade Italy. Hannibal almost succeeded. In 129 BCE, Jewish high priest John Hyrcanus destroyed the Samaritan Temple at Mt. Gerizim. Nevertheless, the Samaritans joined with Jews against the common enemy, the Emperor Vespasian (9-79 CE), who came up with the idea of creating the Christ Myth in order to unify his vast empire, where so many religions were active. Various gods had been introduced into Palestine since the Greeks
had conquered the area. In 175 BCE, for example, Antiochus of Syria invaded Jerusalem and set up an altar to the Greek God Zeus. Before the Romans moved into Palestine under Pompey, around 88 BCE the Judean King Alexander Jannaeus allegedly crucified 800 Pharisees and had the throats of their wives and children cut in front of them, while Jannaeus the King got drunk and lay around with concubines. There was so much infighting between Pharisees and Sadducees that, under Jannaeus’ rule, some tens of thousands on both sides were allegedly killed. So Emperor Vespasian contemplated not only uniting these, but all divisions: in Egypt, Osiris; in Greece, Zeus; in Syria, Adonis; in Persia, Mithras; in Alexandria also, Serapis; in Asia Minor, Attis; even in India, Sri Krishna. For the library at Alexandria where a million texts and scrolls were collected, had pulled in priests, gurus, teachers, to study there and spread their

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MESSAGES.

One important doctrine that was surely on the minds of these visitors to the University and Library at Alexandria must have been Baptism. History bears witness that Baptism goes back into the distant past, since rivers are considered as sacred and life-giving in many, if not all, cultures. In Egypt the people have always been connected to the Nile; in India it is the Ganges; in China it is the Yangtze; in South Asia it is the Mekong; in Central Africa it is the Congo; in South America it is the Amazon; and in the New Testament we are introduced to John The Baptist baptizing in the Jordan. But in India, according to one ancient scripture, the Brahmins stopped baptism by water because “Enter a dry devil, come out a wet devil,” and now the devils had obtained eternal life, so baptism became counterproductive. In time the concept of purification by fire developed, and today even in America there are over 40 indigenous
tribes that still perform the "Sweat Lodge" ceremony of purification by heating up lava rocks and pouring water on the red hot rocks, thereby creating very scorching steams that bathe the bodies of the participants enclosed within the circular lodge. A sacred pipe may also be lit up and passed around, and an eagle feather may be used to fan and spread the very hot steam around the lodge. According to the teachings of Chief Archie Fire Lame Deer, Chief John Funmaker, and Chief Pan, who conduct the Fire Purification Ceremony throughout North, Central, and South America, the purpose of the Universal Fire Circle is to renew Mother Earth. Thus, we see that baptism by water or fire is still a major factor in many religions.

It is natural for us to forget that when the ruling Herods were born, when Emperor Vespasian was born, that the mortality rate was very high, as half the people in Jerusalem died before

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Lichens have the ability to live in extremely hot or cold places, and secrete over 400 various chemicals. It is possible that the plant may become hallucinogenic, since a fungus or mold like ergot if mixed with petroleum ether makes LSD, and oil is abundant in some deserts.

The facts, then. The Herods, whom we have historical records of, and Emperor Vespasian, whose Latin name is Titus Flavius Sabinus Vespasianus, were real persons whose eventual fate can be verified by documents not in the Bible, whereas John the Baptist is a fictional character and it isn't too hard to see his role as an astrological personification. If we consult a trusted book, "Suns of God," by Acharya S, Adventures Unlimited Press, 2004, page 460, we will learn that John, being born six months before Jesus, says about Jesus, "He must increase, but I must decrease." John 3:30. Thus, John represents the sun born at the
Summer Solstice, making room for the
sun born at the winter solstice, or at
Christmas. The Baptist's beheading is
also astrological, as the day upon which
it is observed, August 29th, represents
the constellation of Leo (the "King" of the
Zodiac) separating the head from the
body of the Water Man (Aquarius).
"Acharya" means Teacher, and the light
of Acharya's is true and most wise!

Let us now ponder: Although Biblical
beliefs may be held universally, their
universalities has nothing to do with their
veracity or tenacity, for a belief by
one or a belief by a billion is still
just a belief. It is a fact that there
are world beliefs operating in conscious-
ness which we passively accept, until
a teacher like Acharya comes along.
We are reminded of Greek astronomer
Aristarchus (310-230 BC) who taught
that the universe did not revolve around
a stationary earth, but rather that
the sun was the center of our world.

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His writings must surely have been among the books and libraries that were burned up by Bible believers in 300 A.D. More than a thousand years after Aristarchus, in 1513 A.D., another astronomer wrote a book, "On the Revolutions of the Heavenly Spheres," in which Copernicus said: the planets, including the earth—orbited around the sun. Since few people could read or write, his book remained unpublished until 1543, but to the people of the 16th century the thought of a revolving earth was nonsensical and Copernicus' idea did not gain popularity. Plus, it was anti-biblical.

On Feb. 17, 1600, Giordano Bruno wrote that the universe is infinite, and that stars are other suns. Bruno was burned at the stake by the Church. It took until 1992 for the Church under Pope John Paul II to admit that the earth moves.
Today the Churches wait for Jesus Christ to return, and rule the Earth. After centuries of killing countless peoples around the globe and stealing their lands and wealth, are Church members ready for an omniscient Being to be their leader?

When the Roman Army Soldiers asked John the Baptist for wisdom, they heard: "Be contented with your wages," Luke 3:14. Who else would write such a passage but the Government Agents of Rome? Do we know for sure that God has given authority to them? Or could it be a belief planted in our heads by Eusebius, Irenaeus, Tertullian, and company? Call no man on earth your Father, yet all of them claim to be our "Father so and so". And if the Church is the Bride, why are only men preaching there, some wearing lace robes as if so pure? Do you hear misogyny in Paul's speech, "And I do not permit a woman to teach or to have authority over a man, but to be silent."? "Who has deceived you?" he asks in Galatians 3:1.

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CONCLUSION

Every thinking individual will at last come to a reasonable conclusion concerning the vast number of mythological characters that make up today's scriptures. Religious authorities such as the Popes, Bishops, Priests, and others like them, have continued to flourish and go unpunished and in fact have been honored by believers.

We mentioned Hypatia earlier in this small volume. Here are the details: Cyril, the Christian Patriarch of Alexandria, instigated mobs to terrorize Jews and to mercilessly torture the exalted Female Pagan philosopher Hypatia (c. 370-415). As we said, the mob scraped the flesh from her bones with oyster shells. For all his demonic acts, Cyril was canonized by the "Infallible" Catholic Church, and her murder has been considered the "Death of the Pagan World!"

In reality, it destroyed literacy, philosophy, and science, for a thousand years and more. After dear Hypatia's murder, at some point, a death penalty was enacted for reading.

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unapproved books. Thus, merely to think became a punishable crime.

As we wind down and come to an end of writing, let us conclude with a story of irony, which involves karmic fate, when the half-life of science encountered the afterlife of religion on the battlefield of World War II.

According to a book by Michel Onfray, "Atheist Manifesto," Arcade Publishing, 2007, page 242, Mr. Onfray said that there's nothing written about the blessing bestowed by Father George Zabelka on the crew of the Enola Gay before it destroyed Hiroshima, as he finished reading Georges Minois' "The Church and War: From the Bible to the Atomic Age," Fayard. Well, we found out a few facts about the plutonium bomb that was dropped on the city of Nagasaki less than three days after the destruction of Hiroshima. Nagasaki had the largest population of Christian converts anywhere in Japan, and clouds had hidden the view.
of the city, so the war plane flew above it in circles just waiting for a gap to open. At the last minute, the bomb had to be dropped above a suburban Roman Catholic Cathedral several miles from the original downtown target. It may have saved the city since the explosion was partly smothered by hills, but it was still powerful enough to incinerate more than 40,000 people to death in an instant. In a matter of flashing seconds, the material inside the bomb that converted to energy was but one gram—or 1/3 the weight of a penny—and yet it had been a costly penny weight because it cost two billion American dollars to make the bomb. As the plane flew away, all that could be seen was “The Boiling Pillar of Many Colors,” and “A great mountain of jumbled rainbows in travail,” said an observer in the plane, as he gazed at the mushrooming cloud. This information comes from “Uranium: War, Energy, and the Rock that Shaped the World,” by Aguirre.

It is clear to us that all governments on Earth have spies, and secretly plan wars, in order to have so-called security or to expand their borders. Whether Jewish, Christian, or Islamic, they are in effect state religions devised to enrich and empower the biblical “Elect” among their different groups. Democracy is dumb enough to call them “Elected.” Theocracy is even dumber for going against all logical sense. Yet they have, since Moses became the most powerful force on the planet, as witness the monopoly on scientific research, or their manipulation of people’s feelings to wage global wars that are profit driven.

We the common populace cannot even touch a little rock of uranium or thorium or beryllium without having the governmental policemen arresting us for committing the so-called terrorist act of possessing an unlawful piece of earth.

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Such is the dumbing down of America that its citizenry believes it is doing God's will when they build prisons to lock millions up! In the City of Angels, Los Angeles County, they have little pink handcuffs for nine year old girls, and the Psychiatric Society of Doctors will medicate any child without a care if the child tries to escape, while the Court Jurisprudence approves every law that pharmaceuticals decide to write in the legal documents of Congress via the lobbying power of money. Do we swear on the Bible on this? Rather, we ask, is the Bible a measuring standard for the Truth?

To recapitulate: the Fouling of Earth is happening on two main levels.

On one level is the universal belief in the "God versus Devil" system that compels mankind to be most unkind to one another, and to fight wars that only kill and maim. Today we know that all human existence could end up in a series of big mushroom clouds because of it.
On the other level, if not addressed properly soon, CO₂ will suffocate each one of us, regardless of social status, because of the fossil fuels we consume; we are producing more CO₂ emissions than what Earth may safely sustain for life. Simply put, we are depleting the oxygen around us.

It has been the intent of this book to argue that nuclear technology is the only possible way to extract pure water from seawater, without using up precious oxygen, by employing new physics in beta principles for mini-reactors that are safe, and can be made at very, very low costs to our pocketbooks. For starters, we direct your attention to such a book by the late Reese Palley: “The Answer”, by The Quantuck Lane Press, 2011. It provides many inspiring ideas for designing new mini-reactors. We cannot allow 97.5 percent of all water on Earth to remain saltwater, while people die of thirst, or accept droughts that cause mass starvations.
The Sun itself has revealed the system it uses to make rain, then why are we so slow in applying its principles and thereby be free of depending on the weather?

And what's so wrong with planting marijuana in the deserts after we begin watering the Earth's dry areas? Absolutely nothing is wrong, except, of course, in the minds of those who will never know a good high. They have the key to knowledge, yet they neither enter the heavenly realms of the soul, nor do they permit others to go there. And do they preach of going where? to Paradise? If we but look with celestial eyes, we'll notice that there are as many stars above Earth as beneath it, and a billion galaxies full of stars in every direction.

Lastly, only Earth can be the place where we can make Heaven out of Hell, as Helena wished for in Midsummer Night's Dream, to paraphrase Shakespeare.
In his Tragedy of Julius Caesar did Shakespeare's wisdom reveal itself, by overcoming, Astrology, in one of his most insightful observations, to wit: "The fault is not in the stars, but in ourselves."

Now then, and understandably so, there are over 1,300 Biblical references in the Plays of William Shakespeare; but yet as we say goodbye, dear reader, we hope we have given you the whole truth about our global situation so that by knowing the truth you may be freed of deception, and realize your wholeness. And we leave you with three good precepts that have helped us endure the ups and downs of a long life, from Shakespeare's pen:

That, that is, is.
Nothing is good or bad, but thinking makes it so.

And,
'Tis all ONE to me.
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