

A CHRISTIAN SCIENTIST’S PERSPECTIVE ON ORIGINS

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First, a word about truth in advertising. I am a Christian and I am a scientist, but I am not a Christian Scientist. Second, by what authority do I stand before you today? The subject of origins involves deep issues involving physics, astrophysics, biology, theology, etc., and I am not an expert in any of these fields. So why am I standing here and not one of you or an expert in one of those fields? The answer is that I have been part of a Prayer/study group at UCSB for over 30 years. The group contains chemists, physicists, biologists, engineers, historians, and others. During this time, we have read many of the books by experts and have spent many hours discussing these issues. So today I will give you some of the perspectives we have gained from these studies.

So, what is your worldview? (Figure 1)

FIG. 1 - WORLDVIEW
• What is your worldview?
• Theoretical or practical?
• Where did we come from? (Origins)
• Why are we here? (Purpose)
• What are truth/moral standards? (ethics, relative/absolute)
• Where are we going? (Ultimate destination/Eschatology)

If I went around campus and asked students (especially science students) this question, I would probably get the answer, “Worldview? What does that have to do with chemistry or physics? Isn’t that some sort of philosophy thing?” However, the truth is that all of us have a worldview. It is the operating manual by which we live our lives. Some may be conscious of it and can express it in words, but others may not be fully cognizant of their own worldview. Simply put, your worldview involves your past, present and future. That is, your past—where did we come from (origins), your present—why are we here (purpose), and your future—where are we going (ultimate destination/eschatology). Also, since we are not alone in the universe,

how do we deal with other people who may get in our way? This involves issues of truth and moral standards (ethics). For example, are your standards relative or absolute? Here we may run into the question of your worldview being theoretical or practical. Some people, especially some noted philosophers, say their moral standards are relative— “What is right for you is right for you, and what is right for me is right for me.” A sort of freedom issue. But if I then say, “OK, then I can come into your house and take your 10-year-old daughter and rape her.” The response is usually, “Well, no, you can’t do that—it isn’t right.” Or, I could say, “Then what Hitler did was OK—it was right for him. He was only trying to improve the German race.” Again, the response is usually, “No, that isn’t right.” So much for relative moral standards!

If we try to tackle all issues concerning worldview, we would be here all day or longer, so today let me focus on origins. (Figure 2)

FIG. 2 - ORIGINS
• Origin of the Universe (Big Bang Theory)
• Origin of Emergent Properties (Laws/Physical Constants)
• Origin of Life/Development (Evolution)
• Origin of Consciousness
• Origin of Man (vs. Animal)

When we consider the origin of the universe, the physicists today talk about the “Big Bang Theory.” Then there are the laws of physics, physical constants and the origin of emergent properties (those things that seem to come out of nowhere). Next, we have the origin of life and its development (evolution). There is also the origin of consciousness—our awareness. Why are we here today having this discussion? Animals may have a sense of awareness, but they are not sitting around talking about the origin of the universe. That is, man has an inherent uniqueness. What is the origin of that—the difference between “man” (a member of the animal kingdom) and all other animals.

Before we proceed, let me state that most theologians know little about science and most scientists know very little about theology, so it is very difficult to have a meaningful dialog between the two groups. My purpose here is to open up our thinking, not to give answers to these deep issues, but to start asking the right questions and how to address them.

All right—we know that we have a universe. (Figure 3)

FIG. 3 - ORIGIN OF THE UNIVERSE
• Static, cyclical, or finite (Beginning/end)?
• Science: Big Bang beginning 13.6 billion yr. old; eventual running down to an end
• Bible: Gen 1:1 “In the beginning God created” and John 1:1 “In the beginning was the Word”
• Bible: Rev. 21:1 “The first heaven and the first earth has passed away”

Is the universe static (always the same: past, present and future)? Is the universe cyclical (many Eastern religions have this concept) or is it finite (having a beginning and an end)? Fifty years ago, scientists thought the universe was static with their pre-ordained ideas (pre-judged, i.e., prejudiced). However, scientists are taught to go where the data lead you. In the last 50 years more and more information has been obtained that shows the universe had a beginning—a creation event that occurred about 13.6 billion years ago from essentially a point and has been expanding ever since. Also, it appears to be running down to an eventual end. The idea that eventually gravity would stop the expansion and then the universe would collapse again (“Big Crunch”) does not appear plausible. If true, the universe could be cyclical. The known mass is not sufficient, but there is the evidence of “dark matter” that may contribute. However, there is also evidence that a dark energy may be anti-gravity in nature resulting in an acceleration of expansion. In any case, the current thinking is that the universe will just continue expanding and reach an end to its existence.

How does this scientific information compare with our Christian thinking? The Bible says in Gen. 1:1, “In the beginning God created” and in John 1:1, “In the beginning was the Word.” Also, in Rev. 21:1, “The first heaven and the first earth had passed away.” So, both science and Christian theology agree that the universe we live in had a beginning and will have an end.

Where does science get this information about the origin of the universe? Looking out at the distant galaxies it is noted that their light has been shifted toward lower frequencies—red shift. You have probably heard of the Doppler shift—a train whistle’s frequency is higher

when approaching you and lower as it leaves you. The red shift in stars can be used to show how rapidly they are moving away from us and from that their age.

Figure 4 shows an example of a very distant galaxy of 13.2 billion light years away from us, i.e., very near the time of the “Big Bang” which can be determined by other types of measurements.

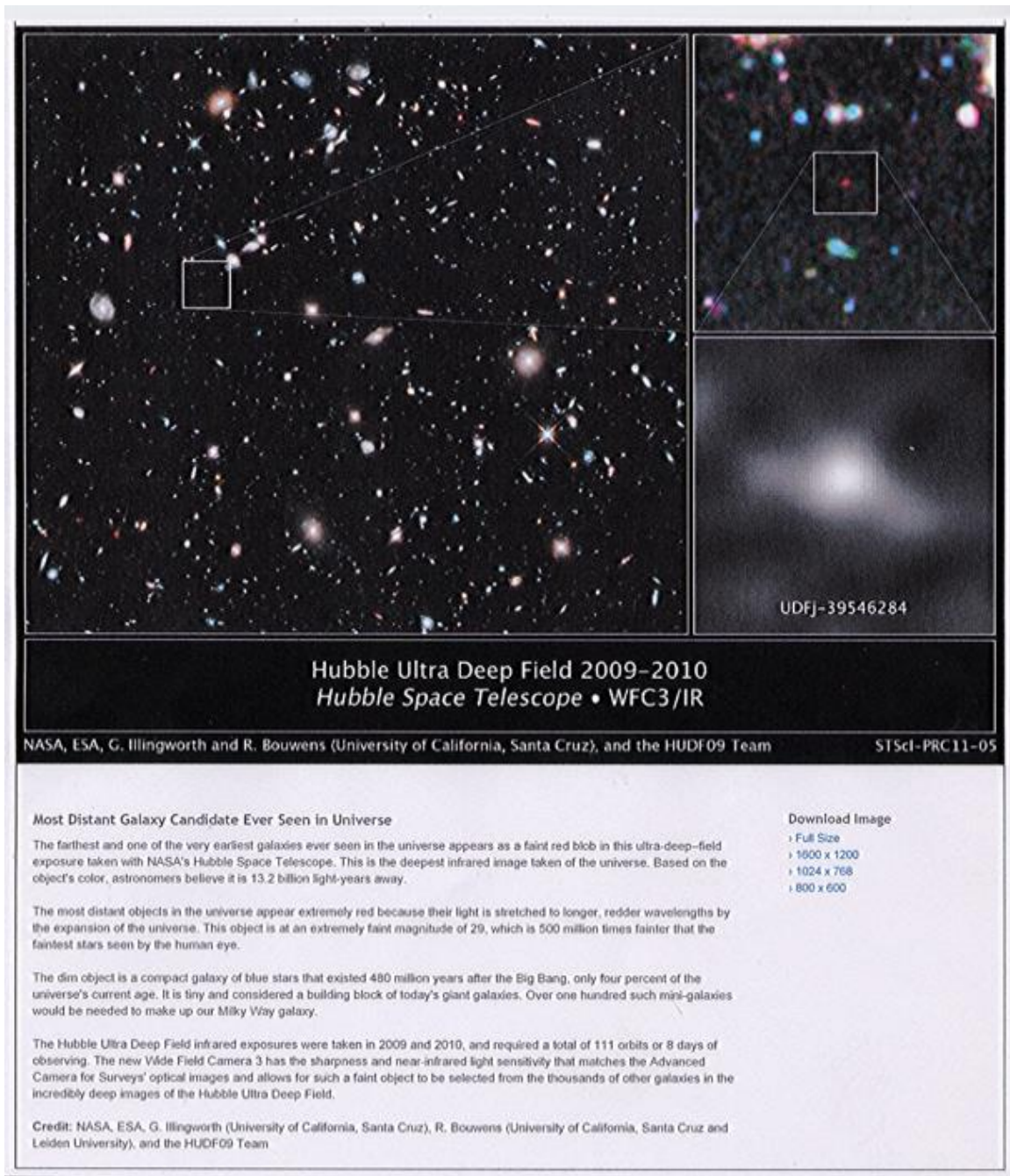


FIG. 4 - MOST DISTANT GALAXY—13.2 BILLION LIGHT YEARS (NOTE RED SHIFT)

All right—we can agree that the universe had a beginning, a creation event. (Figure 5)

FIG. 5 - ORIGIN OF THE UNIVERSE
• Big Bang Theory—Universe was created
• Creator or no Creator?
• Physics: System at rest tends to stay at rest
• Bible: Gen. 1:1 “In the beginning God created”
• Creator God—Faith statement
• No Creator—Faith statement
• Bible: Heb. 11:3a “By faith we understand that the world was created by the Word of God.”

However, that does not answer the question, “Was there a creator?” The laws of physics state that a system at rest tends to stay at rest unless some force acts upon it. However, the laws of physics that we observe today may not have been in effect in the “Big Bang” event. The Bible says in Gen. 1:1 “In the beginning, God created.” But let’s face it—saying there is a Creator God is a faith statement. On the other hand, saying there is no Creator God is also a faith statement. Both positions are taken on faith. Many atheists and non-believers try to take the “high ground” by saying; “I take nothing on faith—that is why I do not believe in God” are deluding themselves. It is interesting that the Bible tells it like it is, in Heb. 11:3a “By faith we understand that the world was created by the Word of God.”

Now here is an interesting concept that physicists have developed concerning the origin of the universe (Fig. 6). At the Big Bang creation event not only was matter (in the form of energy) created, i.e., everything we see today—earth, sun, stars, galaxies, etc., but also time and space were created. Therefore, one cannot ask the question, “Where was the universe BEFORE the Big Bang?” There was no place (space) or before (time). A similar concept has also been developed by theologians, i.e., God created *ex nihilo* (out of nothing). The Bible states in Heb. 11:3b “What is seen was made out of things which do not appear.” Also, in Christian theology God is outside time/space—God is “transcendent” as opposed to “immanent.” Immanent, (meaning within) is seen in Pantheism in which the creation IS God and we are all just a part of God. Again, we see that physicists and Christian theologians are on the same page

even though they are viewing things from different perspectives. The idea of God being outside time and space can be visualized in the following way. We are on a train going along in time—we can’t go back, and we can’t jump ahead, but God is NOT on the train.

FIG. 6 - ORIGIN OF THE UNIVERSE
• At Big Bang space/time created
• Therefore, no material, space or time “before” the Big Bang
• Theology: God created <i>ex nihilo</i> (out of nothing)
• Bible: Heb 11:3b “What is seen was made out of things which do not appear”
• Theology: God is outside time/space (transcendent vs. immanent)

Now in the instant after the creation event the Laws of Physics (universe operating manual) and Physical Constants were established (Fig. 7).

FIG. 7 - ORIGIN OF EMERGENT PROPERTIES
• Instant after creation—Laws of Physics, Physical Constants established
• Laws of Physics—Universe operating manual
• Bible: John 1:1 “In the beginning was the Word and the Word was with God, and the Word was God”
• Physical Constants—Finely tuned or we would not be here (Anthropic Principle)

If we think of a law as a statement in words (we often use a mathematical equation as a shorthand way of expressing those words) of what is true for the system (our universe) then it is interesting to compare the statement with John 1:1 “In the beginning was the Word and the Word was with God, and the Word was God.” Christians consider Jesus to be “the Word” and Jesus himself said in John 14:6 “I am the truth.”

When we examine the Physical Constants established at the creation event it turns out they are finely tuned, or we would not be here. This is known as the Anthropic Principle. The laws, the physical constants, the universe itself are “emergent properties,”—they just are (Fig.

8). Science cannot explain where they come from or the values they have. In addition to these we could add the concept of “life”, “consciousness”, and “man” (vs. animal). They cannot be explained by the “Big Bang” or “Darwin” or other scientific theories.

FIG. 8 - EMERGENT PROPERTIES
Some things “just are”—science cannot explain where they come from or the values they have
Universe, Laws of Physics, Physical Constants, Life, Consciousness, Man (vs. animal) cannot be explained by “Big Bang”, “Darwin,” or other theories

Now what about the Anthropic Principle? (Fig. 9)

FIG. 9 - ANTHROPIC PRINCIPLE - “GOLDILOCKS UNIVERSE”
Speed of light: any faster—stars too bright; slower—stars too dark
Gravitational constant: any larger—stars burn too quickly; smaller—stars too cool for heavy element formation
Strong force: any larger—no hydrogen; smaller—only hydrogen
Weak force: any larger—too much hydrogen converted to helium in Big Bang; smaller—too little heavy element formation

We seem to live in a “Goldilocks Universe.” You remember the story—one bowl of porridge was too hot, another was too cold, but the little bear’s porridge was “just right.” If any of our physical constants were a little larger or a little smaller, we would not exist. Hugh Ross, in one of his books, listed 26 of them, but recent authors have added many more. Here are just a few examples to show you what this means. If the speed of light (3.00×10^8 m/s) was a little faster the stars would be too bright. If it was a little slower the stars would be too dark. If the gravitational constant was slightly larger the stars would burn too quickly. If it was slightly smaller the stars would be too cool for heavy element formation that is needed for chemicals in general and biochemicals in particular. If the “strong force” (the force that holds the nucleus together in the atom) was any larger there would be no hydrogen; smaller, only hydrogen would exist. If the “weak force” (the force involved in radioactive decay) was larger too much hydrogen would be converted to helium in the “Big Bang”; smaller, too little heavy element

formation. The conversion of hydrogen to helium (nuclear fusion) is now the energy that runs the universe—star power. When we use solar energy, we are capturing a tiny fraction of the sun’s energy produced as hydrogen is converted to helium. This nuclear fusion reaction is being attempted in the laboratory, but the ignition temperature of about 100 million degrees makes it a difficult problem to say the least.

So, what is the probability that all these physical constants happen to have the right values for our existence? (Fig. 10)

FIG. 10 - ANTHROPIC PRINCIPLE	
•	Probability
•	Deck of cards: $52 \times 51 \times 50 \dots \times 1 = 52! = 10^{68}$ different arrangements possible
•	Hugh Ross listed 26 parameters fine-tuned (more have been added to the list now) with estimated probability of one in 10^{100}
•	Compare this number with number of atoms in the universe = 10^{80}

We’re pretty familiar with card games and probability so here is a deck of cards—well shuffled, of course. The first is the ace of clubs; second the deuce of clubs, then the 3, then the 4, 5, 6, etc. How many of you think that this deck was “well shuffled?” If I went through the whole deck with all the clubs in order, then diamonds, then hearts, and then spades we can calculate the probability of this happening. There are 52 cards in the deck so the probability of picking the ace of clubs is $1/52$. Now there are only 51 cards left so the probability of drawing the deuce of clubs is $1/51$. So, the probability of doing the whole deck would be one chance in $52 \times 51 \times 50 \times 49 \dots \times 1 = 52!$ (Factorial) = 10^{68} . Now before you say such a hand cannot happen, let me shuffle the cards for real and start to lay them out. We have the 7 of spades, the 8 of spades, the 4 of hearts, etc. What is the probability of this hand? It is exactly the same as the one above: $1/10^{68}$. What is the difference? The second hand appears to be random junk, while the first one appears to have value. We attach value to our universe because it allows us to exist.

If we look at just the 26 parameters Hugh Ross listed the probability that all constants would be the correct value has been estimated to be $1/10^{100}$. That is the number one followed by 100 zeros! Of course, this involves a great deal of “back of the envelope” estimations, but with parameters that have been added recently some authors have claimed the probability may be less than $1/10^{150}$. These numbers have little meaning—there are only 10^{80} atoms in the

whole universe. Also, these exponential numbers can be misleading—they are convenient for scientists to use so that widely varying numbers can be expressed but remember that a change in one in the exponent is a factor of ten in value. Thus, 10^{69} is ten times greater than 10^{68} and 10^{80} is a trillion times larger than 10^{68} .

So how do atheists explain the existence of our universe? (Fig. 11) One way of looking at it is to say, “We’re here so all the constants are correct; if they weren’t we would not be here having this discussion.” There is one universe, and we were VERY, VERY lucky! Another possibility is that there is a multiverse—many universes either cyclical or parallel. If the universe went through cycles of expansion and contraction with the constants changing randomly with each cycle, we represent the cycle where everything came out “just right.” This would be consistent with Eastern religions’ cyclical ideas such as reincarnation. However, scientific evidence is that our universe is not going to collapse and then re-expand. The other possibility is that there are a great number of universes, but we can only see and experience the one we are in. Now which is the bigger leap of faith—postulating an extremely large number of universes that we can never know about, or one universe brought about by a Creator who had us in mind when it was created?

FIG. 11 - ANTHROPIC PRINCIPLE
• How do Atheists explain the existence of our universe?
• One universe—we are VERY, VERY lucky
• Multiverse—cyclical or parallel
• Takes leap of faith to believe there are many universes we can never see

Now if we consider the hypothesis that there is a God Creator who created the universe and prepared it for us in mind, then we can examine how the scientific information is consistent with that hypothesis (Fig. 12). Some people say, “Why should it take all these billions of years before man—why couldn’t it just be 6 days as it supposedly states in Genesis chapter 1?” With the laws of physics established at the creation event it took a long expansion time for the original energy to be converted to matter, form stars and galaxies, etc. During the life cycle of a star, it continues to burn hydrogen to helium and the intense heat produced allows nuclear reactions to take place forming the heavier elements. Let’s face it, the original elemental abundance of 93% hydrogen and 7% helium is not very useful for the production of life. We need carbon, oxygen, nitrogen, iron, phosphorus, etc. for the formation of amino acids, DNA

and all the other chemicals in our bodies and the ones we need for our existence. At the end of the star's life, it may explode into a super nova and spew out all these elements into the universe. It is interesting to think that our bodies are essentially "star dust."

FIG. 12 - ANTHROPIC PRINCIPLE
• Preparation of the universe for us!
• Long expansion time for stars to form, life cycle, super novae, spew out heavy elements (original elemental abundance 93% hydrogen, 7% helium) needed for life, i.e. C, O, N, P, Fe, etc. for amino acids, DNA
• Development of solar system—Earth formed 4.5 billion years ago, took 0.6 billion to cool and for decrease of bombardment craters (like moon) to allow life to exist. Jupiter needed for captures
• Life began almost instantly after above conditions met

The development of our solar system took more billions of years—Earth formed about 4.5 billion years ago. Then it took another 0.6 billion years to cool sufficiently and for the decrease of bombardment craters (like we see on the moon) that would kill off life as soon as it would begin. Here is another interesting fact. Life would be unlikely today because of bombardments from outer space if there wasn't the existence of a large planet like Jupiter that helps scavenge anything entering our solar system. There is some evidence (not 100% proven yet) that one large body hit the earth 65 million years ago and killed all the dinosaurs and most of all life at that time.

Anyway, the evidence today is that life began almost "instantly" when the conditions were met 3.9 billion years ago (i.e. 4.5 – 0.6). These numbers are not known with certainty and may be modified as more information is obtained in future measurements, but the general picture is quite clear. There is evidence for life within 0.1 billion years of this 3.9 billion age, and that is within the uncertainty of these numbers—in other words, life could have started the day after these conditions were met! You hear words from people like Carl Sagan saying that it took "billions and billions of years" for the origin of life, but the scientific evidence shows a much different story.

There have been experiments carried out in the laboratory trying to mimic the conditions of the early Earth to see how life could begin with just random chemical reactions that might take place. For example, in the 1950's scientists at UCLA (Miller and Urey) took

mixtures that they thought would be like some “primordial soup” and flashed electrical discharges into them to mimic lightning and then detected the chemicals formed. They found some complex compounds like amino acids, and for this they received the Nobel Prize. Since then, it has been well established that their “primordial soup” did not mimic conditions of the early Earth, and besides, there are so many possible amino acids and only a small fraction are useful for life as we see it today. Finally, those compounds would not be stable for long periods of time; so that even if one were formed, by the time additional ones were produced the first would have decomposed. From a scientific standpoint both thermodynamics (the energy relationships) and kinetics (the rates of formation and decay) work against the idea that random chemical reactions taking place on the early Earth would lead to life. There needs to be some direction, a code that enables the correct chemicals to be produced efficiently to begin life. Who (or what) provided that direction or wrote the code?

Looking at these next figures (Fig. 13) we see star formation taking place in 3 distant galaxies—they are not that close together because they are at different distances away.



FIG. 13 - STAR FORMATION SEEN IN 3 GALAXIES

Here (Fig. 14) we see the existence of 22 supernovae sending out heavy elements. The numbers are mind-boggling. Except for a few nearby stars in this picture, taken by the Hubble

Telescope, each point of light is a galaxy containing billions of stars. The only reason we can see them so far away is that they do contain so many stars to give sufficient light for our telescope to detect.

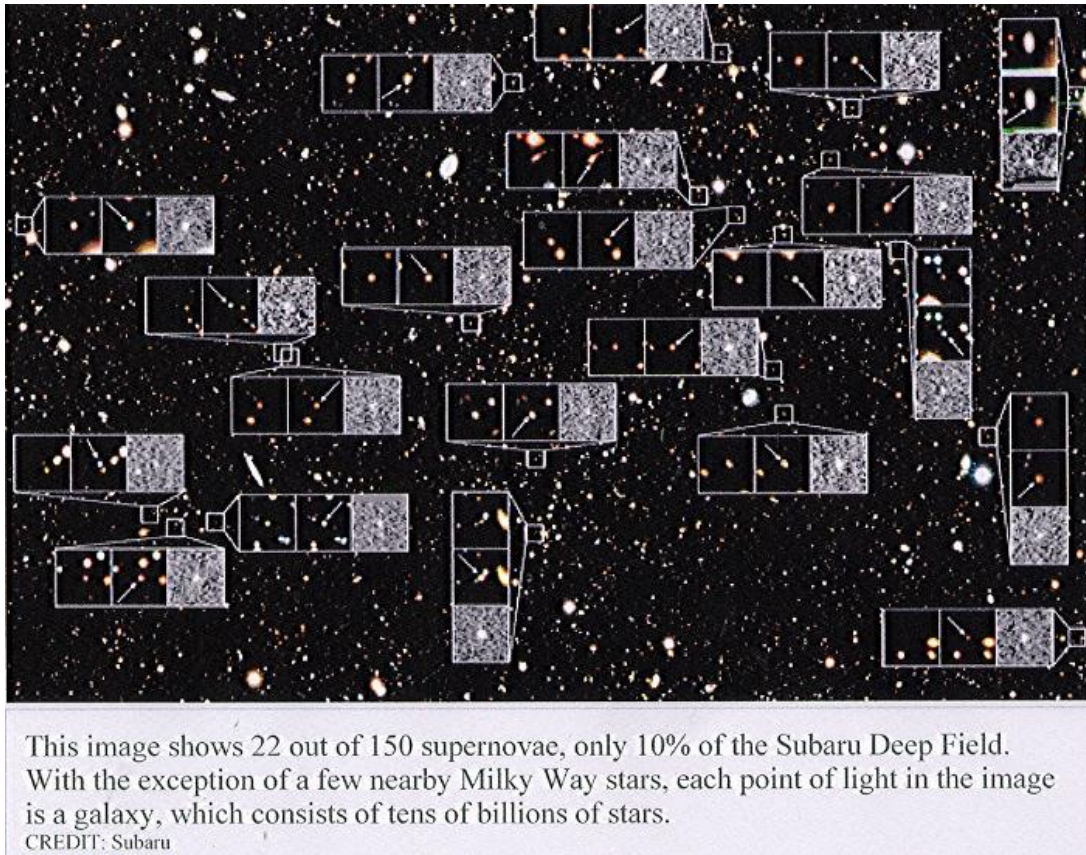


FIG. 14 - EXISTENCE OF 22 SUPERNOVAE SENDING OUT HEAVY ELEMENTS

Finally, here is a picture (Fig. 15) of a supernova in a nearby galaxy with a cloud that reached Earth in 1987. The reason for the ring is like a pebble thrown into a pond with radiation emanating from the star interacting with matter to “light it up.”

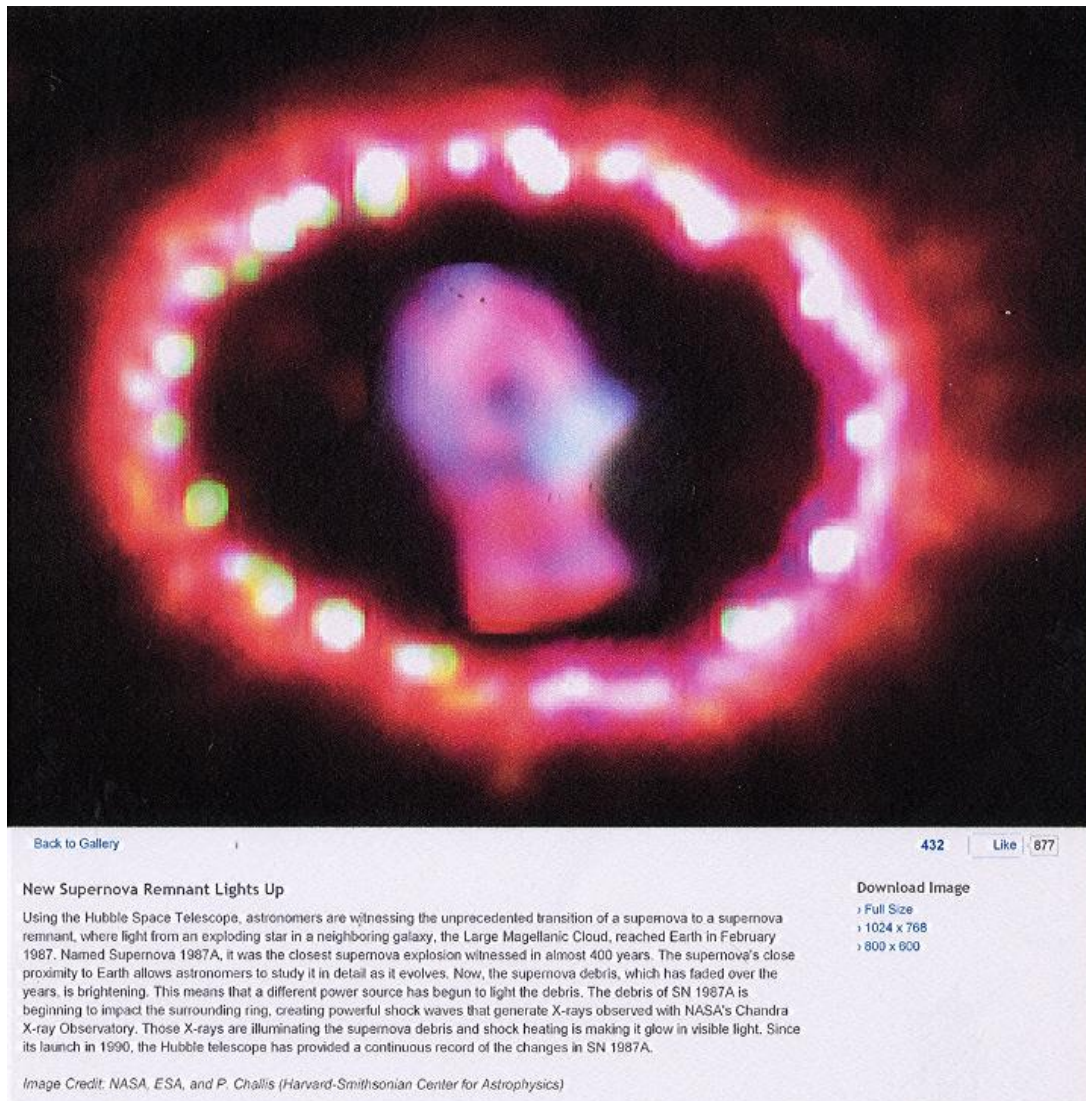


FIG. 15 - SUPERNOVA REMNANT SENDING OUT DEBRIS

Let us now move on to the Origin of Life (Fig. 16). The Earth formed about 4.5 billion years ago and cooled to allow life to appear around 3.9 billion years ago. As mentioned above life seems to have appeared very shortly after the conditions were right. So we could ask, "Is life one of those emergent properties?" There is no theory that explains the appearance of life—it is suddenly there. Darwin's theory only shows how species evolve, i.e., change with time. "Survival of the fittest" can be seen but nothing about "Arrival of the fittest."

Here is a worldview question. If we accept a God creator, was it a onetime act or does God continue to act in His Creation? The idea of a onetime act was expressed by William Paley

in the 1700's with a "watchmaker hypothesis." If we saw a watch lying in the sand on some beach, we would not attribute its existence to the action of tides or waves. Some intelligent agent made the watch and left it there. So, the universe does not appear to be created by random purposeless forces, but by some intelligent agent. Perhaps God created our universe and then went off to do something else—perhaps making one of those parallel universes hypothesized earlier. Thus, we have two possible ideas. "Deism" is the idea that there was a God creator who set everything in motion, i.e., made the "watch", wound it up, and the universe is now perking along on its own. Jefferson's view of God seems to be of this type. The question then arises, "Why would God create a universe if He had no purpose in mind?"

FIG. 16 - ORIGIN OF LIFE
Life appeared on Earth about 3.8 billion years ago
Is life an emergent property? No theory explains appearance of life
Darwin's theory—"survival of fittest" but nothing about "arrival of fittest"
Worldview question—If we accept a God Creator, was it a one-time act or does God continue to act in His Creation (Paley—watchmaker hypothesis) Deism vs. Theism

The second possibility is called "Theism" --the idea that there was a God creator who began the universe and is still interacting with it today. A God who created a universe designed with you in mind—who knows you would be at Samarkand today and attending this talk. We can argue the degree of interaction—our free will to act vs. God's predestined plan, but the basic question is whether God is impersonal (Deism) or personal (Theism). I think you can see that my worldview is the latter position.

Here is another "loaded" question for you, "Do you believe in evolution?" (Fig. 17) The scientific information is irrefutable that there was life on Earth before man.

FIG. 17 - EVOLUTION
Do you believe in "Evolution"?
Evolution is a process whereby a system changes with time

Directed vs. Undirected evolution?
Darwinian Evolution—undirected atheistic view of evolution, driven by random purposeless forces
Macro- (change in species) vs. micro-evolution (change within a species)

Life evolves and here we are. Evolution is just a word indicating a process whereby a system changes with time. Computers change with time, so do automobiles, political systems, and our legal system. The real question is whether these changes (their evolution), was directed or undirected. Automobiles and computers do not improve as they evolve unless “intelligent” engineers design the changes. Undirected evolution has been described as a “tornado blowing through Boeing’s junkyard and out comes a 747.” On the other hand, directed evolution (Fig. 18) could account for the development of the universe, origin of life, and the appearance of man guided by a Creator according to a predestined plan having us in mind from the beginning.

FIG. 18 - DIRECTED EVOLUTION
Development of the Universe, Life, Man guided by a Creator according to a predestined plan having us in mind from the beginning

People who say if you believe in evolution you must be an atheist and cannot be a believer in God are using the word evolution in a very limited way. They are referring to “Darwinian Evolution,” which is an undirected atheistic view of evolution driven by random purposeless forces that got you here today. Much of the arguments you hear or read about have glossed over this strict definition, and especially the teaching of evolution in schools.

What evidence do these Darwinian Evolutionists have for their position? Here we have to introduce another concept— “Macro- vs. Micro-evolution.” (Fig. 19) There is considerable evidence for changes within a species (Micro-evolution), for example, Darwin’s finches. These changes can result from mutations or from “developmental plasticity” (their morphology). Not all of us are the same height, strength, speed, etc. So, for example, if our food supply became higher and higher (think of giraffes) then taller people would have an advantage, have more children and the average height of humans would increase. We all would become 7-foot basketball stars at some future time. So pressures from our environment can lead to such changes. We have already seen an example of this in Asian countries where higher protein

diets in recent years has led to rapid increase in average height from <5 feet to nearly 6 feet in a few generations. These examples are “Micro-evolution,” i.e. changes within a species.

FIG. 19 - MACRO-EVOLUTION VS. MICRO-EVOLUTION
• Considerable evidence for changes within a species (Micro-evolution). For example—Darwin’s finches
• Changes can result from mutations or from “developmental plasticity” (morphology)
• “Species” defined as group of organisms whose members can breed with other members of the group, but not outside the group. (Higher organisms with sexual reproduction)

“Species” can be defined as a group of organisms whose members can breed with other members of the group, but not outside the group. This definition is used for higher organisms with sexual reproduction. However, “species” for asexual organisms (Fig. 20) is based on morphology or physiology. With this definition there is some evidence for gradual species change as Darwin’s Theory predicts.

FIG. 20 - MACRO-EVOLUTION VS. MICRO-EVOLUTION
• “Species” for asexual organisms based on morphology or physiology. With this definition there is some evidence for gradual species change as Darwin’s Theory predicts
• BUT—no evidence to date of species change for sexual organisms. Time required for gradual change much greater than observed time for new species arrival. Mutations are predominantly deleterious, not advantageous

However, there is no evidence to date of species change for sexual organisms. Sexual reproduction may also be one of those emergent properties proposed earlier. The time required for gradual change is much greater than the observed time for the arrival of a new species. The hypothesis that new species arise from mutations is troublesome because mutations are predominantly deleterious, not advantageous. Scientists who accept Darwinian Evolution try to use “micro-evolution” evidence to conclude that “macro-evolution” also occurs over a long period of time. However, using that argument is like saying, “with training I can jump longer distances so if I train long enough, I could jump across the Atlantic Ocean.” So, concerning “Darwinian Evolution” there is strong scientific evidence for micro-evolution and there is good evidence for “species” change in asexual reproduction such as bacteria. (Fig. 21)

FIG. 21 - DARWINIAN EVOLUTION
• Strong scientific evidence for micro-evolution
• Evidence for “species” change in asexual reproduction such as bacteria
• Fossil record does not show “gradual” change, but long periods of status quo followed by rapid changes in species
• Attempts to modify Darwin’s theory—punctuated equilibrium, evolutionary development biology, etc.

However, the fossil record does not show “gradual” change predicted by Darwin, but long periods of status quo followed by rapid changes in sexual species. We need to follow the scientific data wherever it leads. Some scientists, clinging to the worldview of undirected evolution (because they believe there is no God creator), are trying to modify Darwin’s theory to account for the data—such as “Punctuated Equilibrium” and “Evolutionary Developmental Biology.” Still, the idea of undirected evolution leading to man from lower animals is not supported by the scientific evidence.

Well, if random purposeless forces cannot produce life as we know it, what other explanations can atheists come up with? (Fig. 22) Since Darwin’s Theory has severe problems for macro-evolution perhaps life developed on some other planet (in a galaxy far away!) and was carried to Earth. Does this sound far-fetched? Actually, it is a theory called Transpermia and its devotees include Nobel Prize winner Crick (Watson/Crick DNA fame). Surely this is an exotic example of “kicking the can down the road!” It will be left to the beings on that planet to figure out how life began without a Creator God. This idea really shows that scientists who cling to the worldview of atheism are getting desperate to find some way to explain the origin and development of life on Earth. Scientists are just human beings like the rest of us clinging to our cherished ideas in the face of facts leading us in some other direction.

FIG. 22 - ORIGIN OF LIFE
• Other explanations? Since Darwin’s Theory has severe problems for macro-evolution and Atheists (by faith) say there is no God, perhaps Life developed on some other planet (in a galaxy far away!) and was carried to Earth. Far-fetched? —theory called “Transpermia” and devotees include Nobel Prize winner Francis Crick (DNA fame)
• This is exotic example of “kicking the can down the road”

When we look at the development of life, it is clear that the DNA code beautifully explains much of biology as we see it. (Fig. 23) As with any code it contains information that is transmitted as the cell reproduces. Where, then, is the origin of this information. Random purposeless forces do not generate information, only lose information. You have all played the “Telephone Game” and see how the initial information gets distorted and lost going from one person to another. But even here the people involved are intelligent and are trying to maintain the information being passed on—random purposeless forces are not that kind. Perhaps the information was in the original “Big Bang” creation event. However, the initial elemental mixture when atoms formed was 93% hydrogen and 7% helium. These simple atoms contain no information of the type needed by DNA and the propagation of life. On the other hand, if we accept the worldview of “Directed Evolution” then information could be inserted into the system (our universe) as needed. In the Bible we have the concept of God acting “in the fullness of time.”

FIG. 23 - DEVELOPMENT OF LIFE
• DNA code beautifully explains much of biology and development of life. As any code, it contains information that is transmitted as cell reproduces. Where is origin of information?
• Original composition of early Universe was 93% hydrogen and 7 % helium. These simple atoms contain no information
• Directed evolution—information inserted in the “fullness of time”

Now what is this DNA code scheme? Here is a simple picture (Fig. 24) of the interlocking spirals (the Double Helix), each strand containing chemical bases given the abbreviations: A, C, G, and T. The strands are bonded together by fairly weak hydrogen bonds where A bonds with T, and C bonds with G. When the strands split apart each one acts as a template to produce more strands exactly the same. Mistakes (mutations) do occur, but are very rare, leading to the great stability our cells have. It takes a group of three base pairs to code for a specific amino acid. For example, GAA codes for glutamic acid, one of the 20 essential amino acids in your body. Now if we were dealing with random purposeless forces the probability of getting even one correct there is the chance of one in 20. However, each amino acid has a right-handed form and a left-handed form (like your right glove and left glove which may look identical until you try to put your right glove on your left hand) so the probability is now 1/40. So we see that to get even 4 in a row correctly that would be $1/40 \times 1/40 \times 1/40 \times 1/40 =$ about 1 in 3 million.

But our cells deal with millions of bits of code resulting in astronomical odds of producing them by random purposeless forces.

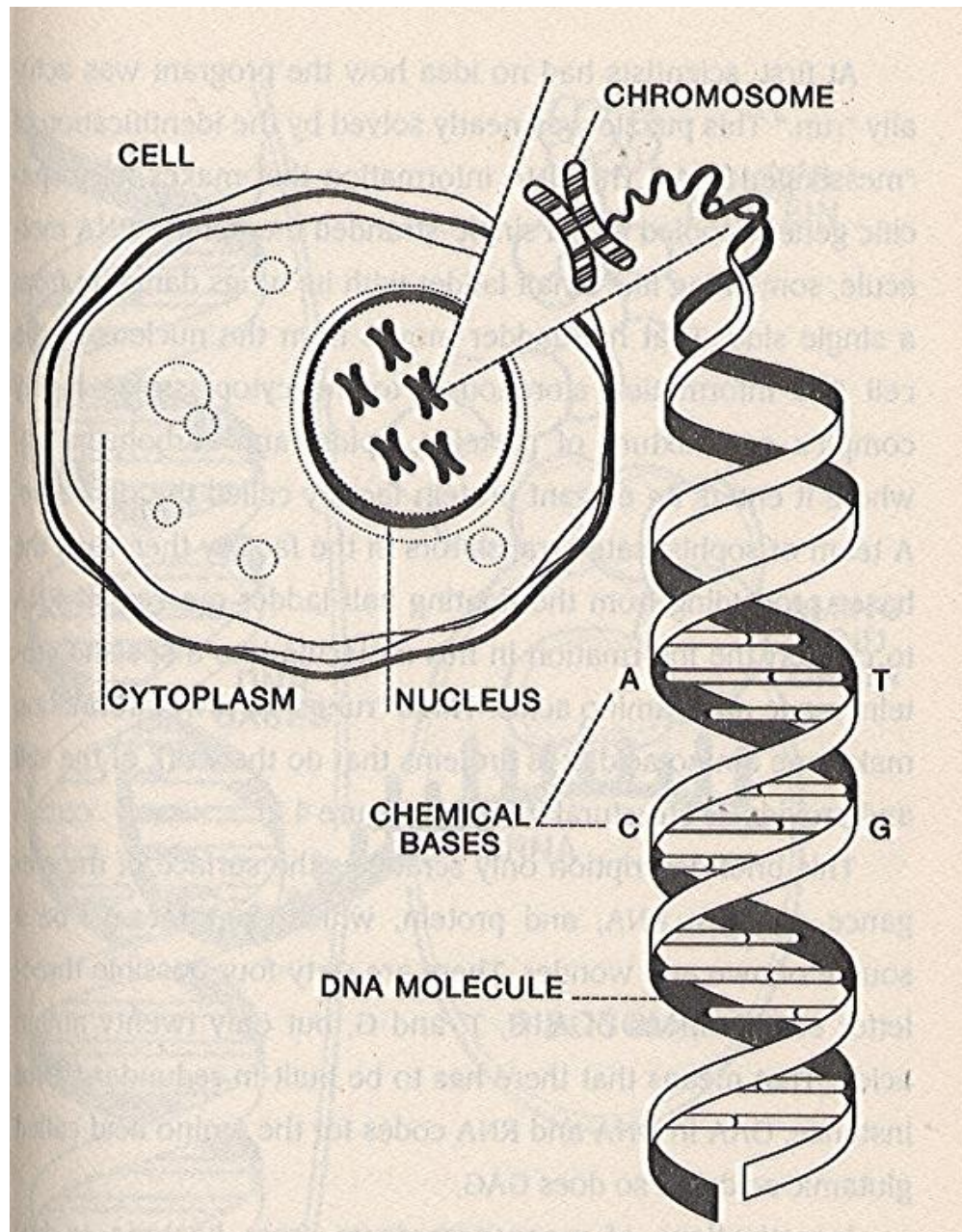


FIG. 24 - DNA CODE (CHEMICAL BASES:

A, C, G, T MATE WITH T, G, C, A. GAA=GLUTAMIC ACID

So, let's start to wrap this up. (Fig. 25)

FIG. 25 - SCIENTIST VIEW OF GOD
• Scientist with open mind towards the existence of God and--
• If he/she accepts the scientific evidence for the origins of the Universe & Life--
• Then God is more like an awesome engineer and less like a magician
• What about miracles? If God created the universe, then water to wine is trivial

A scientist who keeps an open mind towards the existence of God doesn't just write it off with a preconceived worldview, "There is no God." If he or she accepts the scientific evidence for the origins of the universe and of life, then God is more like an awesome engineer and less like a magician. The beauty and complexity of our universe came about by this Godly Engineer with great intellect and purpose, not the waving of some magic wand.

What about miracles? Hey, if God created the universe we see, then water to wine would be trivial. If God's plan includes some acts that appear to us as "miracles" so be it!

Let us go on to the final issue—why are we here? (Fig. 26)

FIG. 26 - PURPOSE
• Why are we here?
• Atheistic view—random purposeless forces created us with no purpose in mind
• Theistic view—God created the Universe with us in mind, prepared the earth, early life, DNA code, man as unique organism
• God's purpose was to have relationship with His creation and, in particular, with us
• Our purpose—to seek relationship with Him

The atheistic view is that random purposeless forces created us with no purpose in mind. The theistic view is that God created the universe with us in mind, prepared the earth for us, directed the origin and development of life, the DNA code, and man as a unique organism.

God's purpose was to have relationship with his creation, and in particular, with us. Our purpose then is to reciprocate—i.e. to seek relationship with Him.

Remember, though, we are not alone in this creation—we have others around us. Finding relationship with others helps us find relationship with God. (Fig. 27)

FIG. 27 - PURPOSE
Finding relationship with others helps us find relationship with God
I John 4:20: "If anyone says, 'I love God' and hates his brother is a liar; for he who does not love his brother whom he has seen, cannot love God whom he has not seen."

I love this passage from I John 4:20: "If anyone says, 'I love God' and hates his brother is a liar; for he who does not love his brother whom he has seen, cannot love God whom he has not seen." How can we love a God whom we cannot see, who is outside time and space, when we have trouble loving the people around us who are also part of God's creation?

Although God himself may be outside time and space, He does reveal himself in ways to help us find relationship with Him. How does He do that? (Fig. 28) God reveals himself in nature (the universe we see around us), through the scriptures, in Jesus who came to us in a human form, and finally by personal revelation. You may have your own Damascus Road experience just like Paul.

FIG. 28 - PURPOSE
God reveals Himself to help us find relationship with Him
Nature, Scriptures, Jesus, Personal revelation
Scriptures and Nature complement each other
Psalm 8:3,4 "When I look at thy heavens, the work of thy fingers, the moon and the stars, which thou hast established, what is man that thou art mindful of him?"

Scriptures and nature complement each other—they are not in conflict. Because of our human limitations (including our sinful nature) we may misinterpret nature and/or scriptures leading to an apparent conflict between the two. I find it comforting that as science delves

more deeply into the mysteries of the universe we are learning more about the awesome creativity of God as the creator of this universe. David, the writer of many of our Psalms, speaks like a 21st Century astronomer when he says in Psalm 8:3,4 “When I look at thy heavens, the work of thy fingers, the moon and the stars which thou hast established; what is man that thou art mindful of him and the son of man that thou dost care for him?”

Here is a photograph of a molecular cloud—interstellar gas made of hydrogen. (Fig. 29)

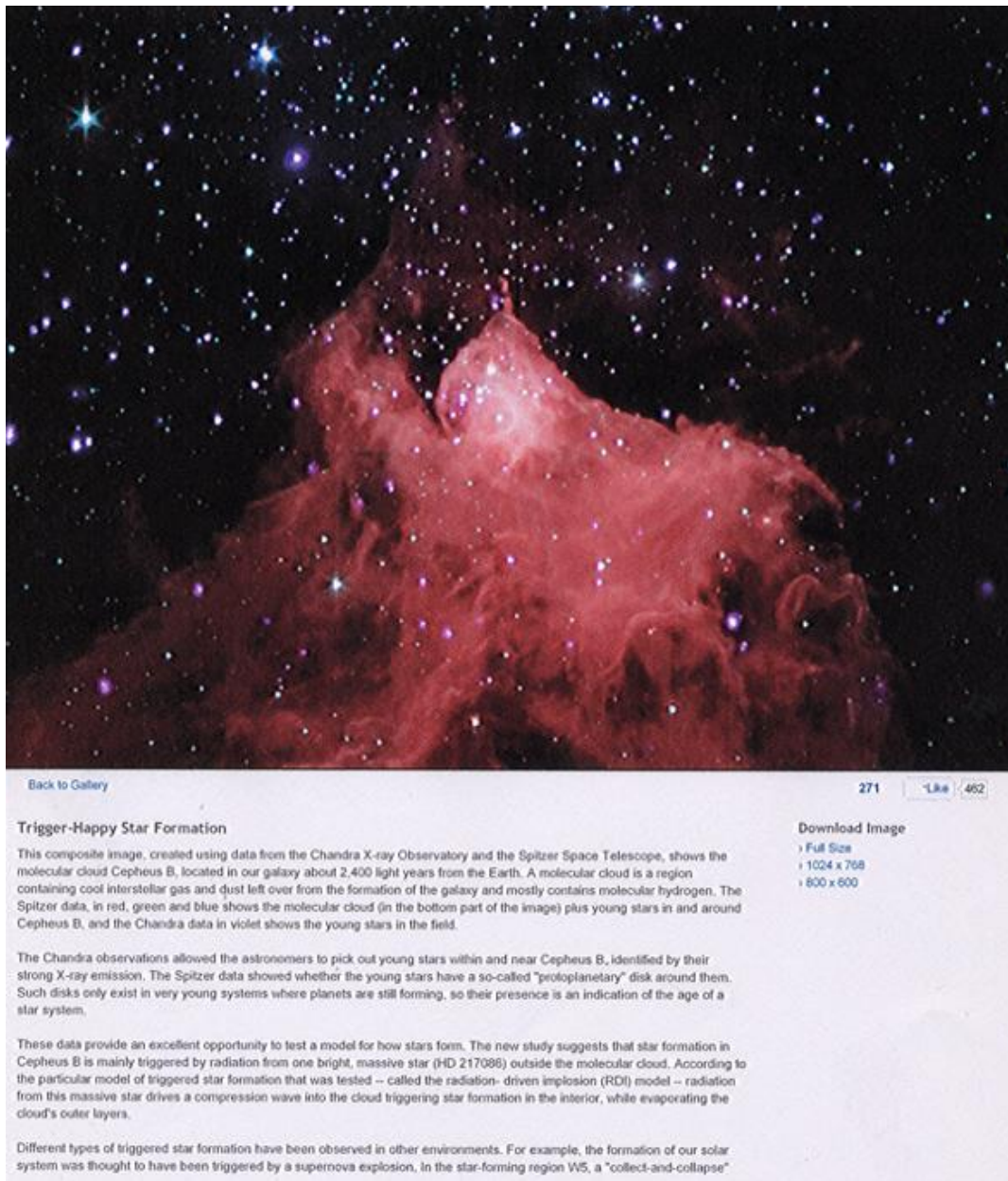


FIG. 29 - MOLECULAR CLOUD OF INTERSTELLAR GAS MADE OF HYDROGEN

The magnitude of these features in the universe is almost beyond our comprehension. With instruments such as the Hubble telescope we are able to see so much more of God's creation, i.e. the universe around us. God revealing himself through nature was also seen by David when he wrote in Psalm 19:1 "The heavens are telling the glory of God; and the firmament proclaims his handiwork." Another passage is from Proverbs 3:19 "The Lord by wisdom founded the earth; by understanding he established the heavens." (Fig. 30)

FIG. 30 - PURPOSE
• Psalm 19:1 "The heavens are telling the glory of God; and the firmament proclaims his handiwork."
• Prov. 3:19 "The Lord by wisdom founded the earth; by understanding he established the heavens."

Let me close by showing one more beautiful example of a nebula (humorously named "Pacman" because of its shape in photos) pumping energy into our galaxy. (Fig. 31)

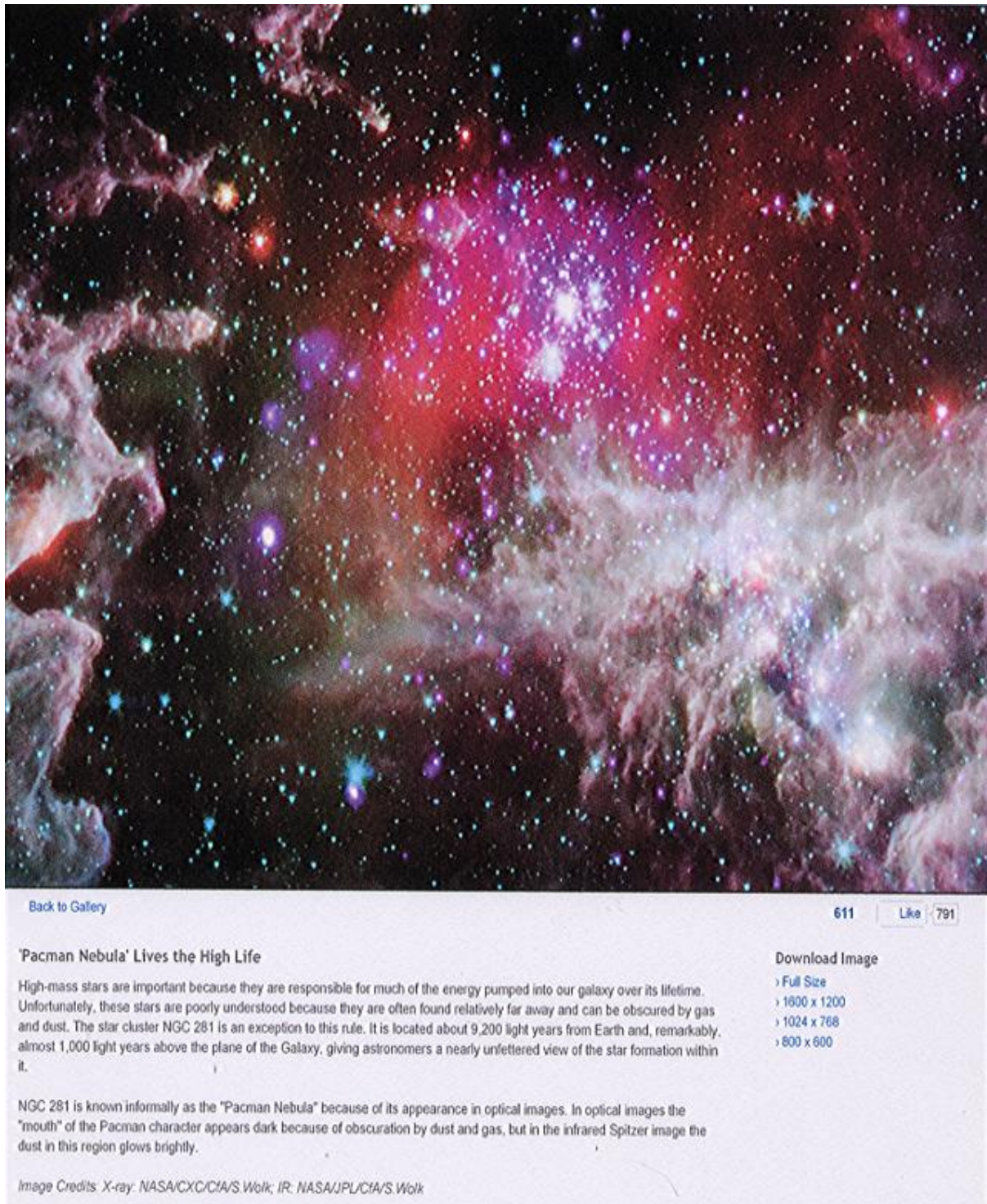


FIG. 31 - "PACMAN NEBULA"—PUMPING ENERGY INTO OUR GALAXY