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A BIBLICAL/CREATION MODEL AND RESPONSE FOR ENVIRONMENTAL DIFFICULTIES

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ABSTRACT

We seem unable to halt ecological deterioration. It's almost as if "a curse devours the earth", Isaiah 24:6. How extensive is this curse? What are its implications? Is there hope?

Environmental decay confirms the Biblical model of original creation followed by a fallen world under the curse of death. This model parallels the scientific law of entropy, of increasing disorder not increasing order as evolutionists would argue. This paper explains the Biblical confirmation of what we observe taking place in the environment today, considers historical microcosms as well, and sets forth the biblical response to environmental difficulties.

Much of the environmental movement has adopted "ecopanthemism" as its conceptual model for environmental problems. This paper exposes the flaws of a pantheistic explanation and points out that the Biblical/Creation model is a better one for what we observe. Man's fundamental rebellion against God is brought to light, hidden as it may be behind a facade of science and sophistication.

INTRODUCTION

In the more than twenty years since the first Earth Day, environmental problems have become more widespread and complicated. In spite of voluminous anti-pollution laws, environmental troubles are extensive, complex, and urgent. Chemical waste, radioactive waste, deforestation, non-point source water pollution, ground water pollution, infectious waste, acid rain, and extinctions of many plants and animal species throughout the world, are some of the environmental problems corrupting the order and variety in the creation. In addition, the apparent destruction of earth's protective ozone layer and global warming due to increasing concentrations of pollutant gases, are frustrating concerns, barely anticipated twenty years ago.

We take metals, oil, and mineral salts from the ground, agricultural materials from the land, oxygen from the air, and water from rivers, and combine the various components to produce clothing, cars, antibiotics, fertilizers, pesticides, and vitamins. But in each process, waste by-products and energy are released. After the products themselves have been used or served their lifetime, they also become waste. We try to recover by-products and minimize waste, but the fact is that waste must ultimately be deposited in the environment. We have no magic box into which we can put the waste and make it disappear. This is a curse on our creative productivity.

It's easy to contaminate. It's difficult to clean up. It's easy to destroy complex order. It's very difficult to produce and restore complex order. And as we manipulate the environment, we destroy much more order and complexity than we are able to build.

Scientists understand a universal law of decay which they call the Second Law of Thermodynamics. This law is essentially a mathematical statement that all natural change proceeds toward increased disorder, randomness, and chaos. The scientific term for disorder and randomness is "entropy", usually assigned the variable "S" in engineering equations. Complex systems without outside input naturally become less complex. Ordered systems, without outside design and energy, spread or dissipate to increased disorder. The principle of the Second Law of Thermodynamics can be stated as "entropy always increases" for any closed system.

It is the most experimentally verified fundamental principle in all of science.

The Bible in fact says that "a curse devours the earth", Isaiah 24:6, because its inhabitants have "broken the everlasting covenant", Isaiah 24:5. Holy Scripture tells us that the creation is enslaved to death because of sin. When man first sinned against God, God had to curse his creation. "Cursed is the ground because of you,...for you are dust and to dust you shall return," Gen 3:17, 19. This curse is the curse of death; which is fundamentally the curse of decay. Decay in living things is simply gradual death. People age as more body cells die than are replaced. And eventually people die when their organs are no longer able to sustain the body because they lack sufficient new cells. Our lives end when the original complexity of our interdependent body parts has been corrupted by illness or injury, or has decayed beyond repair. In like manner, decay in the environment is the disintegration of the original complexity of the earth's interdependent ecology. The curse of death is a curse of decay affecting all created things and the whole world in general.

ENVIRONMENTAL DECAY

The answer to air pollution was claimed to be catalytic converters on tailpipes and scrubbers on smokestacks. We have pursued this strategy at great cost for over 20 years. Yet cities plagued by smog have continued to suffer difficulties. And to make matters worse, air pollution problems are becoming more extensive, spreading out into traditionally smog-free rural areas in accordance with increasing entropy per the Second Law of Thermodynamics. For the first time since measurements began, for example, excessive ozone levels were recorded in 1988 in rural Maine and northern New York State [11].

Smog and haze now cloud many scenic vistas at national parks and other areas of natural beauty. The control of localized problems has seen a measure of success, but air pollution problems have actually spread, and have in fact become a more pervasive problem worldwide. Evidence is also growing that air pollution - primarily ozone and acid deposition - is causing extensive damage to vegetation, both crops and forests.

In the opinion of many scientists, air pollution now threatens the entire atmosphere of the earth with both global warming and stratospheric ozone destruction. By manufacturing millions of tons of certain very useful chlorinated compounds we have contributed to the erosion and destruction of ozone in the upper atmosphere where it is essential for shielding the earth from harmful radiation. It is widely estimated that two to five percent (overall) of the global stratospheric ozone shield has disappeared, with much higher rates of depletion near the earth's poles.

The frustrating thing is that we are polluting the lower atmosphere and damaging life on earth by creating excessive ozone (a key component of smog), while polluting the upper atmosphere and damaging life on earth by destroying stratospheric ozone. And we can't very easily collect and ship the ozone down here to the stratosphere (25 miles up) where it's needed. It is spread all over the place. The 2nd Law of Thermodynamics, the ubiquitous curse of the spread of disorder, thwarts the efforts of mankind.

If we solve one problem, it tends to generate a set of more complex problems. This is part of the curse. For instance, we have applied our talents to solving the problems of food shortages. But our present high agricultural productivity (much of it the result of the "Green Revolution") is dependent on the inherently unstable practice of continuously planting a single high yield crop, simplifying the local environment to one or two species. These genetically specialized plants are often more pest-susceptible. And reducing the numbers of species to a single crop eliminates natural checks on the pest population. Modern agriculture therefore depends heavily on chemical control of nutrients and pests. Yet the curse on man's efforts to improve his situation is revealed by this statistic from the American Chemical Society. Overall crop losses to pests have nearly doubled from the 1940's, in spite of a ten-fold increase in the application of insecticides [10, p.183]. Pesticides not only kill pests, but they kill other animals which in the "food web" (formerly the food chain) control the pests to some degree, making the genetically specialized crop even more dependent on pesticides.

When the automobile was first produced it was viewed as a solution to pollution. Millions of horses in towns and cities were more responsible for filth and stench in the streets. Yet today we know that the automobile has contributed heavily to more far reaching and troubling problems - smog, greenhouse gases, acid rain, noise, mounds of used car tires, abandoned cars, and huge oil spills all over the world. Yet for people at the beginning of the twentieth century the very form of such pollution, let alone its extensive spread and magnitude, were not even imagined. How ironic it is that what was once a solution to pollution has become one of the principle causes of pollution. Decay to increased disorder in ways we cannot even anticipate, also exemplifies a curse on our efforts.

Many plant and animal species are vanishing due to deforestation, desertification, habitat loss, pollution, intensive agriculture, poaching, encroachment of foreign species and other pressures. With fewer species, the complexity of ecosystems decays. Going from complex to less complex is another definition of entropy, the general decay from order to disorder.

Small components can be critically important to entire systems because each part, no matter how small, has some function. Indeed, as it turned out in 1986, "For want of an 'o-ring', the Challenger was lost." A space shuttle Challenger and crew were tragically lost during lift-off because a very small component of the complex system (a little gasket in the fuel system of the space shuttle was malfunctional).

The organisms and physical parts of an ecological system (ecosystem) are bound together by a maze of interactions. One simple example of these interactions is the classic food chain, in which living things depend on one another because of what they eat. Another is the very important nitrogen cycle, in which human protein ultimately depends on nitrogen's exchange with the atmosphere, through nitrogen-fixing bacteria and plant roots.

Biologists admit that there are certain species, called keystone species, on which it is quite clear the integrity of a whole ecosystem depends. If certain of these key species die, then whole environments are placed in jeopardy. In fact, every species depends on many others, often in such complex ways that it is impossible to foresee where any one extinction may ultimately lead.

For example, suppose we select three tree species which we will grow exclusively. For each of the three tree species, what are the bird species which eat most of its insect pests? What are the insect and bird species which pollinate most of its flowers? What are the animal species which spread most of its seeds? What are the insects and microorganisms which help decompose fallen leaves and needles and produce the soil enzymes to maintain soil fertility? On what other species do each of these birds, insects, animals, and microorganisms depend? They will depend in some way on the "unnecessary" tree species we decide to eliminate.

The interdependent natural ecosystems of the earth are similar to the interdependent parts of other created things such as the human body. If one body part is hurt, the whole body suffers. When a person's digestive system is upset, for example, his whole body functions less efficiently. Overall performance potential is reduced because of the suffering of one component of the body.

A similar situation occurs with the different interconnected parts of earth's ecosystems. Although redundant subsystems of design permit both ecosystems and the body to continue to function after absorbing a certain amount of abuse, the fact is that performance potential of the whole is degraded because of the hurt parts. The total system is not at its peak. The original order and complexity has decayed. In the words of Scripture, "The earth mourns and withers, the world fades and withers..." (Isaiah 24:4).

Environmental literature makes much use of the analogy of the earth as a living system. Popular interpretations of a "living earth", which indicate "Mother Earth" as creator are totally unwarranted, however. Such interpretations are called "ecopantheism". In any case, the mutual dependence of the parts of earth's ecosystems no more proves that the earth is a goddess creator than does the fact that an insect spending its entire life in a single tree prove that the tree created it.

ENVIRONMENTAL DECAY IN PRIMITIVE CULTURES

The problem of environmental decay is a problem not just limited to modern mankind. Modern technology and increased populations may make the problems more complicated and more widespread. But contrary to popular opinion, pollution and destruction of the environment is not a new phenomenon in human history. The rate of environmental degradation has simply accelerated because of increased human activity, and increased production of goods and services. Yet many early civilizations have become victims of environmental decay which they helped to accelerate.

Early civilizations in the southwestern United States, Easter Island, Central America, southern Greece, the Indus River Valley, and the Tigris-Euphrates River Valley, among others, appear to have been aided in their collapse by environmental degradation. Climatic changes, both prior to and post environmental decay, also appear to have played a role in these civilization's demise.

Easter Island tells a sad story of environmental decay. Archaeological evidence shows that Polynesian settlement occurred on this remote island about 400 A.D. The settlers cut down trees to plant crops, build canoes for fishing, and provide logs for transporting and erecting the famous giant stone statues. The land was fertile, the sea teemed with fish, and their culture flourished. But looking at the record left by pollen deposits, scientists have constructed the following scenario. Deforestation set in by 800 A.D. and was essentially complete by 1200 A.D. There was no more forest to build canoes for fishing, and many birds no longer nested on the island. The abundant bird eggs had been a very important food source for the islanders. Deforestation caused soil erosion, reducing crop yields and silting the local waters. This led to fish declines in the surrounding estuaries. Fewer fish, eggs, and crops led to food shortages. Then hunger led to warfare and eventually caused the whole civilization to collapse. By the time European explorers arrived in the 18th century, the few people that remained had no consistent memory of the culture which produced the great stone statues. Today, Easter Island remains treeless and largely unsettled; much less life-supporting than it was formerly. Easter Island is a decayed remnant of what it once was [8, 19:4, p.38].

A tale of irreversible environmental decay is also told by the remains of pack rat nests in Chaco Canyon, New Mexico. Chaco Canyon was populated by the Anasazi Indians, builders of the famous cliff dwellings of the southwest. The numerous cliff dwellings of this bustling ancient civilization have been abandoned for hundreds of years. They are a mystery even to the neighboring modern Indian tribes of the southwestern United States. But by looking at old pack rat nests in the cliffs, and examining their hoarded remains, archaeologists have discovered considerable evidence of deforestation. The materials hoarded by the pack rats changed dramatically.

Prior to 1,000 years ago there was pinyon-juniper woodland in the Chaco Canyon, but for the past 1,000 years it has been gone. The evidence implies a civilization using up local woodlands for fuel and building projects, with subsequent erosion destroying the top soil and converting their irrigation channels into useless arroyos. The environment then could not sustain agriculture [8].

The ancient Sumerian, Babylonian, and Syrian civilizations once thrived in the area watered by the Tigris and Euphrates Rivers (Mesopotamia). Early records report that the area was once very fertile and teeming with game [6, p.59]. At one time the early civilizations harvested two crops of grain per year, grazing sheep between crops on the land [3, p.70]. But after having been subjected to deforestation, hillside farming, and overgrazing (along with climate change), much of the area is now desert. In fact erosion problems are known to have been a headache for the Babylonians who kept whole armies of slaves busy removing the silt load from irrigation canals. Clearing the forests in the headwaters of the rivers gave rise to torrential flooding. Agriculture became much less productive with topsoil gone. Irrigation canals filled in as did the river mouth. Silt reaching the Persian Gulf has filled it in for miles so that cities which were once harbors are now many miles inland. Ur, for example, the original hometown of Abraham, was at one time a seaport. But today archaeology has shown it to be 150 miles from the sea with its buildings buried under 25 feet of silt [5, p.87].

THE EXPLANATION OF MODERN PHILOSOPHY

There is in fact a fundamental futility to life on earth because of the curse of entropy, the curse of decay. This fundamental futility has been recognized by philosophers as well as scientists. Reason, accurately applied, exposes the cruelty and futility of this present world. And reason alone is not able to give answers to ultimate questions. Reason apart from God leads to despair. Futility and despair are the consequences of living in a world relentlessly decaying, and thoroughly infected by sin and pain.

The Biblical book of Ecclesiastes is wise King Solomon's record of his experiment to test the full measure of what life "under the sun" has to offer, i.e., what life has to offer from the human perspective. Ecclesiastes reports the results of a diligent quest for purpose, meaning, and satisfaction in human life. The conclusion that he comes to is that life is futile and perplexing. "Vanity of vanities! All is vanity," Ecclesiastes 1:2. All is futile proud emptiness except to fear God, and keep His commandments", Ecclesiastes 12:13. All earthly goals and ambitions when pursued as ends in themselves lead to frustration.

Because of this observed futility, nihilist and existentialist philosophers say that truth is not objective. The logic is that since life is fundamentally futile, all is absurd. Rather than turn to God in the midst of futility, they use futility to define all reality and say simply that the most important thing is willful activity on the part of man. People under this philosophy should abandon the role of rational spectator and simply act. Why try to make sense of absurdity? Just have a plan and do it. Such philosophers are left arguing that it does not matter what the action is, the point is simply to act. Of course this justifies behavior of any kind; rational or irrational, kind or cruel, just or unjust. These are Godless philosophies which desire to escape accountability to our Creator. Much of popular philosophy and psychology have their roots in nihilism and existentialism. These modern philosophies have largely been responsible for the current substitution of politically correct amoral terms for behaviors which previously had a moral connotation [2, p.139]. (e.g., "sin" has become "dysfunction" and "adultery" has become an "affair".)

Nihilist/existentialist philosophers, like Solomon, have been realistic enough to grasp the futility of life in this world. But, unlike Solomon, they have not been wise enough and have been too proud to admit their responsibility to God in the face of death and a futile existence. Nihilism and existentialism go to great lengths to justify our natural inclination to sin. The philosophy becomes intellectual justification to vent natural self-centered behavior.

THE PANTHEISTIC EXPLANATION

Instead of turning to God in the face of environmental decay, mankind reveals his bias by making the interpretation of pantheism. Pantheism, according to C.S. Lewis, is the permanent natural bent of the human mind left to itself. A pantheistic view of a "living earth system" (Mother Earth), which is simultaneously creation and creator, has become commonplace among environmentalists. Environmental problems are often being interpreted in terms of "ecopantheism", being blended right in with the general pantheism of modern "New Age" thinking. The assumed creative powers of the earth, worked out presumably through evolution, are personified as a goddess, Gaia, the ancient Greek goddess of the earth.

British scientist, James Lovelock, chief proponent of the Gaia thesis, tries to explain the earth's unique properties among celestial bodies (e.g., why there is so much oxygen in the atmosphere) by invoking Gaia. He attaches a divine quality to the earth. Gaia, like the Hindu deity Brahman, is both creator and creation. If we don't see ourselves as one with nature, Gaia will destroy us. Lovelock writes in his recent book, "The Ages of Gaia", "if we see the world as a living organism of which we are a part - not the owner, nor the tenant, not even a passenger - we could have a long time ahead of us and our species might survive for its 'allotted span'" [9, p.236]. Notice, in this view, mankind is part of the living organism of the earth. He is not the steward, as the Bible tells us. Man is part of the goddess, Gaia. We just need to realize that. We just need to get in tune with what's natural; with what's really inside us. And then the hope is that our species will continue for a time. Under this view, the creation is divine, nature is the ultimate standard, and pantheism is the interpretation. This is no different from cultures which appeased volcano gods with human sacrifice to try to avoid destruction.

Such conclusions indicate an irrational bias against the truth of God. Like other religions and philosophies, ecopantheist environmentalists recognize a fundamental problem, but they fail to turn to God, even though the position is fundamentally hopeless. (At best the human species may continue if we don't upset Gaia, while individuals will of course die.) Mankind tries to dodge his accountability to God, makes Nature the standard, and justifies doing whatever is "natural". The predisposition toward pantheism in the environmental movement demonstrates, as C.S. Lewis said, that pantheism is indeed the natural bent of the rebellious human mind.

It is true that the complex natural ecosystems of the earth are linked together by many intricate interactions. However, popular interpretations of the linked ecosystems of earth as proof of "ecopantheism" are uncalled for. As with all machines, interdependency in the different parts of created things only reveals their complexity. It does not say that they made themselves.

In general rebellion against God's holy standard, pantheists say that moral principles are not absolute. They are simply lower level distinctions that work better in this world. But on the top level everything merges into one. Ultimately there is no difference between good and evil since good and evil, kindness and cruelty, pleasure and pain, are all found in Mother Nature. Pantheism absorbs good and bad into one cosmic being. Like nihilism and existentialism, pantheism must also come to the conclusion that truth is fundamentally absurd. There are no transcendent absolutes beyond the futility and meaninglessness of nature. Right and wrong, true and false disappear leaving a haze of nothing. Indeed, "nothingness" is the goal of eastern meditation. Hindu gurus (manifestations of Brahman) who really apply what they teach, walk around or sit in a trance of "nothingness".

No wonder eastern cultures did not come up with the scientific method and the scientific revolution. With nature as the ultimate reality, people are led to the final conclusion that absolute principles do not exist, whether they be principles of right and wrong or principles of the physical creation. Disorder coexists with order, and this is the ultimate standard. There is only confusion, chaos, and nothingness. The Biblical model, on the other hand, says that nature and the universe are not eternal. They are not a deity in themselves. God created nature, and He is the ultimate standard. "In the beginning God created the heavens and the earth", Gen 1:1. In the beginning an ordered intelligence established order in His creation. Having become enslaved to corruption, the creation has been subjected to futility through the curse of death; with, however, the promise that through God's plan of redemption in Jesus Christ the creation will be ultimately set free from its slavery into freedom and glory and life eternal.

THE BIBLICAL MODEL AND THE SCIENTIFIC OBSERVATIONS

The scientific facts reveal that disorder naturally increases. The amount of available or usable energy in the Universe is decreasing because the energy powering the Universe is being degraded, becoming less available. The Universe is running down under the law of entropy. P.W. Atkins, professor of physical chemistry at Oxford University, writes at the conclusion of his book, The Second Law, "...the deep structure of change is decay. At root, there is only corruption, and the unstemmable tide of chaos" [1, 200].

Consider an article of clothing. As it is used, it becomes threadbare and worn out. The garment loses its "newness" as it deteriorates in compliance with the Second Law. Though it is cleaned and restored it cannot maintain its original condition. Old clothes are easily distinguished from new ones. Colors fade. The fibers lose their strength and resiliency as the chemical bonds in the polymer chains of the fibers break apart. And the fabric structure (how those fibers are assembled together) unwinds and loses its organization [13]. These decay processes march on with relentless determination. Eventually the garment reaches a state of maximum disorder when it has degenerated into dust. Indeed, the fundamental principles of textile decay represent both the increasing micro and macro-molecular disorganization which governs all varieties of decay according to the Second Law of Thermodynamics. The Bible proves its grasp on truth because it has said long before thermodynamics was even a word, that the whole of creation is locked in the grip of decay:

Of old Thou didst found the earth; and the heavens are the work of Thy hands. Even they will perish, but Thou dost endure. And all of them will wear out like a garment; like clothing Thou wilt change them, and they will be changed, Psalm 102:25-26.

...the earth will wear out like a garment, And its inhabitants will die in like manner, But My salvation shall be forever, And My righteousness shall not wane, Isaiah 51:6.

Fundamental decay and corruption are basic to Biblical doctrines. Traditional Christianity and Judaism have always taught that we live in a fallen world because of sin. The world is under a curse of death; separated from God's eternal life-sustaining support. Therefore, the whole of creation is headed toward a complete change. "Heaven and earth shall pass away," (Matt 24:35, Mark 13:31, Luke 21:33). Other scriptures mention the world withering and passing away (e.g., Isaiah 24:4, 1 John 2:17, 1 Cor 7:31). Romans 8:20 and 21 says:

For the creation was subjected to futility, not of its own will, but because of Him who subjected it, in hope that the creation itself also will be set free from its slavery to corruption into the freedom of the glory of the children of God, Rom 8.

Another translation of the original language puts verse 21 this way: "...in hope that the creation will be set free from its bondage to decay..." NIV.

Notice once again that the creation is "subjected to futility"; that it is "enslaved to corruption" or in "bondage to decay". What a parallel to Professor Atkins' statement of the Second Law of Thermodynamics ("...the deep structure of change is decay. At root there is only corruption..."). The fact that we live in a fallen world is a fundamental Biblical doctrine. Scientific understanding of the Second Law of Thermodynamics and its far reaching authority over even the very root structure of matter and energy did not come until the 19th and 20th centuries. Yet its conclusions have been a basic Biblical doctrine for years.

Corruption of the environment is a symptom of the curse of death which is here because of sin. The Bible connects these three things (environmental decay, sin, curse on the world) quite specifically.

The earth is also polluted by its inhabitants, for they transgressed law, violated the statutes, broke the everlasting covenant. Therefore, a curse devours the earth, and those who live in it are held guilty, Isaiah 24:5,6.

Sin and environmental decay are connected elsewhere in the Bible. For example: "There is swearing, deception, murder, stealing, and adultery. They employ violence so that bloodshed follows bloodshed. Therefore the land mourns, and everyone who lives in it languishes along with the beasts of the field and the birds of the sky; and also the fish of the sea disappear," Hosea 4:2,3.

The prophetic truth of Holy Scripture is uncanny. The Bible tells it like it is, cutting right to the heart of the matter. The environment is in decay (under the curse of death) because of sin, just as the whole world and the people in it are under the curse of death because of sin. Sin between two persons separates them. And since God is the Author and Sustainer of life, sin against God has separated us from life. The consequences of sin in society, of people living according to their own lusts, not according to what God wants, are broken relationships, people hurting and abusing others, strife, crime, war, etc. The potential order and beauty of human society becomes twisted and contaminated. Apart from the restraint of government and the grace and truth of God, society naturally degenerates toward disorder and chaos.

This is why a world fallen in sin must come under the "curse" manifested as the Second Law of Thermodynamics. Individual people doing what they want at the expense of others leads to cruelty, chaos, and disorder in society. Chaotic and disordered society cannot be maintained by an ordered creation. Corrupted mankind cannot be supported by an incorruptible creation. Justice cannot allow that.

Now this I say, brethren, that flesh and blood cannot inherit the kingdom of God; nor does corruption inherit incorruption, 1 Cor 15:50 NKJV.

The creation presses toward increasing disorder because human beings are fundamentally disordered in their motivations. God who has perfect integrity and therefore requires justice, has had to curse the physical creation, "subject it to futility" (Rom 8:20), as a result of man's sin. An incorruptible Creator of life cannot eternally give life-support to a corrupted creation. If He did, He would not be incorruptible.

In completion of our salvation, God will purify and transform this world in the same way that he will transform mortal bodies to imperishable resurrection bodies. There will be a change of scientific principle in the behavior of our physical bodies just as there was with Christ's resurrected body, yet there will be continuity with the mortal body just as there was with Christ's resurrected body. Similar change with continuity will take place in the creation as a whole [4].

But according to His promise we are looking for a new heavens and a new earth, in which righteousness dwells, 2 Pet 3:13 (also Isaiah 65:17).

The creation will become a place "in which righteousness dwells"; or to use the terminology of 1 Cor 15:50 a place where "corruption" is replaced by "incorruption". This means that the current operation of the Second Law of Thermodynamics, the law of increasing entropy, decay, and "corruption" per Professor Atkins, will be at least modified if not radically changed. Until then, however, we must contend with the steady progress of entropy.

Increasing entropy means that the "public services" which the earth provides become less efficient. The ability of the earth to supply the oxygen we breathe, absorb the carbon dioxide we exhale, decompose our sewage, maintain the fertility of our soil, provide our food and medicines, and maintain a moderate climate wears down as the ability of the earth to support a vast array of species wears down. The species of plants and animals that we need in turn depend on other species.

Problems of ecosystem dependency are made more urgent because of the other issues of environmental decay taking place simultaneously. As climate patterns change and more harmful radiation penetrates the atmosphere because of a thinning ozone layer, environmental upsets will have greater impact. And the diminishing ability of earth to sustain life will accelerate.

The prophetic words of Isaiah sound the warning:

Lift up your eyes to the sky, then look to the earth beneath; for the sky will vanish like smoke, And the earth will wear out like a garment, And its inhabitants will die in like manner..., Isaiah 51:6.

The depth of truth in this scripture is particularly evident in the present day due to the global magnitude of the two most pressing environmental issues in the minds of environmental thinkers. In the booklet "The Crucial Decade: The 1990's and the Global Environmental Challenge", the observation is made that "the two principal threats to the global environment are large-scale atmospheric deterioration and biological impoverishment" [14]. How "coincidental" that the two threats Isaiah says to notice are that "the sky will vanish like smoke, and the earth will wear out like a garment". The sky is literally disappearing like smoke because the all-important protective ozone shield which caps the earth's atmosphere is growing thinner. In addition, the ability of the earth to sustain life is arguably wearing out ("like a garment"). Many different species inhabiting the earth are dying off, dissipating "in like manner" to smoke in their concentration on the earth.

Prophesying that "the sky will vanish like smoke" in a time when people didn't understand what the sky was composed of, would take an incredible imagination. What prophet would stick his neck out so far in prophesying something so incredible? The fact that the ozone shield is dissipating and allowing more harmful cosmic radiation to break through, and that the earth is "wearing out like a garment" in terms of integrity of the ecosystem "fabric", is one of many testimonies that the Bible is the revelation of God speaking through His committed servants as they were moved by the Holy Spirit. This is in fact what the Bible claims about Holy Scripture (1 Tim 3:16; 2 Pet 1:21).

Sin and the spread of decay are also related in many subtle and provocative ways throughout Scripture.

For example, the Second Law of Thermodynamics applied to the chemistry of solutions predicts the spread and dispersion of particles through fluids, and indeed, through everything. Sugar, salt, tea, and coffee spread in a cup of water to their greatest possible degree of disorder. So do pollution and infection. Pollution has spread to cover the entire globe. Traces of DDT for instance can be found in Antarctica and other places where it has never been used. Infection spreads through dispersion of microscopic pathogens, bacteria, and viruses. Pollution and infection both bring decay and death.

Likewise, sin is spread through the introduction of small amounts, to bring decay and death. The Bible says, "Do you not know that a little leaven leavens the whole lump of dough?," 1 Cor 5:6, Gal 5:9, Hos 7:4. (Leaven in Scripture is symbolic of sin.) And elsewhere, "Do not be deceived, bad company corrupts good morals," 1 Cor 15:33. Parents intuitively understand this as they encourage their children to associate with a good crowd of friends, not with the rebellious crowd. Parents intuitively know that sin spreads like disease, pollution, and decay in general.

Sin has brought forth death (e.g., Rom 5:12). And infection is a death process, while pollution promotes infection or itself causes death (cancer, etc.). Viruses and bacteria kill body cells. Death finally triumphs as deteriorated immune systems, and body cells are no longer able to cope with the virus, bacteria, cancer, etc.

The analogy extends further. The Bible says throughout that we are to avoid and resist sin or it will spread unchecked ("flee" temptation 1 Cor 6:18, 1 Tim 6:11, and "resist" the devil James 4:6). Similarly, pollution and disease must be contained and fought or they will spread unchecked. Our immune systems carry on some of this battle, protecting our bodies from disease. A large part of the battle against the spread of disease is also fought by, in effect, "fleeing filth", just as we are to fight sin by "fleeing temptation". Therefore, modern society places great emphasis on city sanitary systems, personal hygiene, and avoidance of infectious agents in combating the spread of disease.

The Bible has an incredible understanding of cleanliness as it relates to the spread of germs and the potential to accumulate bacteria, viruses, pathogens, etc. The Levitical Laws of the Jewish people specifically prohibit contact with body fluids and blood products, classifying them as "unclean" (Lev 15). The wisdom of these laws is especially relevant today in the face of horrible communicable diseases such as AIDS and hepatitis B - transmitted by body fluids. Fluids issuing from the body spread disease if the person is infected.

Scripture makes the analogy with sin, speaking of it as being "unclean". The Bible makes a powerful connection between washing away germs and pollution, and washing ourselves free of sin. It talks about sin as being "unclean". The analogy is so effective because the spread and effects of infection, pollution, and sin are so similar. The Jewish priests had to wash themselves and their clothes before they made atonement for sin (Lev 8:6, Num 8:6,7). They had to be clean. As the priests approached the altar in the Tabernacle of God, they had to wash their hands and feet in the special basin for washing (the laver) (Ex 40:30-32). When the High Priest made his annual entry into the holiest part of the Jewish Temple (the Holy of Holies) to atone for his and the people's sins committed in ignorance (Heb 9:7) he had to be completely clean.

The concept of "washing" to become spiritually clean is also carried over to the New Testament. For example, "Not by works of righteousness which we have done, but according to His mercy He saved us, through the washing of regeneration and renewing of the Holy Spirit," Titus 3:5.

The Bible is accurate both in dealing with 1) the physical relationship between cleanliness, body fluids, and the risk of infection, and 2) the ceremonial analogy between contamination and spread of sin, and contamination and spread of disease and pollution ("uncleaness"). To be holy is by definition to be free from sin, just as to be clean is by definition to be free from filth and germs.

Sin must be cleaned out in the same sense that pollution and infections are cleaned out. This is the whole purpose of disciplining children and administering justice to criminals. "Stripes that wound scour away evil", Prov 20:30. "Scouring", not only applies to cleaning out dirt and germs but also to cleaning out sin. The Bible tells us that sin in the heart of man (a fundamental rejection of the authority of and our responsibility to God) is the root, the cause of our present cursed existence.

Man is a rebel at heart, according to the Biblical Model. We do not reject our Designer and Creator out of any true rationality. We reject Him out of pure and simple rebellion. People are not rationally motivated to disbelieve in God. In fact all rational arguments when argued as far as they can be argued, point to God. The clearest and most straightforward reasoning points to God. People deny God out of pride and rebellion, and then try to develop rationale to justify their unbelief. The nihilist philosopher Friederich Nietzsche admitted this: "We deny God as God. And whenever you tell me I must obey God, pride comes over my soul. A little man stands up and says, 'Don't tell me I must believe in God'. If you could prove this God of the Christians to us, I would believe him all the less." [7, p.627] Indeed, as the prophet Hosea put it, "Their drink is rebellion...", Hosea 4:18. The Bible says that there is something at root wrong with the heart of man. This is why we observe entropy, futility, and evil in nature, the fallen creation.

The Biblical Model fits what science observes. Other religions may speak in terms of "cycles" of reincarnation, but they have not grasped the curse of decay, claiming that the creation itself is eternal. The fundamental tendency of events underlying cycles (a model based on the seasons) actually proceeds toward increasing randomness, chaos, and corruption. The underlying observed phenomenon is the 2nd Law of Thermodynamics; "...the deep structure of change is decay..." [1, p.200].

ENVIRONMENTAL DECAY AND CREATIONISM

The law of entropy and the observation of environmental decay as part of entropic change takes us back to a definite starting point, a definite beginning as the Bible teaches. The Universe cannot have always been winding down and be eternal. Modern cosmologies which hypothesize cycles of entropy and reverse-entropy in a creation which is eternal are pure conjecture, not science, and still leave unaccounted the need for intelligent design. This

drive to eliminate the need for our creator and dispute the straightforward conclusion of Scripture exposes our rebellion and confirms again the Biblical Model and explanation of mankind as rebels at heart.

In the face of evolutionary theory, the short term nature of environmental collapses in early societies and the ascendance of environmental problems and environmental decay in modern society is quite significant. The earth wears out rather quickly, especially in the presence of human activity. Consider the experience in the "new world" of the Americas. Environmental decay has been our experience after just 200 years. The "new country" - clean, virgin, majestic - has, in many ways, become an "old country" of hazy skies, polluted waters, eroded soils, cut forests, etc.

If a "living earth" created itself through evolution, then it would indeed be both creation and creator. It would be the Goddess, Gaia. And we, as part of this living earth would be part of a cosmic "god". Even though we felt separate, we would really be connected in "Brahman" (using the terminology of Hinduism). We would need to "realize" it. Evolution believed provides intellectual justification for pantheism in general, and for ecopantheism in particular. Evolution is the foundation for resurgent pantheism in western culture. Creation believed, on the other hand, provides the basis for separating pantheistic mythology from true religion and true science.

Evolutionary science tries to make chaos itself the creator. To do so is to make the observed lack of purpose and order the driving force in life, rather than the consequence of man's sin estranging him from the Author of purpose and order. The overwhelming evidence of decay of the established order in the universe, together with environmental decay, points, in the most clear and straightforward reasoning, to two fundamental things: 1) some initial creation of complex order by a transcendent Creator, and 2) something having gone wrong with the initial created order. Rather than admit these quite logical and straightforward conclusions, "scientific" mankind concocts the fable that somehow decay and disorder itself produced incredible order and complexity - a conclusion for which no genuine evidence is available.

CONCLUSION: THE HOPE AND VIEW OF CHRISTIANITY

We are all captives of sin and decay (death) but the Bible says we can be set free unto eternal life, and we can expect a renovated creation free from the curse of decay (2 Pet 3:13) through the grace of God in Jesus Christ.

In love, God did for us, at great suffering and sacrifice to Himself, what we could not do. He paid the penalty of sin for us, in our place, the guiltless for the guilty. God has reached in to deliver us from our futile, painful existence, made ugly by sin, and given us real hope.

Some secular commentators have blamed ecological crises on the Judeo-Christian tradition [15, p.155]. Other secular thinkers realize that man's tendency to abuse earth's resources instead of exercising stewardship stems from non-Christian behavior and philosophy [12]. Greek philosophy declared man both the master and owner of nature. The influential philosopher Descartes also proclaimed the social value of striving to master and possess nature. The Biblical view, however, is that man is master of nature, but does not own or possess it. He must manage it with an accountability to God, the Owner. Atheist humanism, undergirded by the theory of evolution, declares that man, at the top of the evolutionary ladder, ought to subdue nature in an on-going survival of the fittest (the "might makes right" argument). Communist societies based on atheist principles, have left records of terrible environmental exploitation, unbalanced by conservation. Horrible pollution problems in Eastern Europe and the ex-Soviet Union were revealed through the late 1980's and early 1990's as these countries came out of communist rule. Societies based on Biblical traditions have struck a better balance between exploiting and conserving nature, between manipulating and protecting it. The National Park System of the United States, for example, has been a model for other countries seeking to conserve natural resources and natural beauty.

Justification for abusing and overexploiting the earth because God gave man "dominion" over nature is a misapplication of the Scriptures. "Thou madest him to have dominion over the works of Thy hands; Thou hast put all things under his feet: All sheep and oxen, yea, and the beasts of the field; ..." (Psalm 8:6,7 KJV). The meaning of the Hebrew word "mashal", translated "dominion" in Psalm 8:6 of the King James Version of the Bible, means to have responsible rule over the creation. The term does not justify irresponsible abuse because it means to "reign with authority as a governor" (a delegated authority with responsibility to higher authority) [16, p.132].

God is the Owner of His creation. "The earth is the Lord's, and all it contains, the world and those who dwell in it" (Psalm 24:1). We use God's creation, and then we pass on, unable to take anything with us. While we are on the earth, we are managing the Lord's property as tenant farmers. We have been entrusted with it. As King David said at the end of his career, "Thine, O Lord, is the greatness and the power and the glory and the victory and the majesty, indeed everything that is in the heavens and the earth; Thine is the dominion, O Lord, ...For we are sojourners before Thee, and tenants, as all our fathers were; our days on earth are like a shadow..." (1 Chronicles 29:11,15). The creation was entrusted to man to take care of. We are temporary stewards of it. The owner is God. Indeed, mankind's initial duty was to take care of the Lord's garden (Genesis 2:15). We are the tenant farmers, and our responsibility is to take care of the farm.

The concept of being restored to Adam's original responsibility as caretaker of the Lord's garden takes on greater force when we realize that through Christ we have been reconciled to God and led to a restored sonship much like Adam's status before his fall into sin. Romans 5:12-21 presents Christ as the second Adam who reversed the fall of man and justified us before God, restoring our relationship to Him. Christians, more than others, as restored children of God, should all the more consider themselves as tenants and stewards of God's property just as Adam was caretaker of the Lord's garden. It should be considered part of the Christian ethic, therefore, to wisely manage and conserve natural resources, to enhance the beauty and order of God's creation, to be a good steward of God's created order.

Yet the Christian should realize that Salvation is past, present, and future. The root structure of the creation is yet to be transformed, even as Christ's resurrected body was transformed (a change with continuity) and as our bodies will be similarly transformed (2 Pet 3:13, Phil 3:20,21). Romans 8:20-23 says it this way,

For the creation was subjected to futility, not of its own will, but because of Him who subjected it, *in hope that the creation itself also will be set free from its bondage to decay* into the freedom of the glory of the children of God. For we know that the whole creation groans and suffers the pains of childbirth together until now. And not only this, but also we ourselves, having the first fruits of the Spirit, even we ourselves groan within ourselves, *waiting eagerly our adoption as sons, the redemption of our body.*"

At some future time, God will set the creation free from its "bondage to decay" which includes bondage to our present mortal bodies. Until then, the creation is hobbled by increasing entropy.

Due to the curse of decay, environmental problems cannot be stopped completely; therefore, they should be dealt with realistically. Legislation requiring the impossible (absolutely zero environmental degradation) is misguided. And well intentioned local citizen groups, have tied up the courts trying to block viable waste containment projects because they do not understand the futility of implementing perfect solutions in an imperfect world.

The irreversibility of entropy is a point missed by many modern environmentalists. We cannot avoid some environmental decay. Yet many environmentalists adopt the thinking that by becoming "one with Mother Nature" we can stop the problems. The truth is that the creation is distinct from God. God owns it and can do what He wants with it. Man is simply God's steward, God's tenant farmer, responsible to take care, as best he can, of all of God's resources. This understanding leads to a proper analysis of the situation.

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