

# THE NATURE OF THE UNIVERSE

James A. Putnam

© 2003

Human understanding of the universe is formed from interpretations of empirical evidence. Empirical evidence consists of careful, accurate observations including measurements by instrument. All empirical evidence arrives to us in the form of information. Our learning process is wholly dependent upon determining meaning from the information. This step involves a very complex physical challenge. All information arrives at our senses, and ultimately within our minds, as multitudes of tiny pieces that must be analyzed for patterns and assembled into images.

Fortunately, we innately know how to perform this incredible feat. Unfortunately, we do not understand why we can do this. We learn a great deal about what occurs in the universe by means of this intelligent interpretive process. However, we will not gain an understanding of why the universe operates until we understand this process. This is true because all other processes we learn about are filtered through our personal interpretive process. Sub-processes cannot be more fundamental or greater than the general process that encompasses them. If we do not understand the general process, then we cannot know if we properly understand its fruits.

The fruits of a process are fully determined by the properties of the process. If the process is interpreted as being mechanical and inanimate, then the interpretations of its fruits cannot themselves be more than inanimate. If the process involves greater properties than inanimate and mechanical ones, hopefully including properties of life and intelligence, then its fruits can be composed from a wider range of properties. Among these properties would be the universal fundamentals of life and intelligence. Current fundamental or foundational science cannot yet direct us to the means by which intelligence is accomplished. Foundational science, in particular the discipline of theoretical physics, treats received information as having a nature that is inanimate and mechanical.

Theoretical physics treats these pieces of information as mechanical objects. They are named photons. The mechanical interpretation is that photons contain energy. The definition of energy is force multiplied by distance. This is the mathematical means for describing a force being applied across a distance. A force applied across a distance results in a change of velocity. Therefore, photons cause changes of velocity. The mechanical interpretation offered for photons is clearly not sufficient to explain the role of information in the operation of the universe.

Our intelligence learns from the effects of photons. We gain information from these effects. The information delivered includes vastly more meaning than simple change of velocity. Photons do cause particles to change their velocities; however, they also cause far more important effects. Photon effects are the means by which we see objects, communicate with other centers of

intelligence, comprehend meaning, feel joy, feel fear, enjoy love and, in general, use our senses.

All of the meanings of our experiences are learned through the innate abilities of our intelligence. We have the ability to find meaning in diverse, raw information. We receive and interpret the simplest form of information called signs. This is the case regardless of our macroscopic perspective, and its tendency to separate this process into various, unique means for delivery. Whether we are seeing, hearing, smelling, feeling, tasting, or thinking, the means of delivery is the same. It is photons that communicate information.

The multitudinous storm of tiny, mixed, increments of information come to us at the speed of light over various measures of distance. This adds delay to all information. We do not see objects at a distance. We receive information we interpret as telling us there were objects at various distances from ourselves. We are informed about events that have already occurred. We attach our individual intelligent interpretations to that which the universe is reporting to us about its past operation. Only intelligent conclusions reached from interpreting information are current. Even they pass immediately into the past.

Intelligence and information are the two absolute facts of the nature of the universe. All other facts are inferred from them. The nature of everything else that we detect as existing is communicated to us through information. We have no empirical evidence beyond that which we decode from photon information. We do not experience, know, or understand anything that is not completely the result of an intelligent conclusion as to the meaning of this information. However, the physical properties of photons make this an incredible challenge. Photons are fast and very piecemeal. They each indicate very little. Vast numbers of them are necessary for us to piece together the history of the events that sent them on their way.

Individual photons do not tell us about joy. They do not even tell us the shapes of objects. Mechanically, each photon tells us that a particle of matter changed its velocity. They each are providing us with a slight sign of a meaning. Yet the multitudes of photons collectively portray the fullness of the universe. We identify patterns in their collective signs. The patterns are perceived in the effects of the relentlessly bombarding photons. The bombardment is always rapidly varying. It is also extremely voluminous and complex. These signs signify the internal knowledge we need to refer to for meaning. The patterns are seen only because we discern them. We pick them out, because we innately know they must be there.

Photon effects are very short in duration. We very quickly approximate, anticipate and choose their most likely meanings from our innate store of universal understanding. The method by which we interpret information is to match the patterns, we discern, to contents of our internal genetic store of knowledge of patterns and meanings. We search through pre-existent patterns within our subconscious store of knowledge that appear to relate closely to the patterns sorted out from the photon storm.

Physically we are insignificant parts of the universe. Intellectually, we have incredible understanding given us by our DNA. However, we do not each contain all knowledge. This innate store of knowledge is not the same for each of us. It is individually incomplete. We are not each capable of understanding all matters. However, collectively we have all that is possible to know. The incoming information consists only of signs for which we must already know possible meanings. We filter the signs for possible patterns and interpret them by subconsciously searching for possible signified meanings contained within our intelligence. We

intelligently form the meanings into complex interpretations. All learning results from meanings that are already stored within us.

We determine and then match the best-suited meaning for each photon generated pattern. Best-suited is determined by our individual share of intelligence within our subconscious minds. The most likely meaning is made a conscious thought. The mind tries to be accurate. However, its ability to find meaning is limited by its incomplete knowledge and the requirement that specific information must be sorted out of a great deal of general, even incomprehensible, information. This incompleteness exists both in our store of innate knowledge and in the information we receive. We have a limited physical capacity for stored knowledge, and photons deliver mixed tiny signs or, as I refer to them in general, pieces of information.

The incompleteness and lack of continuity in received information causes us to rely on some degree of guessing to reach our conclusions. Very often the degree of guessing is so minor as to seem non-existent. There are many things we see correctly. However, even in a relatively easy interpretation of information, the necessity for an element of guessing is sometimes made obvious, such as in optical illusions. In some of these cases our mind decides we are seeing something we definitely are not seeing. For example, moving pictures are an optical illusion. Even at the highest level of intelligence, and knowing the answer is wrong, our minds continue to repeatedly deliver the same erroneous best guess that motion is occurring.

This interpretive process, both when it works well and when it does not, is the essence of our awareness. From our individual beginnings, we have the potential to do this. It is potential because it must be brought forward by us before we even know it is there. Our innate knowledge remains unnoticed by until we, subconsciously, receive information that draws it out. It is analogous to a process of remembering. It is like having our memories jogged. The patterns in information remind us what meanings we have in our store of knowledge.

The imperfections of the interpretive process leave it vulnerable to error. It can result in incorrect interpretations. However, it is the source of all knowledge right or wrong. It yields fundamental truths and also allows for imagined possibilities that may be falsehoods. The interpretive process is the source of all of our imaginings.

The true fundamental properties of the universe produce life and intelligence. This fact makes clear there is a serious problem with the mechanical interpretation. Mechanics shows no potential for producing and explaining intelligent life. Life and intelligence are not predicted by physics theory. What this tells us is theoretical physics does not describe the fundamental properties of the universe. Physicists have incorrectly interpreted the causes of the operation of the universe.

If life and intelligence are to be made predictable then the analysis of the nature of the universe must include their natural fundamental properties. These fundamental properties evolved, along with the universe, into higher and higher levels of complexity. These true properties are real and far more powerful than theoretical mechanical properties. They are not just mechanically useful, they are also intellectually useful.

The intelligent interpretation of information on the highest level is obvious to us. It is readily identified as evidence of intelligence. We search for its cause. We trace its properties, in so far as we understand them, down the scale through simpler and simpler levels. We reach levels where our limited understanding of the properties of intelligence can no longer guide us. At these levels we can fail to recognize evidence of intelligence. At the lowest level, the interpretive

process can appear to be a mechanical process. This is only because we have been educated by physicists to think mechanically.

The method by which physicists interpret information about the universe is to look for patterns in empirical evidence. They limit their search to patterns in changes of velocity. Patterns in changes of velocity lend themselves very well to mechanical analysis. Theoretical interpretation of this evidence leads to inanimate mechanical conclusions about the fundamental nature of the universe. The mechanical solution for the cause of changes of velocity is usually named *force*. In physics theory mechanics, forces are the causes and changes of velocity are the effects.

When theoretical physicists look at the lowest levels, they imagine non-intelligent mechanical processes are the essence of the operation of the universe. Their approach towards understanding the universe is to build up complexity based upon the simplest elements as they see them. They see these elements as having mechanical natures. This approach leads to attempts to define the rest of the universe based upon mechanics. Mechanics cannot rise above itself. It is the bottom level of understanding the universe.

Physics theory defines our universe as being composed of mechanical materials having magical powers. The powers are unexplained universal gifts. The universe bestows them for no intelligent reason and from no intelligent source. It is hypothesized that life and intelligence arise from this dumb inanimate base. Inanimate begets animate and dumbness begets intelligence.

No one knows what the nature of life and intelligence is. While there are scientists and others who believe they can imagine that mechanical parts can be assembled into life and intelligence, they have no scientific explanation for it. Presently, an association between mechanics, life and intelligence is simply assumed. No one can show how mechanics produces life. Mechanics does not deserve this credit without demonstrating direct causation.

Mechanics cannot earn legitimacy through presumed association with life and intelligence. Fundamental unity requires all fundamental properties share a demonstrated common nature. We should not be searching for a mechanical realm of existence. We should not even be searching for two realms of existence, one intelligent and the other mechanical. There has been only one realm from the beginning. It causes changes of velocity, life and intelligence. Its nature includes fundamentals that pertain to all three of these.

Among these fundamental properties we should find evidence of intelligence. It must exist even at low levels of complexity. The intelligence used at lower levels of complexity may appear to be so indiscernible as to seem deniable. The basis for this denial is a learned mechanical bias. However, this bias should be judged by how well it serves us. Mechanical bias does not help us explain that the source of intelligence is a part of the fundamental properties of the universe. It does not help us to see the fullness of the evolution of the universe as its parts combine into increased complexity with life and intelligence as its goal.

Mechanics can build complexity of structure, but it cannot bring these structures to life and cause them to think. Yet there are many structures that live and do think. We know some of these structures as ourselves. We are not robots. We are not super computers. Neither of these mechanical inventions can demonstrate any acquirement of life and intelligence. They are the products of our best efforts; however, they neither live nor think.

The universe has done that which we cannot do. It is the case that we cannot add anything new to the universe. Everything we do is the result of properties loaned to us by the universe. All we

are and do result from the nature of the universe existing long before ourselves. It is true that we are newer than are our properties. Our properties come from a source that is not us. These properties are given, on loan, to us by the universe. Even in their simpler states they were never mechanical in the sense defined by theoretical physics. Their beginning states were not as complex, but their potential was always available in its full complexity.

The effects of the universe are not metaphysical. Life and intelligence are two of these effects. The information we receive and interpret is not metaphysical. An intelligent interpretation of the universe is not metaphysical. An intelligent interpretation of properties of the universe is founded upon the existence of intelligence and its properties. It is empirically clear the universe has a fundamental nature that knows the basics and means for intelligent life. Life is the most important example of universal order. Life results from the original cause for order in the universe, as did everything. If we wish to understand the universe, we must find its cause of intelligence.

We are the most important part of the order and nature of the universe. That is why we are here to make sense of it. That is why it makes sense to us. We make sense of everything the universe has become through our observation of effects. However, beyond our personal interpretation of these effects we *know* nothing. We know of no empirical evidence for the nature or substance of the primary cause of the origin of the universe. We can expect to never know by scientific means the nature of the primary cause, but we can confirm its existence by achieving unity, beginning at the fundamental level, in our analysis of its effects. When we achieve unity, there will be a need for only one mysterious, metaphysical, cause for everything.

The primary cause must have effects that are orderly and continuous. It is required that the evolution of the universe, life and intelligence be orderly and continuous. It is required there always be complete universal continuity both in the structure and operation of the universe. There must be continuity so the process of producing life and intelligence may be orderly and definable without discontinuities. Discontinuities are things that make their appearances in the theoretical miracles commonly known as *givens* and *emergent* properties.

If the original effects of the original cause were known, all complexities of effects would be recognized as following fully from them. It would be possible to unite changes of velocity, life and intelligence as sharing their properties in common. As we learn the fullness of the formation of the universe we would also be learning about ourselves. We share natures. We share common meanings with the universe. We are a key part of the evidence for unity in the universe.

The meanings we share are those that have always been a part of the evolution of the universe. For new patterns and arrangements of particles to add meaning, meaning must already belong to those arrangements, the meaning having been set before the arrangements take place. That meaning is predetermined by the fundamental properties of life and intelligence. The design for life and intelligence arrives piecemeal with the particles and becomes more and more complete as the particles join together to provide more and more complex properties. The new union of particles reveals the new meaning.

The meaning is not new to the universe. It is not new to the particles or their properties of life and intelligence. The meaning is as old as the beginning of life. It is as old as the particles that form it. It is as old as the beginning of everything. It is meaning that came to the fore and advanced the development of life. It is meaning that became a part of instinct and awareness. Meaning and awareness are products of the same fundamental universal nature.

This process produced the DNA molecule. So, the DNA molecule is formed from a much more mysterious and precious *matter* than that which is defined by physics theory. The particles forming all atoms are common particles of matter that extend throughout the universe. The atoms of DNA are an orderly process, in principle a predictable consequence, of the operation of the universe.

For those who seek to find fundamental unity, life must be analyzed as a predictable consequence of particulate matter. All the wonderful, amazing properties of DNA would be analyzed as the predictable consequence of atoms. The particles would be representative of the fundamental life producing properties of the universe. Life would have a prescribed path to follow in its development from the origin of the universe.

If life had a prescribed path to follow, then the DNA molecule must also have had a prescribed path to follow. Where is the order and meaning in a slow, chance directed, self-assembly of DNA? How could chance assembly of the DNA molecule accomplish the evolution of life? Chance does not follow a prescribed path. Fundamental order is synonymous with a prescribed path. Meaning depends upon order. All properties of the universe follow an orderly path of development. We were the orderly goal of fundamental properties from the beginning, and we are not here by happenstance.

The universe must have followed a prescribed path for evolution. The orderly evolution of the universe was the means for the orderly evolution of life. This concept of evolution is not the one put forward by evolutionists. Life is the greatest effect for which the universe is the cause. The evolution of life also followed along within this prescribed path. The natural process of evolution of the universe is the same process for the evolution of life. That is why the universe evolved the conditions necessary for life to evolve. The universe did not evolve by chance. It followed laws and principles. Life did the same.

The universe prepared the way and provided the means for life. Something amazing happened here on earth. Insignificant parts of the universe rose up from the earth and became us. The earth was provided as a suitable means by which life could pursue its goal. The earth is not a meaningless event. It is not a meaningless mechanical object. It provides the very complex environment suitable for the orderly evolution of life.

What is to be made of the popular interpretation of evolution? It is a theory embracing the mechanical matter defined by theoretical physics. It is a theory of happenstance. Mechanical happenstance is presented as the means to produce living order. If happenstance does play a role, then it was somehow used for the purpose of achieving order. This means there may be a way in which chance can serve an orderly process. It could only have been in a subservient role. Meaningful results come from the inherent order of fundamental unity. A major role for chance is not consistent with the unveiling of universal order.

The introduction of natural selection does not overcome the inadequacy of chance for constructing life. Natural selection does not produce nor guide the development of life. Natural selection is an after-effect. It selectively destroys design that has previously occurred by means unrelated to natural selection. There is nothing natural selection can do to improve the odds that a chance arrangement of a part of the DNA molecule will progress in a meaningful direction. Yet the DNA molecule did become assembled together so that it may direct the evolution of life. From the dispersed potential complexity of life there arose individualized realized complexity culminating with us.

What solution allows for both order and chance to cooperate in accomplishing the evolution of life? Here are three examples of evidence offered to support a proposed solution. The first evidence is the longevity of early single cell life. What we see in the geological record is the first single cell life forms existed on Earth for a very long time. There is a reason for everything. This expanse of time must have significant meaning. In comparison, afterwards, the complexity of life began to increase rapidly. Humans were rushed onto the scene. The ultimate accomplishment, the development of the human brain, appears to have approached completion.

The second evidence is the consistency of the DNA code. The DNA molecule retained a set code right from the beginning. The whole of the variety of life uses this standard form of DNA coding. No chance occurrence during the long chain of development made any difference at all in what code would be used.

The third evidence is the quantity of unused DNA. With our well-ordered universe operating for the purpose of producing intelligent life, we should expect coordination in the evidence. There is a surprising challenge to this expectation. The amount of DNA a life form contains does not correlate with its level of development. For example, there are algae, primitive chordates, fishes, amphibians and others that have more DNA than does a human. A salamander has 32 times as much DNA. Is the salamander more complex than are we? Of course it is not. Is the extra DNA meaningless junk? Based upon the proposition of the simultaneous evolution of DNA and life, this does not appear orderly.

If the DNA molecule evolved along with the complexity of life, then why doesn't the amount of DNA correlate at least closely with the complexity of the life it generates? There is an amoeba with 200 times the DNA of humans. What could possibly be the use of that much DNA for its host life form? If it is mostly unused DNA, then how did the functional parts become properly selectable from all the rest of it? Since DNA inherently carries the power to produce intelligent life, then why is there so much unused DNA?

All information must be understood before being recognized for a purpose, even if the purpose is to be ignored. The unused DNA is disregarded, because, it is recognized as not representing a valid part of the specific intended design. It is purposely ignored, because its meaning is excluded from the specifically intended design plan. Since the life form makes an intelligent decision to not use portions of DNA, then a plan is being followed even in the act of ignoring it. Why then is there unused DNA? If its meaning is not applicable to its host life form, then what can its meaning be?

*[The following conjecture might understandably be disregarded by the reader. Those who are properly educated in this field may already know enough to dismiss it. However, the question of how life was caused to evolve in a meaningful manner remains unanswered. This conjecture includes a thought that prompted me to begin, years ago, the endeavor represented by this website. I intended to pursue it. However, I soon became convinced that such arguments about life and intelligence hinged on first giving sufficient cause for science to relieve itself of carrying the burden of the mechanical ideas of theoretical physics. That was the purpose for first taking the time to develop a new general theory of physics. I do feel certain that all such mechanical theories must be placed off to the side for only occasional reference while the nature of the universe is analyzed from a far fuller perspective. My efforts to try to make this case have consumed my time for years. I cannot yet offer any further support for my thoughts about the origin of the DNA molecule. I leave it in for the record.]*

We do not know the DNA molecule evolved alongside of life. We do not know the coming together of the DNA molecule and the evolution of life was coordinated in time. I think the evidence points to a different possibility. The evidence suggests to me that there was one general form of original DNA molecule, and it was complete before the evolution of life began. The evolution of life occurred after the full evolution of the DNA molecule.

All current DNA molecules are descendants of the original complete DNA molecule. The first single cell life form existed on the Earth for a very long time. The purpose of the first cells was to provide a haven for the assembling of the complete DNA molecule. It was during this vast time of delay the first DNA molecule was forming. It probably was occurring simultaneously in multitudes of single cells. The specifics of the arrangements can vary. However, each successfully completed specimen would have had all possible variations of code contained within it. This is the primary requirement necessary for the prescribed use of the molecule.

In so far as the DNA molecule is concerned, evolution occurred in reverse. It was completed before life evolved. Since that time, it has been subjected to the degrading effects of the environment. Its numbers have been great enough to overcome the chances of destruction. Yet there has been degradation. Life has been advancing while the DNA molecule has been degrading. While life was evolving into more complexity, the DNA molecule has been coming apart and disappearing. What we observe today are incomplete versions. However, these versions are still very significant parts of the original as is demonstrated by both the success of life and the large amounts of unused DNA.

The most intriguing consequence of this possibility is some, most or maybe all DNA for the diversity of life is still available to us. What the active parts do not contain is locked up in the unused DNA. I am certain that a significant part of what seems to be unused DNA is needed for today's development of life. However, I also think that most of the unused DNA belongs to other life forms, even long past ones. We have important parts of the chain of life still with us today. If they could be put together in proper arrangements and activated, maybe some extinct life forms, such as dinosaurs, could be regenerated by turning on the unused DNA. I suggest checking out the salamander, because it is a DNA rich reptile. Its DNA must represent a significant part of the evolution of life well beyond itself. The unified cause for the design of life extends through all forms of life and links them together.

The unified cause of the universe is the unified cause of life. The universe is continuous in its properties, operation and evolution. If the universe is continuous, then why does there seem to be so much discontinuity? Aren't objects separate and individual? Don't properties vary greatly? Don't effects vary widely? Isn't matter unique from light? Do not some few objects have life while the immense numbers of others do not? Isn't this division between life and non-life evidence of a clear distinct discontinuity in the structure of the universe? Isn't the universe parsed into tiny bits and pieces of this and that? We certainly seem to be individuals and the universe has produced us. Isn't separateness required as an important part of the nature of the universe?

Our Intelligence based perspective and physical reality are not necessarily in agreement. There is physical reason for continuity, but intelligent reason for separateness. Separateness and discontinuity are not the nature of the physical universe. The nature is variation and not separation. There are variations in gravity but not separation. There is variation in electric force but not separation. There is no effect that does not leave its mark on the rest of the universe. All empirical evidence results from a single general form of variation.

Variation in the form of change of velocity is the only mechanical reality we experience directly. This variation is not the result of physical separateness. Velocity exhibits variation while remaining wholly continuous in its effects. When an electron interacts with a proton the interaction is continuous. Even the exchange of photons between them does not demonstrate a particulate nature for light. Our treatment of photon action, as having a particulate nature, is an approximation. It is our minds use of approximation that gives the illusion of separateness.

The photons are continuously interacting with both the electron and proton. It is only the intensity of interaction that varies. The intensity varies with distance from each particle. It is primarily a function of a particle's properties. The strength of the photon does affect the strength of the interaction as a whole, but the interaction varies most significantly with distance. In any case, the interaction is continuous. It is important to recognize this because the interaction is the effect. We only know about effects. If effects are continuous then our interpretation of the operation of the universe must be continuous.

The alternative view is untenable. If particles are truly individual, then there is a severe physical challenge to overcome. Particles are known only through their effects. Considering the electron, there appears to be no substance other than its effects originating from a point and extending themselves without limit. When electrons are interacting with one another, we are forced to conclude that individual electrons, extending for an infinite distance, are passing through all others. They each fill the universe and move like phantasms through all the rest. So, for one reason they greatly affect one another and yet for another reason they are not affected at all. They tell each other how to move, but they are free to move through each other.

Consider all the particles of the universe. They are continuously interacting with one another. Their interpretation as being individuals is only a useful theoretical artifact. In reality, they are not separate individuals. They are unified variations of general properties. For example, gravity is never seen in nature as a property of one particle. It is a property that occupies the entire universe. The particles are noticed to exist by the degree of significance of their local variation of intensity in the gravitational field. The gravitational properties of particles of matter are variations, like peaks or valleys, of one pervasive continuous universal property.

Even though it is important for us to be able to comprehend the entire universe, it is not important that we be able to do this directly through our senses. Gravity fills the whole universe, but we do not sense its presence. It is completely transparent. We purposefully disregard much information. We do this based upon its insignificance to us. The information delivered by photons is often deemed to be insignificant in number or intensity and its lack of clear relevance to the goal our minds seek at that particular time.

Our mind makes a quick assessment of general patterns in the data. It uses this general information to set a goal on what it thinks is being experienced and what it anticipates is important to know. It limits its recognition of information to those types deemed to have importance and relevance. It quickly selects general patterns in the data to be used for a preliminary evaluation. It then includes more data it determines may also be relevant. It matches the patterns in the data to more specific patterns in our subconscious. The subconscious patterns will relate to the universe as we are prescribed to understand it.

In addition to containing meanings, our subconscious contains the idea of continuity. This is evidence of our intelligence having been programmed by a cause existing prior to our individual formation. We never experience continuity in data and yet the universe has endowed us with the idea of continuity. Our intelligence makes very important but limited use of the concept of

continuity. We do not see objects in their fullness as defined by their properties. We view the universe by placing limits on what information we will use. We have an innate, intelligent talent for overlaying separateness onto the data. We approximate the structure of the universe. That is why objects look both finite and solid to us.

It is interesting to note that the universe is continuous. We impose discontinuity onto our image of it by truncating data and even ignoring some of it. Then we selectively impose some continuity back onto the data. This new continuity is not a re-imposition of universal continuity. We use continuity as a tool to picture the universe according to our needs. Objects, as exhibited by their effects, are infinite in size. However, we place limits on object size and then impose continuity onto the object so that we can imagine it is solid.

It is necessary for us to see events from an approximate viewpoint. We cannot contain or know the exact detail of action in the universe. We analyze events in a step-by-step fashion. We cannot know and do not have to know all information about all events or even about each single event. So, it is convenient for us to analyze particles as if they have their own isolated effects. This limitation is what introduces separateness into our perspective of the universe.

This process can work very efficiently and accurately. However, it is vulnerable to error. If a significant variation in the pattern occurs with sufficiently short duration that its data is either missing or determined to be insignificant, it will not be considered a part of the pattern. If it is not included in the pattern, then we interpret the pattern as being smoothly continuous when it really is not smooth. In this case we falsely interpret the evidence. We have reached an approximate meaning that is not correct. However, it is usually more useful to us than would be the absolutely correct one.

We need to see objects as well-defined individuals. We can better appreciate some variations and diversity in the universe by disregarding other variations and diversity. The largest amount of diversity disregarded is represented by almost all of the electromagnetic spectrum. Only a very small amount is visible to us. We receive information from all of it, because it is continuous. We disregard this natural continuity and create a very limited effect called visible light. The lost information may be of interest to scientists, but it is not important to most individuals. In general, life needs to see the universe in a useable, practical sense.

We have physical effects, however insignificant, that connect us all together, but we are most significant as remarkable variations in the operation of the universe. It is useful that we appear to be completely separate individuals. Separateness is a product of intelligence. We make the universe appear in the manner best suited for understanding by intelligent life. The universe does not look the same to us as it does to the individual particles of matter. Different perspectives are a part of the diversity of the universe. In a universe that knows how to use intelligence, it is reasonable to expect that intelligence knows how to use the universe.

This universe of life and intelligence functions because of diversity. There is variety spread throughout the universe by the differences in variations of fundamental properties. If this were not so, there would not be sources of information by which the universe knows how to operate. The diversity of the universe is the source of the information that constantly bombards everything. Objects send and receive information. The behavior of objects is determined by information supplied by other objects. The spread of information is the fuel that powers the universe. It is certainly the fuel that powers life.

The evolution of life gives the impression of discontinuity. There is great diversity in life. There are a great number of levels of quality of life. The possibilities for uniqueness are vast. No two identical, complex objects participated in the development of life and intelligence. There was not an absolute pattern of assembly to be followed for producing life. The set plan for life and intelligence was implemented and succeeded through the use of an inexact method of development. The importance of this is to recognize the universe approximates the forms life will use.

Each living thing is similar to many others and yet is unique from all others. We are unique from other human beings. We have our own thoughts and feelings. We have these at different times. Uniqueness is the most productive property of the universe. Yet we are able to successfully communicate with others. We use communicative tools and processes that are shared among us. This result can only happen as a result of a common origin. Also, throughout our development, chance changes in this process were not permitted. The process is locked into our DNA so that we may continue to succeed as intelligent life.

The universe contains the means by which this achievement was accomplished. It has distributed a great deal of commonality to each of us. We all interpret the same type of information. Our interpretations are very much in harmony. We see much that is very similar. We think much that is very similar. Sometimes we have nearly the same thoughts at nearly the same time. These similarities in human understanding point to a common cause, a cause old enough to have been inserted into the meanings of the DNA molecule that has produced all of us. Our intelligence was prescribed before we evolved.

Intelligence must be universal in order for universal communication to function. For any part of the universe to be able to successfully communicate its information to us, we must already have the appropriate intelligence necessary to interpret its meaning. Our particles of matter are the same particles of matter that form the rest of the universe. They are, therefore, certainly capable of determining the meaning of the information sent by other particles.

How is intelligence integrated into the universe? How can intelligence be integrated with mechanics? This second question is actually posed in reverse. It should be asked: How can mechanics be integrated with intelligence? It is intelligence and information that we experience. Intelligence is empirical. Materialism is theoretical. All that is known firsthand is there are centers of intelligence that interpret information originating from other centers of intelligence. Mechanics is contained within intelligence.

The material mechanics of theoretical physics should be replaced by the informative and intelligent interpretation of causes and effects. One particle changes its velocity and sends out information telling other objects of the change. At some later time the information approaches near enough to other matter for its meaning to become significant. The receiving matter understands the meaning of the information and changes its own velocity according to established universal rules of order. In other words, it responds in accordance with the universal rules of meanings. We can anticipate that the rules of meanings are logical. More than just applying the rules of mathematics, we should apply the full rules of logic to our analysis of the operation of the universe.

Information is shared, in a manner analogous to mechanical interpretations of shared force, among particles of matter. A particle of matter interprets information and reacts to it. Does this mean the receiving matter is free to decide against obeying the rules of operation of the

universe? Of course it is not. This is not a level where we can begin to define freewill. At this level, the required obedience to the laws of the universe is clear.

The claim that unintelligent matter must obey mechanical laws is not intellectually superior to the claim that material with simple, obedient awareness must obey the laws of operation of the universe. We know they must; that is how we know there are rules. However, at this very basic level, we need to re-evaluate the behavior of matter from the perspective of elementary intelligence and information. When information replaces force, then fact replaces idea.

Replacing the idea of mechanical force with the intelligent use of information loses nothing of universal importance and regains the wonders that have been artificially excluded. We can then examine fundamental intelligence instead of electromagnetic style mechanics. Is intelligence a local, individual and rare event? Intelligence did not originate late in the evolution of the universe. We can try to establish that intelligence exists beyond the confines of complex forms of life. It is temporarily shared with complex life by the universe. The universe gives it and takes it away, but the universe always has it.

During the evolution of the universe the nature of intelligence has not varied. Our intelligences are of the same source and nature. Intelligence has not wandered from that which was always intended by the universe. That is why life was capable of understanding what was needed for survival at all levels of evolution. The passage of eons of time has not changed the relationship between information and intelligence. The universe sends us information that we understand, whether about today or from billions of years ago.

The properties of intelligence are those that have always occupied the universe. This continuity of the nature of information and our ability to interpret it means: We evolved in the manner necessary for us to have universally competent intelligence. We are the most important part of the universe. We are not examining it from an outside perspective. We are the most complex means by which the universe comprehends itself.

What is the nature of that which we comprehend? Is it physical or not? On the very first level of analysis, whether it consists of universal intelligent ideas or mechanical physical properties, we cannot know the difference. There is, by virtue of our experiencing only information, no way to differentiate between them. Either way one prefers to interpret existence is useful. But the real challenge has not yet been met. We can advance further only by showing how to unify mechanics with life and intelligence.

There are two truly fundamental properties which do not seem to be dependent upon intelligence. What is to be said about the natures of space and time? Time is a part of ideas passing. If intelligence is the flow of ideas, then time is a property of intelligence. What about space? How can such an enormous expanse that contains all else be fundamentally the product of thought? The answer is that it is not just a human idea produced by the human imagination. It is an idea dictated by the intelligence of the universe.

The idea of space is related to the idea of distance. It is the case that the idea of distance does not itself require distance. The idea of space does not require space. The universe could be formed completely as the product of intelligence, and we would not know the difference. Neither information nor intelligence requires space, yet space very much requires them. If the intelligence of the universe gives us space free information that nevertheless informs us that space exists, then, for us, it must exist.

We define existence from that which empirical information tells us. The information is delivered to us by the universe. Empirical information is the catalyst necessary for raising our innate understanding of the nature of the universe to the conscious level. We cannot vary from the nature of the universe in the form that it is revealed to us.

My theory helps lead toward the new understanding of the nature of the universe. It does this first by mechanically defining all of universal properties as being properties of light. It prepares the way for not believing in theoretical constructs such as electric charge. It reduces the mechanical wall of theoretical physics that has been obstructing our view of the real universe to just one primary mechanical cause. By itself its accomplishments remain completely mechanical. This means if we do not move beyond it, then we remain very far from understanding the nature of the universe.

We need to move away from even this new mechanical interpretation to the real cause of life and intelligence. This step begins the move toward analyzing universal intelligence. One way to approach this change is to replace the word *light* with the word *illumination*. Illumination is not limited to a very small portion of the electromagnetic spectrum or even to the whole spectrum. The full meaning of the word illumination can help direct us away from the idea of trying to find the essence of life in mechanical properties.

In order to illuminate the nature of the universe in its fullest sense, we must use the word 'illumination' in its fullest sense. It refers to awareness. We are aware of the universe and its operation. Awareness involves knowing, understanding and informed consciousness. This includes knowledge, understanding, happiness, love and all events that occur in the universe. Awareness has been a part of the universe from its beginning. We are the individual fulfillment of the original, primary intelligence.

In the beginning awareness was divided up and spread in pieces around the universe. At this low level of complexity, it showed itself most clearly in the fundamental properties of particles. It was active through the process of action and reaction. As the level of complexity increased, awareness began to lose its simplicity and evolved toward its fulfillment. In the beginning, awareness was realized by the fullness of the universe. Today it has become realized in the fulfillment of the individual. Together, the fullness of the universe and the fullness of the individual form the fullness of meaning.

The universe can now be understood in its fullness. The intelligence of the universe has been directed from the beginning toward full individual realization through human life. We are the most individual creation of the universe. We are the means through which the true nature of the universe is to become fully realized. We carry this understanding within ourselves. We can draw forth the natural understanding of the nature of the universe.