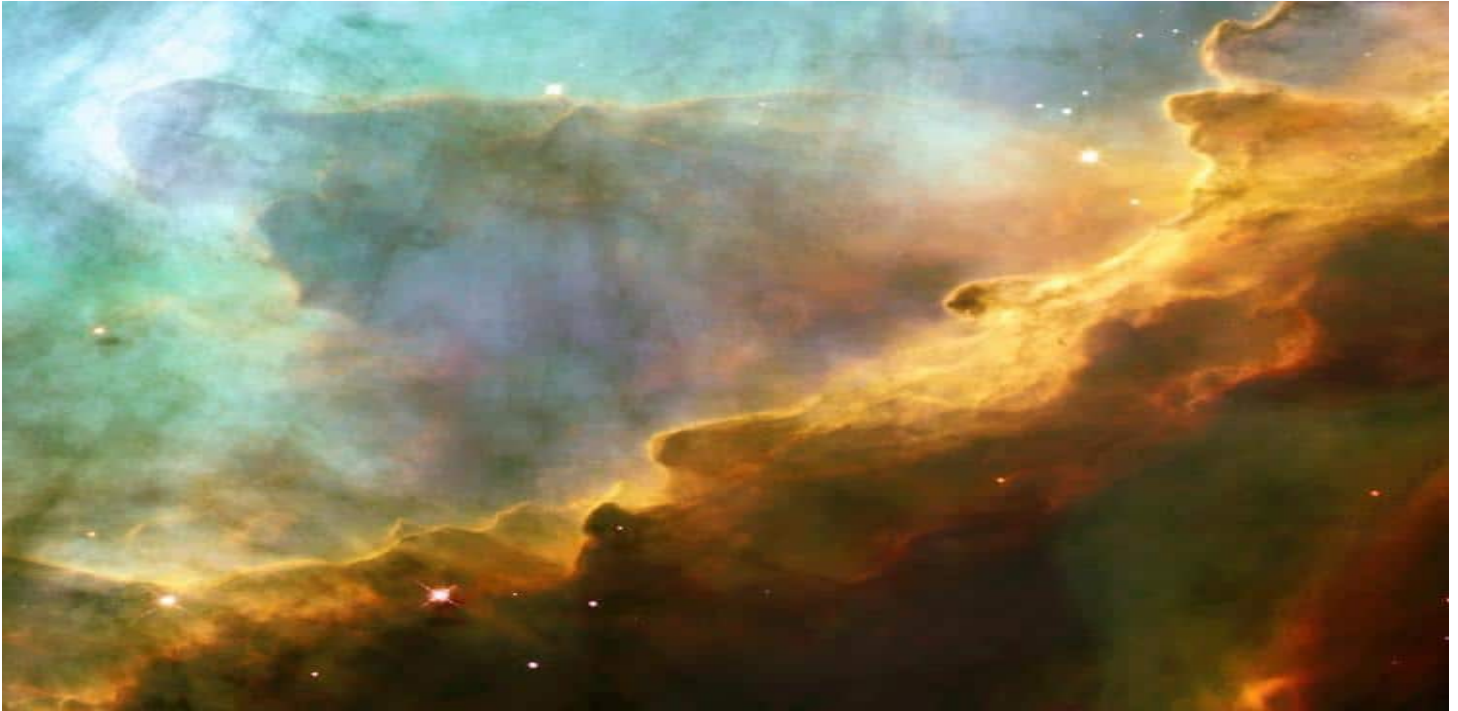


*Separate wanderers,
our errant courses have converged
and the usherings of cosmic ken
now lure us down some strange and newer paths.*

4,682 words

What is Life and Death? A New Outlook and Synthesis of Interdisciplinary Sciences

– Wallace Sife, Ph.D.



This treatise offers a new and different viewpoint on life and death. It employs a step-by-step synthesis of interdisciplinary sciences, which may take some outside their comfort zones. We all have unconscious schema of preexisting beliefs or prejudices, and too often reflexively reject any ideas that contradict them. However, reading this may change your mindset.

Back in 1675 Sir Isaac Newton said, “If I have seen further, it is by standing on the shoulders of giants”. Now we have so many more ideas and discoveries to learn from than he did. This treatise offers a step-by-step synthesis of all modern sciences, in putting together a radical new analysis of what life and death are. But there are many who deny or scoff at facts that challenge or do not comfortably fit into their mental frameworks. The educated person who finds hubris from his own mind-set is like a prisoner who is pleased with his large cell.

In today’s amazing world of constant discoveries, many still wear blinders. We need to

***Relax our mind's restrictions and see things with new eyes;
let go the trained dimensions and syllogistic ties.
– A legitimate conviction too often may well be
a limited perspective that reality belies.***

★

Everything started with a singularity – a one-dimensional point in which everything is compressed into an infinitely small space. Here density and gravity also become infinite and do not exist. Singularities are unstable, and it is estimated that ours lasted only 10^{-33} seconds before what we now call the Big Bang exploded with unimaginable heat and acceleration. This is how our galaxy was created.

Now we are here on our own insular little Earth. But this is after about 13.7 billion years of fantastic cosmic expansion, constant stellar births and violently explosive deaths. These gradually forged and blast elements, particles and enigmatic matter and energies, everywhere. Some theorists profess that there is also a class of black hole that collapses into singularities which then become alternate and parallel universes.

In our reality *everything* that eventually developed was created by our own evolving cosmos. In all probability, we are not the only advanced life form that resulted from all this. Now, with our ever-growing and improving sciences and technologies, instruments are being designed to detect signs of extraterrestrial life.

On our own tiny planet we know that the life force is so phenomenally fecund and ubiquitous it evolves in amazing ways and places. It is estimated that there are over a trillion forms of life here – many of which are far beyond what we could have imagined. This consists of all living things from microorganisms to the largest of animals. Despite their differences, we are all creatures of this universe, together. Everything derived from that germinal first instant.

Astrophysicists have recently estimated that there are two trillion galaxies – and they are still calculating! Gradually, all of them exploded, creating new stars, black holes and galaxies, while disbursing the increasingly complex atoms and combinations that eventually produced our nascent planet. Everything surrounding us – and we ourselves – are literally made from random-scattered stardust and energies.

At first, the Big Bang created energies – some of which later transformed to subatomic particles. And then hydrogen was forged. Gradually but inexorably, heavier elements were created by nuclear fusion within stars and their supernovae. And in time each of them exploded, disbursing all their evolving matter in an ongoing chain of cosmic detonations. This is still happening

Until only recently, astronomers thought that the universe was composed almost entirely of ordinary atoms and compounds that we all know and can detect. That is called *baryonic matter*. But lately, we have been finding a great deal of indirect evidence that reveals there is so much more that we can not see.

We have now determined that all the observable stars, planets and galaxies that exist make up approximately a tiny 4% of the universe. The remaining 96% is composed of things cosmologists can not directly detect, or in many instances are unable to explain. These mysterious and invisible entities are called *dark matter* and *dark energies*. They can not be seen, and are only observed indirectly. But we are certain that they are everywhere around us.

In the 1930s astronomers first hypothesized dark matter. Later, it was confirmed indirectly, because of its dominant gravitational effects on all visible heavenly bodies. Our interpretations had to change. We were also beginning to grasp and see evidence of another dark cosmic entity that was not detected.

At that time it was believed that the entire universe was being pulled inward by the vast combined mass gravity at its center. Theory told us it all was slowly collapsing. Actually, that had briefly been what was happening. But in 1998 we discovered that for the past 5-6 billion years (less than half of the age of the universe) this newly discovered dark force had somehow stopped and reversed things. Ever since then it had been hurling everything outward, at ever-accelerating speeds. That inflationary energy is one of many exotic newly discovered ones we can only indirectly detect, but not measure. As our sciences develop we are beginning to realize that our cosmos is saturated with several kinds of enigmatic energies and matter that are beyond our direct perception. There is such a proliferation of new data concerning this that physicists are creating new terms and concepts. For example, they now theorize that dark matter is generated by particles from *hidden sectors* that are thought to exist outside of the *visible sector*.

Because of such unimaginable and newly discovered reality all around us, this is a very exciting age of discovery. We now know that more than 95% of the energy in the universe is in forms that have never been directly observed or detected. Scientists are beginning to envision and propose radical theories and perspectives that were never possible before. This discourse is a product of that kind of outgrowth. It shows a completely new way of connecting the dots to see the larger picture. Enlightenment requires an open-minded willingness to accept new juxtapositions of insight. We must be open to thinking “outside the box” of our old ways of reasoning.

Everything is slowly but inevitably changing. In addition to our physical bodies, our brains and minds are also evolving and expanding with scientific knowledge that we have gleaned and developed only relatively recently. In cosmic time we have only just emerged from our savannahs, forests and caves, and now we are questioning who and what we are. Our natural human inquisitiveness is being even more stimulated and extended by ever-improving means of research and communication. Change and evolution is in everything, including our technologies and ways

of thinking.

That is resulting in an ongoing discovery of new information about ourselves and our relationship with the cosmos that created us. Ideas and perceptions are developing so fast that it can be said that man has indeed, just created a new epoch – the information age. In our search for better comprehension of the workings of our universe we only recently realized that matter can be converted to energy. We have also learned that the reverse is also true: energy can be converted into matter.

Since man first started leaving records of his thoughts we see that one of our greatest intellectual challenges has been to try to comprehend what life and existence is. That is the crux of this study. But here, we are using only science as a means to find a different perspective – its essence. This brief discourse will not consider historical studies or theologies. Rather than utilizing established philosophical, religious or mystical points of view, we will examine only what modern science, discovery and logic are now showing us about that. This is a completely new and different way of looking at the meaning of life and death. Introducing these ideas is a challenge to our old ways of thinking. So much fresh information and data are coming in at such prodigious rates that must flex with the new outlooks and concepts they can generate.

One of the fundamental laws of physics is the conservation of matter and energy: $E=mc^2$. This equation posits that they can transition from one form to the other. It also shows that neither of these can be created or destroyed. We also know there is a multitude of enigmatic dark energies surrounding us, everywhere.

To add to these wonders, we are now observing that new “spontaneous matter” is being created – as if out of nothing. But that is an illusion and can’t happen. Since energy and matter are expressions of each other, one of those many undetectable dark energies somehow must be transformed into that new matter. This is the only way it can happen. There is no such thing as empty space, anywhere, despite what we previously intuited. Modern cosmology teaches us there can be no such thing as nothingness. That concept is an anathema to science.

However, there is one phenomenon that has perplexed us for the longest time. This is the life force or energy, which is something that we can clearly perceive on one level, but are unable to measure or objectively examine. Since this is part of the cosmos, it had to be created with all its other unimaginable energies and creations.

After endless cosmic random hits and misses, newer molecules have been continuously forming. Nucleic acids, carbohydrates, proteins and lipids generate and combine, allowing for the creation of many kinds of compounds that support the mysterious energy that is life, as we know it. They help propagate the most elemental forms, and then evolution takes over. All life requires a favorable substance to be in. When its corpus is destroyed or somehow can no longer sustain it, that special cosmic energy mysteriously disappears from detection. That is what death is.

Because of so much long-established opinion and very strong bias, we will examine this further – but from an exacting scientific perspective, using different examples and analogies. There are some people who prefer to believe that life is simply an evolved expression of biological derivation, and nothing else. But that skirts the issue, and can’t account for life’s capacity for sentience and all its other amazing qualities. They also want to believe that death is the total annihilation of each individual. As already indicated, contemporary cosmology and physics invalidate any concept of nothingness. Arguments against this are based solely on gut feelings and emotion. It is based in existential dread – not logic. Nihilism and its related philosophies are impassioned clever artifices and conceits of the mind. They are an anathema to science – offering a self-refuting concept – a fallacy. Again, there can be no such thing as *nothingness*.

This is a repressed, highly charged issue that scares the hell out of most people. Because of their emotional investment and need for some semblance of stability it is understandable that these individuals have a visceral need to believe what they do, and almost nothing anyone can say can dissuade them. They have developed an *a priori* mindset, and are self-victimized by confirmation bias. That becomes a psychological problem, not a scientific one.

As part of this challenging undertaking we must include considering abstractions such as honor, morality and love. These fundamental qualities have such importance that it is not logical to just consign them as incidentals to biological life and whatever it is that we call sentience. Up until now there have been philosophical, but no scientific attempts to consider the existence of these abstractions. Here, we are presenting what science tells us.

In physics, the term *information* can be defined as that which distinguishes any one thing from another. This singular embodiment defines the identity of each separate entity, whether it is matter or energy. That is what makes information unique in the universe. Science now tells that this also can not be destroyed. (However, matter and its inherent information that is pulled into black holes may be the only exception.)

The laws of conservation of energy require that along with its unique information each life force or energy can only be transformed – somewhere to a different plane or dimension. But again, where or how that actually happens, we don't understand. From our perspective this mystifying force inexplicably leaves its host body and then becomes no longer detectable in any way to us. So after “death” what happens to it?

We must assume that this now vanished energy has shifted or transformed back somewhere, into some kind of baffling cosmic data reservoir or “memory bank”. Possibly, it shifts to one of the many additional dimensions that we theorize but can't observe. They are enigmas well beyond our direct comprehension. But fortunately, we can still contemplate the “big picture”. Some things only can be envisioned by the shadows that they cast.

From ocher hand prints on cave walls to the latest in digital technology, we are constantly inventing and discovering new ways to record data. We have absolutely no idea what advanced computer file format will be around in another 100 years. The sequencing and bar coding of DNA strands is now allowing us to predict that all the information in our world will soon be recordable in less than one Kg of DNA – about the size of an egg. And theoretical applications for quantum computers are currently being worked on. They will vastly increase our knowledge and capability for data storage.

All this must give some intuition that our ever-amazing universe must also be running some ultimate information recording system that is far beyond our limited ability to identify or understand. What data base could the cosmos have developed in 13.7 billion years of evolution?

From our perspective that would be the archetype of all databases. It would include the recording of all things that ever happened since time was created by the Big Bang. It is be the equivalent of some kind of collective intelligence or pansophy that is also beyond our comprehension. We are beginning to see that transformed life force or energy must be cached after what we call death. But how, and where?

Cosmology is now examining the possibility of alternate universes. Theoretically that can also provide an undetectable means for this data repository somewhere at the other side of the energy conversion equation. It is all so highly abstract. Our best scientific minds are theorizing, learning and discovering mind-boggling new realities within our cosmos by *thinking outside the box* and not being dismissive of what may at first seem like extravagant proposals.

Objectively, we do know that each person's essence – who and what he/she is – is different from anyone else's. And every person and sentient animal in the world is also unique. This exclusive individualism is information contained in all life energies. Call that *esse*, mind, soul, or whatever you like, but that distinction is real, and it needs to be better examined and understood. Regrettably, it has always been in our nature to contrive mythologies, theologies and rationalizations that exploit and assuage our fears and thoughts about life and death. They have controlled our thinking ever since we walked out of our caves.

So that brings us back to the fascinating question that asks what happens to the unique information embedded in each life energy when it is transformed. It is not surprising that this is equivalent to questioning if there is such a thing as a soul, and what happens to it after death. This is particularly important because that concept can now be perceived from a strictly scientific point of view – not a theological or mystical one.

Our underlying logic here is that all things eventually resulted from the singularity. And ergo, because of their common origin they are all in some way related – however enigmatic that may be. That is the basis for this concept of one-ness. It is something like pantheism without a deity. Because of that we can now take a step aside from our older thoughts about life and death, and accept that we can never be absolutely alone or isolated from our cosmic roots. The relationship exists.

It is intriguing to observe how much comfort that awareness can also offer. It provides unexpected succor and a new spiritual appreciation of universality to those who those who reject theology. Try looking up at a starry sky and not sense that you are somehow part of all that. It is awesome. It gives us a sensation from an existential perspective, without any theological context.

After death we know what happens to our bodies, which are reduced back to measurable atoms and basic compounds. And now we understand that our energy and identity components must do the same, but in a much more enigmatic way. To reiterate, neither matter nor energy can vanish. Life eventually transforms (or recycles) back to its universal source.

Everything is circumscribed by one vast cosmic genealogy and law.

There are some other things related to life and sentience that need to be considered, here. We must also wonder about altruism, heroism and honor, and why anyone would be willing to self-terminate for someone else or some special cause. Why do we risk our precious lives? We all fear death, and know something about sacrifice for the greater good. But what could be behind this willingness to go so far as to die for someone or a principle? Could there be an intuitive awareness of being part of something greater, and death is not an end? Does this primal justification for heroism and honor have something to do with an innate sense of being part of an ultimate one-ness? Up until now, no adequate non-theological answer has ever been offered for this.

In highly developed creatures how does altruism fit into the grand scheme of things? We see this everywhere – in people, ants, bees – and so many other living things. That can't be ignored or glossed over as some automatic biological reaction. Bees will lose their stingers and die, in protecting their hives. And some ants sacrifice themselves by interlocking across small streams, so the others can cross – on top of their drowned bodies. There are countless examples of things like this, all around us.

Now, let's consider this from a slightly different context. What could be behind mindless biological cells or simple multicellular organisms joining to form a group identity, such as jellyfish? They sacrifice their uniqueness to become segments of highly differentiated colonies – which have their own unique lives. There, component individuals metamorphose themselves into something else, and take on varied specialized functions. It is as if the original member has evolved, and its identity no longer exists, and has evolved into something greater.

There are so many examples of this. Each of these voluntarily converts and becomes part of a completely new and different self, for the greater benefit. In these cases it is all innate – without the faculty of reason. Recent scholarship has shown that even individual cells have memory, and it is reasonable to surmise that this is similar or related to what we call instinct. Although all life strives for survival, there must be some inner “sense” or justification that accounts for and justifies self-sacrifice.

When discussing life we must also consider plants and other simple forms, as well as their different degrees of sentience – or seeming lack of it. How do all these fit into the universal reservoir of life, referred to previously? Can they be analogous to the many mysterious sub-atomic particles that we have only recently been discovering? That is puzzling but it makes sense, as everything must somehow be a fragment of the cosmic whole, regardless of its essence or our inability to explain it. Holograms, which are a fascinating mystery to us, seem to have some relationship to this. A tiny fragment can fully delineate the entirety from which it was derived – even in a different dimension.

How can we best define instinct? Simply put, it is the genetic imperative within the DNA of cells. We have recently learned that genetic codes, as well as individual cells mutate and evolve instincts and new memories – and pass them on to successive generations. This is in all living things.

Throughout history every human tribe or civilization created its own concepts of death, gods, and an afterlife. They all sensed and strongly reacted to this deep-rooted wonderment. That can explain why similar primordial fears developed into comparable mythologies and religions. In various primitive ways they all feared the elements, and created myths and gods to explain them. It is how religion and mythologies got started. They all believed in some form of greater power or afterlife.

As previously explained, we are all part and parcel of the universe that created everything – even what we think of as time. Perhaps it is not so coincidental that this is very similar to what the Hindus call *prana*, and have been venerating for thousands of years. That is the Sanskrit word for life force – or vital principle. In yoga, Indian medicine and martial arts the same term refers to an energy that is everywhere, part of all the components of the universe. When in this enhanced state of mind they are better able to perceive things more clearly. It is intriguing that this concept developed in archaic, much older civilizations, and it parallels what today's most highly developed sciences are only now coming up with from a different approach. There is a strong object lesson to be learned from this.

Those who follow this ancient teaching experience a deep sense of spiritual comfort and well-being that is rarely seen, elsewhere. They report an underlying sense that they can never be truly alone, as there is something akin to an all-wise and loving family nearby – that is only obscured from them, and waiting. Although this can seem to border on mysticism, it is only a sensation, and lacks the fervor and unique purpose of mystical thinking. This kind of personal reaction to awe creates a subliminal sense of belonging and connectedness with the universe, and it generates an extraordinary and unique sense of inner peace.

All older civilizations and peoples lived under the vast, open skies. Most of us no longer do that, or spend any time

gazing up at the heavens. As a result, we “moderns” have become spiritually anemic, insulated from that awesome, life-changing experience. Until only very recently there has been no research on the psychology of awe. But the few studies now being done are all noting that test subjects feel overwhelming feelings of wonderment and transcendence that profoundly affect them. It is *prana*, fortuitously being rediscovered through science.

There are many locations on our planet where awe-inspiring wonders will also produce this effect on us. In the late 19th Century John Muir traveled alone through the vast wildernesses of Western America, and found God for himself, there. Now, most of those places have been turned into national parks, where millions of others feel this, as well. There are so many of nature’s phenomena all around us. Native Amerindian tribes felt this and named some of their awe-inspiring vistas “holy places” Today, the residents of Sedona, Arizona claim there are geological formations where they feel “energy emissions”. That is not as incredible as it seems. Some of the caves in the steppes in India have also always been revered as holy. And the isolated aborigine tribes in the outbacks of Australia have been venerating certain areas, for millennia, There are other examples of this all over our planet. Are they all suffering from some kind of collective madness – or is it something else that we need to consider?

Most of the worlds populations live in cities or rural areas, and have lost their connection with the outdoors. But if they suddenly see the moon, or the planets through a telescope, it often comes as a shock and surprise. So many have forgotten the awesome wonderment we are all a fragment of. It is hard to grasp this if you have never experienced any of nature’s marvels.

I have always wondered what if Earth were to be visited by an alien civilization. Because they had to survive their primitive stages for warfare and self-destruction they now would be ancient and very wise. One of the first things I would ask is what is their “religion”. Would they have long-since recognized their oneness with all? Would their advanced civilization have a different expression for *prana*?

It is remarkable as well as ironic that on this young planet our applications of science are also leading us back to this same primal appreciation of cosmic one-ness. Suddenly, we now have a new and yet ancient way to sense our awesome relationship with the universe. We must never let the complications and disorientation of modern civilization obscure the wonders around us. We are entering an age of new enlightenment. How we deal with that – or not – will make all the difference.

All this was a lot to present, and most of the groundwork now has been done. It was based on scientific confirmation that the universe has an abundance of marvels and discoveries yet to be grasped. Comprehending that the life force is one of many different kinds of cosmic energy around us is basic. Since no kind of energy can be annihilated there is a comforting awareness that death is not an end.

Here, we are asked to parse a very varied collection of newly hypothesized and discovered cosmic phenomena, and put it all into a coordinated context. These unique proposals concerning life and death are part of our search to better understand what that is all about. In this quest we must take into account that reality and truth include real things that transcend our reasoning and intuition. For example, quantum physics is teaching us about logical paradoxes and other fantastic realities that seem unreal and counter-intuitive.

But because everything derived from the Big Bang we need to grasp that it all has to be interrelated, somehow. There must be some overall kinship with all things. Physicists and mathematicians have been struggling to come up with a unifying “theory of one” that can incorporate the laws of classical physics – with all its weird realities of quantum physics. So far, this challenge has proved far too complex and baffling to even our greatest geniuses.

The study of sub-atomic physics now affirms that particles can exist in a state known as a *superposition* – until observed. This means that things can actually be in more than one place at a time. And through elegant experimentation and calculation we now know that light can act as either a particle or a wave – but we can’t understand how or why. Heisenberg’s Uncertainty Principle also teaches us that there can be deviation from our most precise and exacting measurements. All this is fantastic reality, and it is mind-boggling and disquieting. Even so, it must always be kept in mind that we have shortcomings and obscured limitations. We are creatures of the universe – not its masters. And we are mere players in its wondrous symphony.

All this is extremely challenging and it can change many entrenched mindsets, from philosophies to scientific theories, and even spiritual outlooks. Humanity will continually grow and evolve with developing ideas. Einstein regarded all theories, including his own, as stepping stones to something greater. In that spirit we must go on. It is not in our human nature to remain static.

Ad astra. We can never stop seeking.

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