1.1 The Unlimited Human Potential

You’re at the theatre Friday night and a line with 250 people is waiting in the cold rain to get a ticket. You realized none us is far removed from past years when a similar chill would cause dreadful illness for lack of garments and medicine.

The line becomes a window into man’s history. You imagine past generations who suffered hardships you never endured, and it strikes a chord; what if each person in line tonight was the offspring of the person in front of them? Each person would represent an entirely new generation, and you’d be looking at 200 generations of man.

And you wonder how far back 200 generations would go?

Suppose each generation averaged 20 years from birth to first child, then 200 generations stretches back 4000 years. Man first began recording history four thousand years ago.

Imagine this; only 200 people have preceded you since earliest written history, starting centuries before the Greeks, the Romans, the life of Christ, the Aztecs, the Vikings, Columbus discovering America, and the Enlightenment to the beginnings of modern scientific thought.

Geologically speaking, four thousand years is a mere blink of time, and only 200 replications probably haven’t changed humans much. Other than being taller, it’s likely people today are the same as those who lived 4000 years ago.

Yet look at the incredible diversity of events, activities, cultures, and beliefs filling those years … the stark difference in the way man lived from century to century would make you think different humans occupied the age of Pharaoh or Attila or Napoleon, yet none are probably much different than we are today.

Each new human is so unique in his environment that it seems anything is possible.

2.1 Culture defines the boundary for human potential

Each human has an unlimited potential for thought and action, but there is no meaning for this activity without social interaction.

Humans gather into social groups by desire and design, and it’s through society that individuals find advantages for survival. (Of course, all living things have cooperative strategies, otherwise they couldn’t reproduce.)

Human societies develop beliefs to define themselves within the environment. This is culture, and culture is the blueprint that says how people behave in order to survive: What is eaten and how it’s eaten; appropriate living quarters; language and money; hairstyle and clothing; the rules for driving; whether you face east to pray; the rituals of mating and reproduction; every action is subtly codified by culture and great effort is made to both know and enforce what is expected.

Codified social rules bring essential simplicity and comfort to people’s lives; without this commonality, language and worth of exchange would need re-learning every time someone walked about town or bartered for food.

Cultural beliefs are paramount and people will defend them fiercely. People are stressed and angered by unfamiliar cultural cues, and demand that others adopt what they ‘know.’ Cultural beliefs are so paramount to a society that people will fight to the death sometimes to protect what they believe.

The demand for conformity exists at all level of interaction; from countries invading other countries, to a person fired for telling dirty jokes, to the enforcement of doctrine by kicking down the door and imprisoning an incorrect performer.

On the other side of the equation, proper behaviors are recognized and reinforced by assorted rituals and ceremony such as nods and smiles. For instance a man who holds the door for others is jostled with approval, and firemen who run into burning buildings get medals.

There is tremendous pressure for individuals to know and conform to cultural beliefs and violators face severe social consequence.

As a result, culture is the mechanism that leads people in a direction they believe will allow them to survive and flourish.

While people have wide and varied potential, their lives are regulated and tempered by the blueprint of culture. Culture defines the boundary for human potential.

3.1 Cultures diversify people against extinction

Today, as in past history, there are many diverse cultures and subcultures co-mingled about the globe, each a separate blueprint intended to tip the scales of survival in favor of its members.

People follow these rules and are lead in a direction by culture. Cultural rules make survival a higher probability, and there is no single culture providing this answer for everyone.

One culture may stress group cooperation; a strategy that leads to improved farming and wide distribution of resources. The result is better winter coats and more food which leads to less illness in the population.

Using a different strategy, some cultures use warfare to distribute resources. The fierce competition shortens lifespans and, whether intentional or not, the survival strategy is not to preserve existing people but to push new genetic forms against environmental stress.

Each culture has a different answer for environmental stresses such as illness and disease, and cultural diversity provides different strategies to meet identical issues faced by every world inhabitant.

Look at AIDS as example: There are cultures and subcultures, (some populations in Africa and Asia, populations of prostitutes, and the intravenous drug subcultures in America and Europe, etc.) that ignore government intervention for AIDS and continue sexual & drug interaction without protection. There are also cultures, very much aware of AIDS, which promote prevention and cure. No matter which culture a person belongs to, all cultures are stressed by the AIDS virus.

It’s impossible to exactly measure culture and subculture because people take simultaneous cues from multiple sources. However, for simplicity’s sake, it’s likely a culture that ignores AIDS protection will develop genetic resistance in their population sooner than a culture using prevention and cure.

But is this true? Will cultures ignoring AIDS fare better over the millennia because resistance will emerge sooner? And thus there is advantage to adopt a more ‘reckless’ culture?

Conversely, do cultures using medicine and prevention lead their people into failure as they become more vulnerable to disease? Or does prevention and cure allow more genetic variation from which a greater range of possible resistance could arise?

Nothing in life is as simple as two paragraphs in a book. The environment is always bringing forth new stressors and changes. Retroviruses change rapidly; will they become more virulent and overwhelm humans or more benign to prolong their survival inside the human host? Or will a dramatic shift to a hot, dry climate change the pattern of planetary disease altogether?

No single factor determines the outcome of a population; it’s the accumulation of stresses over time that decides which cultures have the best answer for survival. And no one can predict what those stressors will be.

Every action dictated by culture is a double-edged sword. Some cultures require modern sewers but expose people to paper dust snowing off toilet paper; while other cultures demand open-trench methods that expose people to a less sanitary environment but without paper dust. Over the millennia, there is no guarantee that one answer will be better than another. All we can say for certain is: cultures are the blueprint that says which method will be used.

And no matter what truth ultimately becomes, the species itself is protected from extinction by diversity of culture. Diversity is a requirement.

4.1 Culture as a paradox

Cultures control behavior and serve as the blueprint for individual activity. However, a culture remains intact only when it continues to help members survive.

During a period of severe food shortage, all cultures change. For instance, the large tree roach is unacceptable food in North America and any family caught feeding roaches to the kids would go to jail; however during a period of food shortage people might rapidly change culture to include the roach as a delicacy, complete with preparation rituals.

This example shows the paradoxical nature of culture: Even though cultures define behavior and enforce rules by sanction, each individual must also stand ready to violate codified behaviors to guarantee survival.

Ultimately the individual human maintains his culture by responding day by day to the changing environment. And the constant interaction between each individual and his environment opens the door to new behaviors and beliefs in culture.

So the individual human with his unlimited potential is needed to keep the culture evolving step by step with the changing environment. Yet at the same inseparable moment, each individual depends on his culture to define the behaviors needed for survival. It’s a paradox.

And here is the paradox of life that continually arises: The blueprint that controls human behavior is also controlled by the behaviors it controls. It’s a lampoon of the ‘chicken/ egg’ joke: Both parts are needed simultaneously and neither exists without the other…

… so which came first, the human or his culture?

Is this needed? So we know culture controls man, and what man does controls culture. This is the three part essence of our model: both parts are in constant interaction, both are needed for the other to exist, and both have the effect of changing the other.

4.2 Paradox is the point where evolution occurs

Sometimes it is impossible to see how two separate things locked in paradox, like man and culture, are actually the same thing. However, paradox is simply two ends of the same thing like the north and south poles on a bar magnet. They are related and seemingly opposite, yet exactly the same thing depending on where you cut the magnet.

So paradox is two things operating with and/or against each other, both necessary for the other to exist exactly as it does: however the key is they are operating, or interacting in a non-static relationship.

The paradox where human culture is the ‘controller of behavior yet it is controlled by behavior it controls,’ gives us a model for how other systems of paradox operate in the world.

For example DNA controls the manufacture of proteins inside a body, yet paradoxically proteins are needed for the existence of DNA.

So if DNA controls the manufacture of proteins, what controls proteins needed for the existence of DNA? We can see DNA is immersed in its own ‘chicken/egg’ paradox.

The model for paradox merely states that the moment of encounter between two operating systems is the exact point where evolution occurs. It is the point of change.

Therefore our model proposes a slightly different approach than the scientific method.

4.3

Science endeavors to discover predictable relationships where one action invariably leads to another. For instance when you take two marbles of known mass and roll one into the other at a given speed you can predict the second marble will move a calculable distance and can measure the amount of heat and transferred energy.

Science can also be applied to the social sciences. For instance every gunshot fired on New Year’s Eve doesn’t mortally wound a person, while some do. Science can tackle the problem by tallying bullets purchased during the prior week and deaths afterwards and make a statistical guess that could be considered scientific.

So science tries to predict a certain outcome.

Our model looks at the dynamic nature of the world where no predictable outcome exists. In short, every breath we take eventually changes what we breathe, and no science can say what future breaths will be composed of or how the cumulative effect will change plants and animals.

The model of paradox acknowledges that each action, whether by man or nature, is the product of prior actions while simultaneously causing consequence to all future actions.

For instance a joke from the bar is retold at the workplace where it strikes people as off-color and goes largely unlaughed only to be repeated to the boss who issues a memo discouraging offensive jokes. And so we observe an incremental change in culture, which is evolution in progress.

Or we could succumb to the office wag who says, nothing new; someone mucks up and a memo comes from the office, it’s simple A causes B.

However we observed a more complicated transaction because people knew what ‘off-color’ was and, after the memo was issued, were expected to know what could ‘offend’ someone. And these concepts weren’t developed the day the joke was told.

The fact that people can identify a ‘joke’ results from complex interactions that reach back into man’s history. Who invented the joke, Buddyandethral? or was it earlier when Bozoloithiciecus first took the stage? Or is joking part of the system? I had a cat that would joke with us. Do paramecia have gags, or is it strictly business where they come from? How about trees, do they all have a shagbark pun?

Setting this aside, consider another example. Science can calculate how Jupiter’s gravity will alter the course of a passing comet. However the comet will also affect the orbit of Jupiter and both interactions cause further change to all future gravitational encounters.

Although science predicts that each future gravitational event will follow the same rules of physics as the first encounter, our model suggests that even physics is undergoing evolution.

4.4

The purpose of the paradox model is look at the mechanics inside continual change. It is a way to see the universe as an evolutionary event where all things are in continual interaction with each other, where each action changes the whole, and the whole will come back and change each action.

The paradox model of evolution uses simple observations of man and his culture to prove the veracity of its claim.

 It is different from the straight line approach generally applied through science where one event causes a single predictable response.

(Science too will change)

Let’s look at science using our model of culture. Over the past 20 years economists used polls to estimate economic trends: they asked people how confidant they felt about the economy and if large numbers of people responded negatively, then economists could accurately predict lower car/truck sales in the following months.

But things are different today and the same polls don’t produce the same result: negative responses are not reliable because it’s been shown that people go ahead and buy the car/truck no matter how they feel the economy is doing. Something has changed.

Let’s look at an important finding from culture: powerful antibiotics are losing their efficacy against infectious diseases because bacteria are responding in parallel against the increased hardship in their environment. And we know intuitively the change is permanent and that bacteria will not regress and grow susceptible to older medicines.

Let’s consider another example: TV crime shows that feature police methods and forensics are affecting how criminals do business, and surely more offenders are aware of DNA tests and satellite tracking. So criminals evolve new methods to stump the latest eradication efforts.

So we have multiple examples given above and it’s easy for humans to see each as a separate, unrelated factor. Our minds are beautifully compartmentalized to differentiate what we observe, otherwise we’d eat rocks and rabbits and not just rabbits.

However the real world is not compartmentalized. It’s all happening at one time where everything is constantly changing and no one thing is independent of other things. Humans are breathing and intoducing hydrocarbon emissions into the air; and bacteria are altering what they do; the AIDS virus is changing; people think differently … all these things are happening simultaneously and create a completely new environment unlike any that came before.

But this is not new. Change has and will continue indefinitely, each day produces a cumulative mix unlike any that came before.

For instance

nothing is ever repeated exactly as before. Time marches forward and no effort can turn back change.

4.5

Change is inevitable, the poets have waxed on this for years. But it’s more important to note that the accumulation of all things changing at the same time make it an absolute certainty that nothing can ever be repeated exactly as before. Like snowflakes and fingerprints, nothing is repeated.

But our model predicts that snowflakes and fingerprints will also change.

As sure as every breath changes what we will eventually breathe, the accumulation of change happening to everything everywhere will eventually change snowflakes. And the same is true, it will eventually change fingerprints.

4.5

One of the comforts of culture is that it allows us to believe our world is and has been the same for eons. Modern man assumes brontosaurs breathed the same air we do today, as if our lives or theirs could be transposed to the other’s time.

thing but we can’t see larger outcomes because our sample doesn’t include enough data; our lifetimes are too short. Evolution poses impossibility for science because there is no certainty of outcome, only a range of probabilities that could include the most bizarre happenstance.

There is an existing model for the same thing using quantum physics. To outline the similarity, science cannot predict each individual action of an atom but can use the probabilities of their total action to retrieve a predictable outcome.

Likewise in culture, nobody can predict what every child will do or say on a given day, but if they are put into a school and stimuli are applied in a certain manner, you can stand back and generalize that education took place.

But again science cannot measure how education will change children so that one day the same stimulus applied gives a different result.

If we can show that operating systems change their content over time, or they evolve, can we also use this model to imply that the entire universe is evolving including the basic building blocks of atoms.

Are the actions of atoms evolving but they appear not to change inside the filter of math and science because our lifespans are so short?

This model verifies that evolution takes place with each action and reaction in the universe and in return it gives rise to the final question forwarded by the model; are atoms and ultimately the physics of the universe being changed in the same non-linear pattern we observe where each action is caused by the whole and ultimately the whole yields to the effect of the change it caused?

The fundamental premise is that physics controls what happens on each planet, therefore life must be a natural product of the strange physics of the universe, so in paradox, our lives must be making a small, if not tiny, impact on the physics that controls us… the same as a comet negligibly affects the orbit of Jupiter but ultimately changes where Jupiter flies.

Physics can measure the orbital change of Jupiter encountering a comet and predict it out several billion years, but only from the standpoint of that one change … no mathematical model is large enough to accept accumulated change from unoccured events. No more than we can calculate what Earth’s atmosphere will contain 30,000 years from now.

Our math has a limit caused by the briefness or our existence, but it also has limitations because of our ability to observe things we don’t see. The same as water erodes granite into sand; we are exposed to the phenomenon and have extrapolated meaning based on observation, but if we lived as algae, we would never understand this application of physics.

A rock in the dirt

Accelerated world

Chapter on math

chapter on light

field of vision is limited by the briefness of our lives.

Returning to our example of Jupiter affecting the orbit of a passing comet: we know the comet also affected the orbit of Jupiter, but a measurable change requires an accumulation of cometary encounters over millions of years,

over long periods of time. Mathematical calculations based on physics can track what has occurred, but there is no day to day model for the mechanics of how this change occurs.

So

The model of paradox serves that purpose. It does not explain why this is happening, but shows that the individual parts are changed by the whole system, and at the same moment the individual parts change the same system that changes them.

Paradox takes time for changes to show

Therefore paradox must be a component of the physics of the universe, however it remains too vast to measure because the time it takes.

And this is much like we observe in science for larger objects like the Earth, made up of atoms

Go on to discuss how model shows evolution

 actions leading the change.

So the question is what happens over long periods of time?

It’s obvious from geological, anthropological, and recorded history that things continually change. This is evolution; a word that means ‘change over time.’

The interesting thing about evolution is that it’s not unique to living things. Evolution is happening everywhere. There are processes continually working on every atom, rock, grain of sand, star, moon, planet, asteroid, comet, solar system, galaxy, emission of light and transfer of energy in the universe, and each action forms one more link in an evolutionary chain tracking backwards into time.

Even a rock in the dirt has a history of prior events leading back to the beginning of time: if our mathematical estimations are correct, we might surmise the rock began as super heated hydrogen atoms exploding from a singularity and clustered by the force of gravity and ignited to become a star that churned hydrogen into helium and streams of light and later exploded in a superheated bakery that spewed atoms of nitrogen, gold, oxygen, nickel, etc. into space along gravity waves that spilled oceans of hot material into a gravity hole located in a solar system where it formed a rotating mass continually bombarded by arriving material until it solidified into a round spinning planet whose molten core combined and changed atoms into molecules that formed layers of cooling rock that pushed to the surface and splintered from heat and cold and rolled downhill tumbled by water and gravity where erosion and wind covered it with layers of compounds that dried into dust and blew away to leave the rock laying in the dirt. This is an interesting story.

It’s not up to this writing to say what powers this system of continual change, only to note that it is happening and give a way to look at it.

It’s quite obvious that

Every action causes change, and every change causes further action. A mountain is pushed slightly higher by plate tectonics which reduces moisture flow from the Pacific which restricts rainfall in western Kansas which stresses weeds along a ditch and changes survivability to a narrower band of plants. A box in your attic is moved and the pattern of dust particles which reduces stress on the bacteria growing on the cool drip line of the air conditioner.

The next section, it essential to visualize the progressive nature of paradox, where events happen non-stop and where no event is repeated exactly as before.

Emphasizing again there is no mathematical model or science large enough to track continual change over long expanses of time, so we are left to find another method to discuss what is happening.

We can read history and see that man’s culture is in an inexorable march through time, and no culture is ever repeated as before. Despite efforts to re-live by-gone eras by dressing up like ‘it used to be,’ nothing captures the full cultural force of a past age, and once it’s gone, it’s gone forever. And so is the effect culture used to give advantage.

Culture is constantly changed as man faces new environmental stresses, like increased population, improved medicine, better clothing, plague, pollution, street lights, warfare and mosquitoes. Each new environment gives rise to new stressors.

As shown earlier, man constantly changes culture to meet environmental stress.

The contention is: change caused by a progressive paradoxical system is the basis for evolution. Both sides of the equation effect and are effected continually with each interaction.

The relationships we observe in a paradoxical system show it to be a foundation for evolution.

The proof of this is that the march of change never repeats itself exactly as before.

 For now, the main point of this chapter is to show how man’s interactions with his culture can be used as a model for understanding more obscured relationships in our world, for instance the operation of DNA.

4A Chapter four summarized

If our analysis of paradox is true, then we should be able to better predict how a system like DNA operates inside a body by observing the complex interactions between people and their cultures.

paradox as a model for understanding how the whole universe operates. how DNA must be similar to and have the same resiliency as human culture.

After all, both culture and DNA are blueprints and both are changeable in their environments, and neither is the final, complete solution to every problem in life.

* 1. Extinctions will change culture

 Chapter 5 on extinction diverges from a logical sequence with previous chapters because it contains information needed to explain further chapters. The reader can skip this chapter and go on to the next if a logical sequence will carry the story better.

 If 99.9% of humans were eliminated by an environmental event, what would be the result?

 Human beings are usually viewed as fully self-contained since a single pair carries the potential to create more of the same species. However, there may be a practical number below which humans or any other specie may not ever recover. Additionally, environmental change can become so severe that very few niches are left for all the competing species; this dynamic might tip the scales of survival in favor of animals with different genetic advantages.

 During their 200+ million year reign, dinosaurs went through extinctions and then afterward re-emerged as themselves all over again. They re-emerged in approximately the same forms and probably filled the same niches as did their predecessors. But because life follows it’s own irreversible course, the scales of survival eventually tipped, and the dominance of large reptilian forms ended. The full reason for this will never be known for sure.

There can never be an exact understanding of past events simply because each moment of time on Earth is a sum, or a total of everything that is occurring right then. Each moment of time is a unique event unlike any that preceded or any that will follow. For this reason the future cannot be predicted, and thus there is no way to know if some unforeseen future event would eliminate, change, or do little to the human species.

 If an event did cause 99.9% of the humans to die, this would significantly reduce the gene pool. So if humans recovered, they would re-emerge from a narrowed band of genes, and this might give rise to a new type of hominid, or several types if they re-emerged in various places.

 On the other hand, humans could remain relatively unchanged depending on the cause of the extinction. Maybe catastrophic events and ravages of disease have little to do with change in living things. Maybe the clock that controls mutation is the key factor. Or maybe change occurs only when niches in the environment change. Or maybe intermarriage among different cultures plays a key role for human change. Likely, each event on Earth will remain a mystery because each results from a convergence of multiple factors, many beyond our understanding, which combine to produce sets of circumstances unlike any before or any that will happen again.

We could chronicle events for another 15,000 years and still not have a better glimpse than we do today. Realistically, our vision is limited because our lives allow us such a brief glimpse of history. Changes

5.3

affecting life can span from thousands to millions of years or more, yet appear instantaneous in the geological record because time is so vast. Ultimately the only true history of human life may be the genetic code we each carry.

No matter what eventually happens, there is one thing we know for certain about extinctions: Any drastic environmental event would change culture. During an extinction, cultures would quickly dissolve into a myriad of less recognizable forms. People scrambling to save their lives would apply different meanings to things and these new realities would force alliances and actions to be forged on different bases. The old ways would become expendable like a tail falling off a lizard.

6.1 Cultural change is a model for change in DNA.

 So the species survived, but their culture did not. The dissolution of existing culture is one certainty during an extinction. This is the way of things, the species is important the culture is not.

 If this is the natural reoccurring way of all things in nature, then the same principle might be applied to the DNA that controls living things.

If DNA is simply a blueprint in the quest for survival, then like culture, could it not be changeable or expendable as events are forced in the environment?

 Science shows DNA is changeable when doing battle with microbes or with exposure to chemicals; DNA also changes when a body absorbs new genetic material or when the organism itself ages. So the blueprint in all living things is malleable in its environment. The question becomes to what degree is it changeable and when does this change occur?

 Scientific study shows us the fundamental form and design of each living thing is contained within its DNA. Additionally the geological record shows that when animals evolve, sometimes the same design change occurs simultaneously in more than one specie. Of course it’s difficult to read and accurately date the fossil record, but this does suggest that within different species there may be genetic information available for more than a single

6.2

form. This implies DNA could have various codes standing ready for when the environment forces or allows change to occur. [In a comparative note, we can see the same strategy for survival occurs in human society, where each person carries a reserve of behaviors, standing ready to emerge when change in culture is needed.]

 Additionally the geological record also shows that when animals change their form, it happens rapidly over short spans of time. Following these periods of rapid change are long stable periods where relatively few evolutionary changes are observed. [This same pattern is mimicked in human history where we see the rise and fall of great leaders and important cultures. Almost always, the dissolution or end comes quickly, followed by a replacement that rapidly steps in to fill the void.]

 Many factors vary in the scientific study of evolution, so the best we have is a generalization. However, this science does imply that once animals have stabilized in their environment, there must be some force of nature that stops them from changing further. This is important because it may mean dramatic changes in animals occurs not when environmental stress creates hardship, but instead when natural laws loose their grip on DNA.

 6.3

Still the fundamental question remains: Can the will to survive be so strong in at least some members of a species that these animals can reproduce more than themselves?

 Can DNA, mutated by stress or some other fundamental issue, fill niches in an environment by producing wings or hands on their offspring where there was none before?

 There is no proven answer for evolution. However if we again use human culture as a model, we can stretch our imagination to see how evolution of the hand or wing could be comparable to development of technology in culture. For example, only twelve short generations ago, the potential for electric power still lay undiscovered. When this revolutionary discovery occurred, it happened for no known reason, yet it burst upon the scene almost instantaneously, giving people spectacular advantages over previous generations. Electricity revolutionized cultures.

Earth’s available chemistry was now being manipulated in a new way. People working together for centuries had found a better way to use Earth’s resources. Similarly, DNA is also designed to find better ways to manipulate Earth’s available chemistry. And no doubt DNA has made radical breakthroughs in chemistry just as humans have made breakthroughs in their chemistry and technology.

 So the question becomes, can DNA produce radical new forms of living things in as short a time as humans have produced radical new cultures with use of electricity? The only limitation is finding new ways to use chemistry. If this comparison holds true, then it could answer why the disappearance and appearance of different animals seems instantaneous in the geological record. This would also explain how radical changes in animals could appear ‘out of the blue’ for no known reason, just as our electrified cultures have also appeared ‘out of the blue’ for no known reason.

Although this perspective gives us a way to see how changes in animals are a natural and continuing process of life, it still leaves the more fundamental question unanswered; what can the great forces of the Universe forge on our tiny planet?

[The next several chapters step away from actively using culture in comparisons for how the world works. These comparisons remain a fundamental thesis of this text, however the parallels between how culture works and how the Universe works are boundless. Therefore the text leaves further comparisons as assumptions for the reader’s own analysis.]

7.1 Mathematics of natural laws cause niches for living things

 Our environment on Earth is more than a simple count of trees left uncut or the quality of the air we breathe. The environment is the full and concert force of all natural laws converging in agreement to form our tiny planetary sphere.

 Mathematically defined laws govern the universe, the complexity of which are more than anyone could know in a lifetime. However the regular and repetitive order that math gives to things, guides what is happening on our planet. This math is the source of our environment and it is why we have the world we see.

 Our planet is made up of countless atomic particles, held together by gravity, while spinning within an electromagnetic spectrum. Each of these three components has its own mathematical formulas, and each is interrelated with the other in a yet unknown manner, where their sum brings us the exact physical laws of our world.

 Our environment is bound by adherence to the mathematics of these physical laws. And just as mathematics predicts where planets orbit and how atoms combine, there is also a math that governs where plants and animals must be in order to survive. There are niches for planets, niches for atoms, and niches for all living things.

7.2

Giraffes are not 800 feet tall. The mix of gravitational force and available molecular structure will not permit muscle and bone of this size. Natural laws simply will not let animals exceed certain physical parameters. And why would there be an 800-foot giraffe when the trees it eats are only 35 feet tall? We can see how animals must fit an environmental niche in order to survive.

 Despite a general distaste for them, snakes are one example of natural laws providing a niche for animals. Although snakes are incredibly varied in their methods of hunting and their choice of prey, the fundamental design and shape of the snake is used over and over on Earth to support an effective method of predation. Yet most snake species do not have a recent common ancestor and most are not closely related to one another. Genetically, most are no more closely related to one another than we humans are to cows. This means animals have genetically moved to the form of a snake because the physical parameters of the planet provides a niche that works.

 Scientific study of the fossil record shows another example how mathematical niches exist for living things. Scientists have discovered the

ratio of hunters to grazers among the large land animals has remained basically unchanged since before the dinosaurs. This consistent ratio shows

7.3

Earth’s environment provides a steady mathematical order for living things, where each animal is cast into a role made available in the environment by natural law. And to survive, each animal must stay within the boundary of its role, which explains why Zebras don’t climb trees to escape lions.

 A living example of the environment creating boundaries for life can be seen in New Zealand. The island of New Zealand has few mammals and instead has a large and specialized bird population. The niche filled by squirrels in North America is filled by birds in New Zealand. These birds scurry up trees and jump from branch to branch just like squirrels do here. On the ground, other birds fill the niche that a raccoon or possum occupies here. These birds walk about and rummage the forest litter looking for grubs and insects just like foraging ground mammals do here.

 The world offers regular, repetitive niches for plants and animals. These intervals are a balance between the natural laws of the Universe and the contents of the environment. Niches are specific, and just as there are specific intervals for electrons in an atom, and specific intervals for planetary orbits in a solar system, there are specific intervals for all living things.

7.4

It is a balance in the math of natural laws that establishes parameters for living things, and an environmental niche must be mathematically available before survival is possible.

8.1 Earth’s environment is the boundary for our lives.

 Niches for animals exist because the environment is balanced with adequate food, water, shelter and companionship for each of the species.

 As living events unfold on the planet, this balance in the environment subtly shifts, and along with this subtle difference comes an equal change in niches. Animals respond to the changing environment by adjusting their mobility or metabolism to better manipulate the available chemistry. This means the DNA inside animals, or perhaps their will to survive is responding to the changing environment. These activities cause further change to the environment, which in turn requires animals to adjust again. And, as seen in the geological record, this pattern repeats itself over and again on the planet until a critical stage is reached in the environment, at which point large-scale changes suddenly occur.

 From this we can see there are complex mathematical patterns behind changes in living things, and thus it makes sense that animals cannot out-evolve the parameters of their environment. Animals must stay in a niche in order to survive, and physical laws are the boundary beyond which things cannot occur.

But what happens when Natural Laws change the boundaries on Earth? We know from science the atmosphere has not always able to support living

8.2

things. And we know about asteroid strikes and climatic changes. No doubt there are forces far beyond our understanding and even our planet that have caused changes on Earth. Geological history shows us the physical parameters for the planet have not always been the same as they are today.

 For instance, the Earth’s magnetic polarity has reversed in past times. Because life has an important electrical component, did this cause molecular differences inside animals? Was the ability to survive compromised because intuition became confused? Did migrating birds become lost? Was DNA altered by molecular shifts inside cells? After all, DNA is suspended in the structure of each cell and cells themselves are composed from the electro-chemical environment of the planet. Can these kinds of changes impact living things, and start chains of events that alter which life forms are successful?

 Because change affects life, it makes one wonder what else has happened to the planet? At one time, the moon was closer to Earth, and thus the Earth’s rotation was more rapid than it is today. Although life itself was not yet born on the planet, if we had existed in this ancient era, the shorter nights and days would have deprived us of our regular, orderly requirement

8.3

for sleep. This environment would have quickly affected our bodies, making us more susceptible to failure as a species.

Additionally, with the moon’s orbit closer to Earth, lunar gravity would have exerted more pull and influence than it does today. Since humans deteriorate in weightless conditions, we know gravity has an effect on the internal chemistry of living things. This means the human body could not have existed in this ancient environment and still remain exactly as it is today.

 The point of this chapter is to demonstrate that humans have adapted to the very specific conditions here on the planet today. We are a product of what is right here, right now, not what was here in the past, but rather the exact electrical, chemical and gravitational world that is here today. We are more bound to the mathematical laws that govern our planet than we are aware.

 Even though our lives came from the past, we live inside the mathematical requirements of where we are now, and it is this specific environment that allows the human form to exist.

9.1 People are bound to their niche on Earth.

 Because we are adapted so specifically to our planet and our time, we are more bound to our world than most of us are aware. We have come from the past but we exist in the exact environment of today.

 Each of us feels one day we will travel freely into space just like in Star Wars. And most of us imagine colonization of the Moon or Mars will happen at our convenience. Truth be known, living things on Earth exist in a particular environment, at a particular time, and we require everything here for our continued survival. Our bodies cannot work without our environment and will not last long somewhere else in space.

 Our niche is available nowhere except here on Earth for whatever length of time it will be, and then no more. When this niche changes, we’ll leave everything behind and adapt to the new niche, if we can. This is the history of our planet from all that we can tell. When our niche changes, what we leave behind won’t be Earth, we’ll leave our culture and maybe our beliefs, but we won’t leave the planet.

 Survival in space is more than a problem of gravity, food, oxygen, and water. Our bodies require the whole interrelated system of our planet, as do the plants and animals we eat for nutrition. It only feels like we are free to

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leave the planet when actually our survival depends on stuff we can’t see, like bacteria and solar radiation. And it’s the stuff we have no idea means anything to our survival…for instance plants in a water garden become more vigorous after it rains because the rain brings more than water.

 An enclosed arboretum always feels stale and unbalanced because we are unable to fully recreate nature here on Earth, let alone somewhere else in space. Not because we lack the imagination, but rather because our world is a total package of everything on the planet right now.

 People are not optioned to exist anywhere except on Earth. We are produced by and bound to the particular and precise mathematics of our planet, and our bodies are a functionary of this environment.

 Because we are functionaries of this specific world, our internal chemistry is also. This means since we cannot exist somewhere else, it’s unlikely our DNA exists somewhere else either. So when we humans look into space for other life, we may be unable to find anything similar.

10.1 Life Elsewhere in Space

 When we look into space we have been unable to find anything that resembles life on Earth. Scientists cite the vastness of space, the inhospitable environments of other planets, and the brief existence of advanced cultures among the reason why efforts have failed so far.

 However the universe has the regularity of mathematics, which means it repeats itself over and over using the same patterns. It never repeats itself exactly, but similar things are found throughout space. After all, everything is made out of the same stuff. So DNA may actually be a structure common to the universe that arises whenever some amazing mathematics finds room to manipulate a yet unseen property of atomic structure.

 However, to recreate life exactly as it exists here would require the same atomic composition held in place by the same gravitational force, while spinning in the exact same electromagnetically charged field that exists uniquely to Earth.

 In some sense, our lives could just be electrostatic fuzz on the surface of the planet. Because without solar radiation bombarding Earth’s chemistry, we would not have the precise, charged spinning dynamo that

cradles our lives. But the process of life is infinitely more complex than looking at a single moment of existence on Earth.

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Everything on this planet has come from the past and would not exist as it does today without all the events that preceded it, back to the beginning of time. This means a re-creation of our lives would actually require the precise history or the time-space we presently occupy. And while the universe gives probability for the occurrence of any event, two identical worlds occupying the same time-space is assumed to be logically impossible for the purpose of this text.

 The reason and meaning for what is here on our planet is unique to Earth because there are no duplicate places in the universe. Astronomical study shows every star and planet is different in its gravity, composition, history, and geology. As a result, one would expect any DNA or form of life arising on some other planet [or array of planets] would be unique and specific to the circumstances of its own history, just as our lives are unique to Earth’s.

11.1 Math changing math is a definition of life.

Since we’re not leaving the planet any time soon, we’re doing the next best thing and that’s to improve the planet we’re on. We’re a determined species and we’ve got to make things better. So when we get stressed, we’ll mutate everything.

Humans are introducing mutation and have been doing so for years. Gene splicing, over population, medicine, pesticides, pollution, and hybrid plants are all overt acts that force mutation and change here on Earth.

 In actuality our activities are manipulating the math of the environment. But then it’s a natural affect of life that everything impacts every other thing. The math behind life constantly changes the math of the environment, and the environment in return changes the mathematical parameters for life. So the math is continually changing the math, and this is one observable definition for life: math changing math.

 Science reports a die-off of species due to human activity, but this may only be part of the story. The environment supports just so many

organisms, and right now the environmental density is filled with human

beings. Humans are filling niches previously occupied by other animals because the human form is successful in the environment as it stands today.

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But the environment is changing, and so, too, are the niches for life. As a result, new forms of life are being pushed forward like bacteria resistant to drugs, insect breeding changed by global warming, frogs and rats resistant to pesticides, and who knows, maybe someday a cow that clucks like a chicken.

 Since nothing ever goes back in time, all changes are registered, all the bets are paid off, and whatever is left moves forward from that point. However each change to the environment will give rise to new opportunities for life. For instance more metal in the air and soil means life will ultimately incorporate some process that utilizes the abundance to its advantage. Nothing goes to waste in an environment and eventually everything will be chemically assimilated in some manner.

 It’s no different than when humans find an abundance of trees; ultimately things are made out of wood. The same process is working at every level of life; living things respond to the environmental amalgam by using it for sustenance or advantage. We humans use our environment in the same way; we sustain ourselves by eating the rabbits, deer, and wheat, and we give ourselves advantage by using wood for fire, tools, and shelter.

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Each form of life is constantly using pieces of the environment to survive. However things do eventually play out as the resources are used up or changed. Even so, there are no worries when this happens because the energy of life somehow just sparks up something new. Living things cannot control the future, so it makes no sense to worry about it, after all, if birds worried about the day their wings would cease to flap, they might never fly.

 No matter what destiny awaits us, life will follow a continual mathematical progression where everything gets changed into something else. And this is the process occurring across the whole universe where all mass is mathematically impacting all other mass. Everything throughout the Universe is one thing causing change to another, which simply put, is math changing the math, which is a definition for life, which implies the universe is a living thing.

 Life is either pushing itself out or being pushed ahead with a steady stream of energy coming from the universe, and human activity won’t stop this. Ultimately what we’re mutating on Earth is ourselves since we occupy the niches being changed. But this is the natural re-occurring way of the Universe, nothing is supposed to stay the same and nothing does.

12.1 Life Offers No Complete Solutions

 There is no perfect answer for plants and animals so they live forever without the risk of disease and failure. Living things never completely and totally adapt to their environment. By universal design nothing lasts forever. There is always enough change in the mathematics of life that it prevents plants and animals from finding full and complete solutions to every problem.

 For example, the system inside animals that allows for the rapid development of a fetus is also somehow involved in the rapid growth of some tumors. Somewhere inside living things is an unseen property of natural law that allows for development of offspring, yet when this system gets out of balance, it can derail the whole train. Living things must make the most of what is available during their time because full and complete answers are not offered.

 The environment is a progression of events that puts life under constant stress and change. This condition keeps living things varied and strong enough to meet future challenges. But when living things change in response to the environment, there is also an uncertainty. Change is a chance for both a positive and a negative result.

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An example of this risk can be seen in the human fight against malaria. Populations exposed to malaria in Africa over long expanses of time have developed a resistance to this disease. People with a sickle-shaped red blood cell in their body are more resistant to the mosquito borne parasite. However when receiving a double dose of this chromosome, the person suffers from an anemia and the body becomes clogged with the key to resistance. From this we can see the human body has not yet perfected a resistance to malaria.

 Although the human body is on a path of success in its fight against malaria, many thousands or millions of years may go by before a better resistance emerges.

Over this span of time, many things could happen. Malaria itself could evolve to become more benign or even beneficial to its host. Then too, since living things absorb DNA and RNA from sources like parasites and viruses, the host could possibly incorporate the chemical plans of an invader to build better defenses or better internal structures. Copying successful genetic plans may be one method nature uses to build stronger more complex organisms. This method is certainly how we humans learn to build more complicated things in our own world.

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Future resistance to malaria might also emerge in humans from a genetic change that occurs for some unrelated reason. And when this change is combined with the doubled sickle cell chromosome it becomes unexpectedly potent against malaria without making the person sick.

 So resistance to malaria, if it happens, will probably emerge over time from a combination of several different genetic changes. And this is in keeping with research that shows there is not a one-to-one correspondence between a body function and a single gene.

 Functions inside a body result from a composite of interrelated genetic activity where no one gene does only one task. When this concept is added to the individual diversity where people have come from differing environmental stressors, it’s easy to see the challenge facing efforts to cure human malady by genetic manipulation.

 Not only is it difficult to know exactly which genes will affect what systems, but also any change in a gene might have other unknown, long-term consequences elsewhere in the body. If in fact the body doesn’t initiate its own defense to counter and reverse a genetic manipulation, as some research now shows.

13-1 Gene Splicing Analyzed with Comparison to Culture Splicing

 Science today is trying to accelerate the process of resistance to diseases like malaria and cancer by manipulating human genes.

 So when genes are spliced, what do we actually accomplish? We change the math of an organism, we impact the environment ever so slightly, and we hope to solve human malady.

 To illustrate this better, let’s stretch the imagination. Let’s suppose our human existence is being scientifically examined in the same manner we are looking at DNA. In this imaginary scene, our lives are part of a larger existence trying to solve its own malady caused by humans at war. And now instead of gene splicing, the solution becomes culture splicing.

 Inserted into the warring culture is the Thanksgiving Ritual that causes everyone to suddenly go home and eat turkey with relatives…and so the war stops.

 Of course intuitively we know culture splicing won’t fully stop a war because there are always more fundamental, long-term problems that underlie wars. And over time, we’ll probably discover the same about gene-splicing…that there are other, more fundamental issues underlying human genetics.

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 In our world, wars sometimes serve an important function by keeping cultures diversified and insuring they do not stagnate and become incapable of serving their populations. Although this text does not advocate war, it acknowledges that cultural diversification and change are mandatory for the long-term health and well being of the species.

 Perhaps the same is true for individual human malady. Despite the seemingly senseless pain of our individual afflictions, human malady may actually keep populations stronger and more diversified over the long term. On the other hand, genetic cures could also diversify human populations by strengthening spirit and allowing humans to flourish and reproduce abundant genetic options. This activity would diversify populations and protect the species during catastrophic environmental events. There are no clear-cut answers for predicting a best course for human activity because the ‘cause and effect’ in life contains too many variables and events reach too far into the future.

 Gene splicing may or may not end up being important for human survival. Only time will tell. However, DNA is just one tiny piece of life’s puzzle, and is only one part of the complex, mathematically diverse landscape that is our body.

14.1 Living things stay similar enough to reproduce

 The internal world of a living thing is a strange, foreign, water-filled landscape. Inside each of us is an ever-changing molecular environment supporting millions of electro-chemical reactions each day. And this complex web of activity forms a ceaseless interaction between systems in the body which can last sometimes more than a century.

 This foreign molecular world is home to DNA, and the mathematics here defies the logic of our own everyday world. Here, inside the body, the properties of water and gravity determine cell size. Here on the cellular level is a construction site making proteins by stringing together long chains of amino acids. And here, by some unseen technology, the chemistry of the body folds these proteins into predetermined shapes so they can do specific work elsewhere. This activity would make amazing science fiction if it weren’t true.

 But this landscape is real and as scientists unravel living systems, DNA stands out as an orderly explanation for events inside our bodies. In the effort to further study DNA, scientists have mapped out the 200,000 component parts of the human genome. Today scientists say we are so much a part of this genome that only a 1 percent difference would make a chimpanzee.

14.2

 We humans strive to see order in our world because it helps us find the mathematics and predictions behind our observations. We love to see acres of evenly cut green grass, brought under control and carefully lined with orderly rows of trees. However, the perceived order and regularity we love to see doesn’t match how the real world appears.

 In the real world, every single thing is different from everything else. Nothing is repeated exactly the same somewhere else. No blade of grass, no snowflake, no star, no planet, no orbit, no fingerprint, no cubic micro millimeter of anything is duplicated exactly the same somewhere else. Even though all objects of mass are made from the same basic atomic particles, everything stills ends up being different from every other thing. And this is from here stretching all the way to the edge of the universe; nothing is the same somewhere else, not one thing.

 This diversity is true for our interior landscapes as well. No person is the same as someone else and neither is their DNA. Human genes and human bodies are different for every person.

14.3

The remarkable thing is despite the differences in people and their genes, we keep coming out so similar to one another. If everything is so varied and different throughout our bodies and throughout the universe, why then doesn’t a chimpanzee occasionally appear in our lineage if only a 1% difference separates us? What is this force keeping us held so closely in place amongst all the pressure for difference and change?

15.1 Model of DNA cannot explain change

Research in geology and anthropology shows most of the time animals live on Earth, they are not changing much from generation to generation. The fossil record taken from around the globe shows that when animals do change or evolve, it happens rapidly over short spans of time.

 This science implies that animals are not in a continual state of evolution or at least not continually making large, drastic changes. And there are some animals, for instance the crocodile, which have remained fundamentally unchanged for millions of years. This means there must be some force that holds DNA in its place during those times when less change is needed. So what is this force that keeps us so similar and stops DNA from changing our form?

 Researchers working with computer models have shown that DNA operates like a random number generator, which can propel change in every offspring. And when these scientists program their DNA model to create mobility, it can accomplish the objective in a few short generations even when starting from fairly simple forms.

 This science gives us a glimpse into how the mechanics of change work inside living animals. This research shows that DNA can and will change animals quickly when programmed to do so.

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However scientific models offer only a limited view of how real DNA works because objectives in the real world are immensely more complex than a computer model. So the question remains, if DNA is a simple random number generator set up to automatically and continually change animals, what is programming or controlling the system when less change is needed?

16.1 Environment limits boundless number of forms life can assume

 Every intention of nature is unique, and yet each member of a species stays similar enough to reproduce itself. How is it possible that we stay so similar despite universal pressure causing change to everything in our world? What is this force that holds animals together?

 The geological record shows that evolution or changes in animals happens quickly over short spans of time. And then following these periods of evolution are long stable periods where animals change very little.

This means at some point animals stop changing and their form becomes stabilized in the environment. Looking at this, it becomes apparent there must be a force in nature that stops animals from changing further.

This is important because it may mean animals change not when environmental stress is greatest, but instead during periods when natural laws loose their grip on DNA. [We can see this in cultures: a culture under stress and hardship changes very little because there are few options available; however during a period of ease and prosperity this same culture is freed to create abundant new social structures and diverse attitudes.]

This means when the environment no longer causes hardship on a population, their DNA is freed to quickly create unlimited new options. This concept is different but not in opposition to the traditional idea that environmental hardship is the sole cause of change in animals. The environment is still a primary factor, but what is different is the amount of stress on a given population. This “new” scientific idea says increased hardship in the environment is the force holding animals stable, keeping them from changing further.

 This essentially says there are two forces affecting evolution: one in the environment and one inside living things.

This proposes that there is a force inside living things pushing out against the environment, and this is the force that keeps species similar enough to reproduce despite universal pressure for change. This also means when environmental stress eases on a population, the force inside living things is freed to produce new and abundant forms of life. However, once this period of ease and prosperity ends, environmental hardship returns and, once again, natural selection chooses which forms of life will survive. [We can observe this same phenomenon happening in a culture’s economic system: many new forms of business are created during periods of prosperity, however when hard times return, only the best of the new forms of business will survive.]

 This chapter says ‘life’ is a natural mathematical force constantly pushing out into the environment, and what we observe as stress in the environment is actually a factor that limits the boundless number of forms life can assume.

If this is true, then it means “life” is pushing out into every environment, and will emerge in an environment each and every chance it has. This implies the math of life is commonplace in the Universe, and exists throughout the universe just as all other maths do.

 Intuitively this concept makes more sense for explaining life as a natural force in the universe rather than an aberration unique to this planet. Therefore if we are unable to find life elsewhere or everywhere it may simply be we can’t visualize all the ways “life” can formulate itself to manipulate the available chemistries of the universe.

17.1 Life provides everyday example of the Universe

 Much of the universe is invisible to our eyes, yet scientists can now “see” parts of this amazing world using observation, inference, and calculation. Years of research show that space is not the blackened void we once imagined, but instead is a sea of particles coming into and going out of existence. Scientists say it is this action that causes the universe to expand and race toward a distant unknown force called the Great Attractor.

 This is wilder than any imagining. It is as if all the galaxies are being hurled across some gigantic pool of matter, propelled by some yet unseen property of math. And everything we know as our world is just one tiny mud and nickel ball spinning somewhere inside this larger physics.

 We’re along for the ride of our lives, and whatever is happening is far beyond our understanding. However, it is this unknown physics which ultimately determines who we are and who we will become.

 No matter how remote and foreign the universe seems, there is an example of this infinite dynamic available for our everyday observation. And this is the “will to survive” that pushes out from every living thing. The will to survive is why every housefly will fight for its life when caught in a web, and why a spider runs when you try to smush it with a shoe. They want

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to survive and there is something inside every living thing that propels this response.

 There is no measure or explanation for this phenomenon where life pushes out of living things, and keeps pushing even under the harshest circumstances. This phenomenon is more than DNA. And in fact it’s more than simple “survival” that propels most of us to choose risk and sacrifice over living safely in a cage. The struggle to exist seems an improbable mathematic of the universe, but here it is.

There cannot be dispassionate existence in the Universe. Even the orbit of a planet, which appears so staid in our lives, is actually locked in its own tenuous balance between forces of the Universe. And when this balance changes, as some day it must, the planet will cease to exist. Everything in the Universe stands in its own temporary place, and the simple answer may be that all matter in the Universe is caught in the same fight for existence just like ordinary living things.

18.1 The energy of universe is passed forward through constant interaction of mass. Our lives are a model for the Universe.

 Mass in the Universe only exists in relationship with all other mass. Nothing can stand alone in the universe. It’s no different than a society of people, where no one person exists without relationship to others; if all were to do so, it would mean the end of the species. Throughout the Universe each piece of mass is interrelated with every other piece, and each owes its birth and existence to a cumulative interaction with the whole. This is the meaning of Einstein’s time-space, because time-space is the history of each piece of mass and it’s journey of relationships back to the beginning of time.

 Each piece of the universe, whether it’s an atom or a galaxy, affects what is the whole. And in turn, the whole ultimately affects the outcome of each piece. This constant interaction between all mass and its underlying source of energy causes the ever-changing, evolving universe we have.

 The universe is powered by an energy causing continual motion and change to everything. And since the laws of physics cannot be violated, each action we observe will cause an equal reaction elsewhere; whether it be the gathering and ignition of hydrogen, the collapse of a neutron star, the formation of heavy elements, the frequency of electromagnetic radiation from a star, or even the likes and dislikes of an individual person.

Each action has come from somewhere in the past, and according to the laws of physics, this energy has to be passed forward in some manner consistent with the mathematical laws of the universe.

Most interactions between bodies of mass are invisible to us because our lives are so short, and thus we are given only a brief snapshot of how the universe operates. Aside from meteorites and cometary dust, the only information available from space comes from the electromagnetic spectrum arriving here light years after leaving its source.

 Perhaps one day we will unravel the mathematics of the Universe and be able to “see” vast interstellar relationships in terms of their probabilities. Using this math we may some day transcend limitations of time and space.

 Some day we may understand the gravity waves that sweep across space, and “see” how these waves affect the orbits and axis of distant planets and stars. We may one day calculate how the misaligned planetary axis of Uranus actually acts as a capacitor storing energy for later release into the solar system. The release of which may realign several cometary orbits or cause an extinction or reversal of magnetic polarity on Earth. Of course these ideas are supposition without proof, but changes in the solar system and on Earth do come from somewhere.

We may some day “see” how pulses from gravity waves pass their energy into the orbit of a planet like Jupiter, causing a slight wobble. And then ‘see’ how centuries later these vibrations are passed forward once again, causing a shift in the path of a comet, which was due to strike Earth 800,000 years from now. We may actually be able to “see” this mathematically.

 From this information, we might also “see” the trigger for release of stored energy from Jupiter’s magnosphere or its orbit. And we may ‘see’ how this energy propels a comet forward along its routine path, onward to another solar system, to be captured by its gravity, and later returned along well-worn routes filled with cometary trails.

 We might “see” how these comets connect solar systems together with shared mass and energy. And how this action binds multiple stars and planets together into patterns similar to what is seen in atomic structure. We may be able to infer how these interlocking solar systems form the building blocks of an exploitable chemical environment. After all, solar systems look like atoms and they may also behave like atoms, combining to make long chains of active “molecular” structure.

We may someday “see” far-reaching interstellar relationships that determine which atomic particles are made inside of which stars. And ‘see’ wider relationships that span whole galaxies and decide what stars will gather more matter and which among them will explode their contents out into space. There are forces in the Universe that determine what will happen, and this is not unlike what we observe in the everyday politics of human culture.

 The purpose of this chapter is not to turn science into a back porch sport. No proof is intended from these speculations. The real purpose of this chapter is to say that laws governing the universe are present everywhere. These laws require all energy to be passed forward through interactions of mass, and thus our lives result from an energy that has been passed forward from somewhere in the past. Everything today has come from relationships reaching far out into space back to the beginning of time.

 So as people get up and go to work each day, we are normally unaware of the great and small relationships causing our lives. But everything on Earth and beyond is linked together by a shared history. This means whatever is “out there” must also be evident here. The reverse must also true whatever is here must also be “out there.” How else could Newton observe a falling apple and see how the Moon was connected to the Earth. Our lives on Earth are a model for understanding the Universe.

19.1 The Accelerated World Demonstrates Existence of Multiple Mathematics

 To talk more specifically about the math of the universe, let’s speed things up and accelerate the world.

 Imagine watching one of those ten second film clips showing a flower bud opening into a full blossom; or a fast-moving film clip showing the movement of clouds across the sky for a full day. This is the premise behind our new accelerated world.

 In our new world, we take all the events from 100 years and condense them into one day. So now 100 years is a single day. After a full week, we’ve been able to see 700 years of Earth’s history. Or for each second of time, we would see slightly more than a full month. Obviously at this speed, events on Earth would pass by so quickly that our world would no longer contain an ordinary day.

 So let’s have a look at the new world and see what’s changed. We’d see for the first time, the migration of plants and trees. And at last we’d be able to see patterns in the movement of stars.

 Erosion of mountains would become visible, volcanoes would be puffing and erupting each day, and sand dunes would ripple like water. Big

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meteorites would chunk against the Earth every other week, and rivers would pulse continually with water. Snow and ice would move to and fro

across the face of the planet, and the land would be positively shuffling around from earthquakes.

 Sound waves would now travel faster than the speed of light, and the vibrations would cause never-before seen phenomenon in the environment. The resulting interactions between these vibrations and other properties of the planet would now create environmental niches and opportunities unique to the accelerated world. Relationships, seemingly unrelated in our own world would now be visibly connected and would explain mysteries about life that baffles science today. Many new patterns and sequences would emerge and each would require new scientific studies and mathematical explanation.

 In the accelerated world, time would be passing by so quickly that waves, tides, and currents would make water appear as a dense fog, totally devoid of the living things we understand. In fact, no animals would be visible in our new world…no insects, or birds, or microbes, or termites, or seeds, or the balance of nature as we see it. These things would still exist

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and their math would be worked out somewhere in the planets’ formula, but their actual existence would have to be inferred.

 New relationships would exist in the accelerated world that cannot exist here simply because of time. There are things that happen in mere

nanoseconds or over thousands of years which profoundly affect life yet seem inconsequential to our own everyday world. For example, in the accelerated world, mathematical patterns arising from migrating trees might let us see the genetics of interspecies relationships. But in our time, these events occur so slowly, the information would be beyond the reach of our math and science, and so we could not gain agricultural advantage from this knowledge. The factor of time limits the chemistries available for human manipulation.

 The accelerated world contains a mathematical reality different from our own today. And in reverse, today’s math explains a reality invisible in the accelerated world. Both mathematic exist simultaneously and both are correct, but there may not be a visible connection between the two. The real point for inventing the accelerated world is to illustrate how multiple mathematics are needed simultaneously to weave the overall fabric of the world in which we are immersed.

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This example shows what mathematicians have discovered about the Universe…that multiple mathematics exist simultaneously. And if everything we know and see, all the stars, planets, cars, and people, were

taken away, 90% of the universe would still remain right here…unseen yet necessary to make the universe what it is. The mathematics of the Universe is layered, complex, and ever changing.

 To talk more specifically about the math of the universe, let’s speed things up and accelerate the world.

 Imagine watching a 5 second film clip showing a flower bud opening into a full blossom; or a 10 second clip showing the movement of clouds across the sky for a full day. This is the premise behind our new accelerated world.

 In our new world, we take all the events from 100 years and condense them into one day. So now 100 years is a single day. After a full week, we’ve been able to see 700 years of Earth’s history. Or for each second of time, we would see slightly more than a full month. Obviously at this speed, events on Earth would pass by so quickly that our world would no longer contain ordinary days.

 So let’s have a look at the new world and see what’s changed. We’d see for the first time, the migration of plants and trees. And at last we’d be able to see patterns in the movement of stars, allowing us a greater sense of the galaxy.

 Erosion of mountains would become visible, volcanoes would be puffing and erupting each day, and sand dunes would ripple like water. Meteorites would rain out the sky and big meteors would divot the earth every other week, the effects of which would disappear quickly as if they hit a fluid. Even the driest rivers would pulse continually with water. Snow and ice would move to and fro across the face of the planet, and the land would be positively shuffling from earthquakes.

 Sound waves now travel the speed of light, and these vibrations would cause never-before seen phenomenon in the environment. The resulting interactions between sound vibrations and other properties of the planet would create environmental niches and opportunities unique to the accelerated world. While seemingly unrelated phenomenon would become connected and explain mysteries about life that baffle science today. Many new patterns and sequences would emerge and each would require new scientific study and mathematical explanation.

 In the accelerated world, time would be passing so quickly that waves, tides, and currents would make water appear as a dense fog, totally devoid of the living things we understand. In fact, no animals would be visible in our new world…no insects, or birds, or microbes, or termites, or seeds, or the balance of nature as we see it. These things would still exist and their math would be worked out somewhere in the planets’ formula, but their actual existence would have to be inferred.

 New relationships would exist in the accelerated world that cannot exist here simply because of time. There are things that happen over thousands of years that profoundly affect life but remain invisible to our own everyday world. For example, in the accelerated world, mathematical patterns arising from migrating trees might let us see interspecie genetics. But in regular time, these events occur so slowly the information is beyond the reach of our math and science, and we cannot gain agricultural advantage from this genetic knowledge. The factor of time limits the chemistries available for human manipulation.

The factor of time in the accelerated world would make human life invisible until very recently when culture and sheer numbers of people began to build permanent structures. Our lives would not appear as individual actions, but instead our culture would appear an entity of its own, fed by a flow of moving cells following pathways into and around ever-changing cities. In the accelerated world, human existence would have no apparent ancestor and seem to rise out of nothing because the factor of time limits what can be seen.

 The accelerated world contains a mathematical reality different from our regular day, and in reverse, today’s math explains a reality invisible to the accelerated world. Both mathematic exist simultaneously and both are correct, but there may not be an obvious connection between the two.

The real point for inventing the accelerated world is to illustrate how multiple mathematics are needed simultaneously to weave the overall fabric of the world.

This example shows what mathematicians have discovered about the Universe…that multiple mathematics exist simultaneously. And if everything we know and see, all the stars, planets, cars, and people, were taken away, 90% of the universe would still remain right here…unseen yet necessary to make the universe what it is. The mathematics of the Universe is layered, complex, and ever changing.

20.1 Mathematics shows Universe is living thing

 Math is a numerical formula people use to explain relationships between different objects. For example, when an apple falls to the ground a mathematical relationship exists between this fruit and the Earth. As a result mathematicians have developed a formula to explain this phenomenon. This formula, of course, explains gravity, and over the years it has been used widely in applications from building bridges to calculating far-reaching relationships deep into space.

 To see our world it’s apparent all things are in relationship with each other. There is a relationship between a person and their doughnut, a relationship between a tire and a nail, and a relationship between the blowing wind and a soda can rolling across the road. And when this aluminum can rolls over a bole weevil, one more event is born in a long string of relationships traceable back to the beginning of time.

 To us, the event between the aluminum can and the weevil can be explained to some degree by physics and organic chemistry. However our math is incomplete because it cannot predict this event, nor can it explain why relationships operate to cause events. We have no measure of intent.

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 Events in the world happen a lot like ripples in a stream, where each ripple is the product of a long string of prior relationships, each having already been changed by all events surrounding them from the past.

 So when you watch ripples in a stream there is never an exact repeat of what you’ve seen before. Ripples are different for each moment because the volume of water is more or less, the streambed is constantly eroding, the amount of sediment held in the water varies, and the temperature never stays the same. Additionally, every upstream change has altered the course of everything downstream, and the accumulated effect makes ripples different for each moment of time. And this is fundamentally the way it is for all things across the universe; everything is changing and being changed by everything surrounding it so that nothing is ever repeated exactly as before.

 In this system of continual change, relationships between things are different in each new moment, yet each relationship is born by and bound to the mathematics of natural law. This means all relationships have a precise mathematical certainty, which could be expressed as a formula if we only had the capacity to measure and fully understand what is going on.

 The problem confronting our math is that nothing stands alone or stays the same. All mass in the universe is in a simultaneous relationship

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with everything surrounding it. And at the same moment, all the surrounding events are being pushed and pulled by the relationships surrounding them. So events in the Universe are interwoven into a common fabric where each piece is the product of its own very long string of prior relationships, each having already added an infinite number of downstream changes. There is no way our math can keep up with this evolutionary process.

 Evolution is precisely what the math of the universe is. Natural law is a math causing change to itself. It’s math changing math where nothing lasts or stays the same, and eventually all things yield to this force.

 Linked to the past, yet totally new and reborn each moment, the evolving universe has all the characteristics of life. It’s no different than the tree in your backyard, because simply looking out your window and asking, why, will confirm the most confusing strangeness of the Universe.

 The interrelated system of evolving math proves the universe is alive because everything exists within one continuous fabric. Therefore our lives are simply a continuation of all other things. And since nothing in this continuous fabric starts at one point or ends at another, it logically follows, if we are alive then everything is alive. Therefore the universe is a living thing.

21.1 Time limits our ability to see life everywhere

 It’s hard to see the universe as a living thing when we humans know the difference between the Earth and an earthworm. And we know from science the Earth is a planet and not organic chemistry, nor is it alive.

 Humans have specific cultural and mathematical limitations for evaluating how the world exists outside our view. First, we are designed to identify and assimilate a very specific chemistry in order to survive. Secondly, our lives take place in such a brief and specific period of time, we don’t have a lens wide enough to access a total picture of the Universe. Basically we are not designed to see beyond what is needed for our own survival.

 In a previous chapter when we accelerated the world into daily increments of 100 years, we saw how our lives became so brief they all but disappeared from the environment. What emerged in our place was a new exploitable series of relationships, different from the world we know, yet containing the chemistry of our lives as a part of its whole.

 In the accelerated world, our lives took on a role possibly not much different than the relationship we share each day with viruses and bacteria. In this sense, the chemical landscape of our bodies forms an environment causing difficulties in the lives of these microbes. Surely these microbes are

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unaware of our being and are merely doing what it takes to survive in their environment. And their environment pushes hard to limit their existence. From this perspective, we can see why our own environment is not always a hospitable host, especially if we are truly immersed inside a living universe where each piece of mass struggles in an environment to remain in existence.

 The accelerated world is not offered as proof of any specific reality outside our own, but instead demonstrates how the timetable for our lifespan keeps us from seeing other increments of time or different patterns for life.

 Increments of time are important for gaining a perspective because relationships affecting life are simultaneously happening in nanoseconds and over tens of thousands of years or more. Science has been investigating the variable of time using the geological record, astronomy, and particle acceleration. And from these sciences we now know about evolution, atomic structure, plate tectonics, and the origin of matter.

 However each moment of time in the universe is filled with an infinite number of relationships ranging from the very tiniest to the most expansive. And since each relationship carries the potential to be an exploitable moment of chemistry, it’s impossible to calculate or infer what is happening over

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spans of time and still be certain how these relationships occur. And when one considers that each event in the universe is altered at a different rate by the ebb and flow of evolutionary process, it becomes apparent that the platform we stand on to view events is not nearly the same stage these events were played out upon.

Ultimately because of the constant change, everything becomes a point of view. This is where humans stand. Because our math cannot assimilate all the components of evolution and because our lives are contained within such a specific period of time, we are blocked from a clear view of how the universe is alive.

22.1 Culture blocks clear view of life in Universe

 It is logical the universe is a living thing because nothing starts at one point nor ends at another. Within this context it is reasonable to say if we are alive then everything is alive. Still humans can’t find life elsewhere or everywhere even though we look for evidence throughout space.

 Humans have adapted so specifically to the time and the chemistry of our planet that it limits our ability to see beyond the essentials needed for survival. Furthermore no proper perspective or science can be developed without using our time and our situation as an element of the experiment itself. This means our lives on Earth form a bias limiting what we see beyond our own borders.

 We are designed to exist at a specific time and place and there is little evolutionary pressure to understand things not needed for survival. After all, esoteric pursuits don’t feed the population. On the other hand, culture does push us out into the unknown in search of food, shelter, and safety. And the unknown has always stood darkly behind the lives of people, causing distress and anguish among human populations. Because of this, people have developed answers to explain the unknown, and these beliefs are very important for cultural stability.

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 It is fundamental that people follow their beliefs. And what has come to be recognized in human culture is the political importance of having codified solutions for the unknown. History shows belief systems are a necessity for political power, and politicians know if one cannot control beliefs, then loyalty and alliance are impossible to secure. As a result, explanations for how the world works must carry ideas held within the approved political context.

 There is no advantage for a culture when humans produce ideas far afield from the business of the everyday populace. This in no way means cultural beliefs are a fabrication, it just means beliefs cause a bias among people that affects what should be seen when viewing our world.

 If the entire population believes a mountain benevolently provides for the people, one would be a fool to burn the forest off the mountain to build a radio telescope. There is very great pressure to believe what the others believe. People are scorned, killed and imprisoned for bringing forth ideas of great change before those ideas are proven to provide benefit.

 Imagine the first person to put a row of sticks around a cow and call it a fence. This must have seemed like art or insanity. Imagine the first person

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to milk a goat, or ride a horse, or pile up rocks, or accumulate belongings, or utter a word. None of these practices would have held a positive cultural

context in the beginning. And if these strange behaviors had been the doing of an unpopular or politically unfavorable person, that person would have suffered severe social consequences. History is a chronicle of stories about people who have stood in the crosshairs of cultural change.

 New ideas and beliefs have to be introduced into a culture because the act of living causes change. Some new ideas will be accepted while others will be labeled ludicrous or dangerous. Acceptance is always a function of what is needed or wanted by the people or their leaders at the time. For instance a Theory of Relativity presented in 900 BC might not have held the same cultural sway as it has in more recent times.

 When atomic power settled a war, shifted political fortunes, and generated electricity, Einstein’s work among others became an acceptable part of mainstream culture. The atomic age and its accompanying theoretical basis have been embraced because people believe it gives them advantages for survival.

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Beliefs have specific roles to play in society, and it’s only important they serve this role until a better plan comes along. All beliefs eventually fall into disuse and become lost in time. Everyone has seen older beliefs left behind, but rarely does one see his own beliefs as a temporary state subject to the changing winds of politics. However beliefs do change and will evolve because they are a part of everything else.

 Nothing can stand still and everything evolves to become something new because this is the way of the Universe. We are so embedded and immersed in this system, yet we are such a tiny part of the whole, that it’s difficult to see a composite of the Universe beyond the temporary borders our culture defines for us.

23.1 Paradox between man and culture are point where human change and evolution takes place

 Culture is the bedrock upon which humans differentiate those things similar to themselves versus those things to be consumed or avoided. This is how we make sense of the world. Culture demands that people find differences between things then process behaviors based on this information. This is the function of culture. And this force is so important and pervasive that all human activity is a sounded and practiced behavior based entirely on one’s perception of culture.

 Everything human is behavior and no behavior exists without a context established by one’s culture. Each and every behavior, even those in dissention, are a part of the whole, and each action casts a vote toward what is the sum of culture. This sum of behavior and the response it generates identifies what efforts should be taken in order for people to stay alive.

 As people bounce words, gestures, and actions off one another, they are both creating and modifying culture with each new exchange. This means culture is a dynamic that is born and changed simultaneously in each new moment. And this is no different from the way the universe operates.

 Culture controls behavior, yet in the same inseparable moment, culture is being created by the behaviors it controls. This is the paradox of

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human existence. This is the exact point at which each vote is tallied to make culture anew. This is how culture evolves.

 In so much as culture controls all behavior, it is probably cultural forces that determine attraction between people. Everyone has felt the magnetism of another. And it may be during periods of change that cultural forces establish new criteria, which alters the dynamics of magnetism, bringing together two otherwise very different people. But then it’s likely this force is in continual operation to insure strength and variation within populations. After all people do say, “opposites attract.”

 No matter how the system actually works, culture and behavior bring about survival of the species.

 The forces within culture operate to keep people diversified and require us to differentiate our world, all the while binding us together with a shared memory of the past. Yet presumably none of this exists outside the experience of the individual human being. This paradox between the human and his culture is where human evolution happens. Paradox is the exact point where evolution takes place. Every paradox defines a point of evolution or simply put, paradox is evolution.

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But understanding paradox is not important just because each marks a point of evolution. It is also important because each also marks a boundary where our facts and common sense end. Beyond this point, human logic fails to explain events in the Universe. Paradox may be the one commonality to all mass and energy of the universe, and it may be what actually defines the laws behind each mathematical operation. If this is true, then it proves the Universe, including its constants, are evolving.

24.1 Each piece of mass creates a unique, exploitable chemistry

 The Earth is a chemical processor that acts no differently than all other planets and stars in the universe. The universe is evolving and gradually changing its chemical composition, and our planet and our lives make up one tiny part of this transformation. Organic chemistry, which we see as life, is simply one of many processes working to assimilate and change the Earth’s chemistry.

 Oxidation, subduction, solar radiation, organic chemistry, volcanic activity, carbonation, erosion, and radioactive decay are a short list of processes involved in the evolution of Earth’s chemistry. But Earth is more than a list of individual activities. Things occur as they do because the planet is a whole of its total chemistry. Living things in this system are only one of a multitude of interrelated processes, each happening exactly as it does because of its relationship with all other processes.

 All planets, stars, and bodies of mass occupy a unique and specific time-space. And thus each is positioned to assimilate and process its chemical content differently from all other bodies of mass. The result is that no two bodies of mass end up processing their chemistry identically. This means when our space probes visit an asteroid, we find unknown and mysterious geological processes affecting this seemingly inert piece of rock.

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And this is exactly what our probes have discovered. The same holds true for Mars, the Moon, Jupiter, and beyond. There are similar processes that come into play on other bodies in space, but nowhere will it happen exactly as it does on Earth nor will it be happening for exactly the same reasons. Each body of mass in the Universe operates as it does because of its unique history and relationship with all other bodies of mass.

 The Universe has powered Earth to assimilate everything within its gravitational reach. No matter what we do with our lives, or what we build or send into orbit, everything eventually dissolves back into the planet as one more layer in Earth’s chronology. Everything gets assimilated except those things like space probes and frequencies of light that escape Earth’s gravity.

The same principle of assimilation is also true for Mars. When we send a probe to Mars, there will be processes, different from those on Earth, that will break down and assimilate our landing equipment. This may happen rapidly or over eons of time. It may happen in stages or in a sudden flurry. No matter how it happens, it will probably occur in a different sequence and manner than anything we can predict.

 Avoiding assimilation is a primary goal of living things. So when we build habitations on Earth, we engineer them to withstand the known forces

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of nature. Most people have a common sense for wind, rust, rot, and gravity, and we intuitively know what a good, safe design looks like. However, what works on Earth might not function the same on another planet. So when committee-drawn habitations are designed for Mars, they might quickly fail once introduced to the actual Martian surface.

 The timetable for change and assimilation is different for all bodies of mass. On Earth, extinctions have 120 million year cycles, while ice ages cycle by once every 10,000 years or so. Spots on the Sun have eleven-year cycles. On Mars, major events like orbit changes or periods of rain might have 1,000,000-year cycles, and as a result have almost no chance of impacting human exploration.

 On the other hand, Mars may contain processes of great voracity that react to copper, iron and other metals. If this were true, our design engineering would quickly be ineffectual on Mars, and this environment would be immediately dangerous to the human body. But it’s known that all bodies in space are alien and deadly to living things like us. What is

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unknown, are the specific parameters of the danger because every body of mass assimilates its chemistry differently than all others. This means each

body of mass is powered by the Universe to create a unique chemical environment available for exploitation by the limitless variations of life.

25.1 No mass is inert

 All mass in the Universe is a mathematically defined chemistry that is processing and being processes by every other chemistry. All things have come from something else; even a rock in the dirt has an event-filled history reaching back to the beginning of time. Everything has been changed before, it is changing now, and it will change again. This is the reason nothing we build lasts forever. Nothing can stand long against the forces of nature that twist the face of the planet while twirling us through space in an artful dance with gravity.

 The universe is a never-ending flux of change where mass can only exist within the context of all other mass. Nothing can be born in the Universe and remain unaltered by the forces surrounding it. Each piece of mass affects what is the whole Universe, yet the whole Universe causes what will be the outcome of each piece. We are immersed in the ultimate paradox, the body politic of the Universe where nothing stands against the force of change and even the most fundamental constants will vary. The similarity of this to human history and human culture is uncanny; the way our lives are interwoven into our culture and our history shows we are just a miniature version of what can be seen throughout the Universe. Life follows the same patterns and rules of physics that exist throughout the Universe.

 Individual humans make up only one tiny part of the whole Universe as it processes its way though vast never-ending series of chemical reactions, each governed by the properties of physics. Our lives make up a part of this process. Each person is a chemical processor, and each is charged with a duty to process his way through every breath and meal in a defiant stand against the day when we, too, will be processed. During our life spans we will process a multitude of chemicals in an attempt to prolong the inevitable end. But, regardless of our individual destinies, survival requires humans to process the chemical composition of the planet, however, to do so, we must also be processing ideas and feelings.

 Ideas, thoughts and feelings are necessary for humans to survive, and these things are the content of what is passed forward to successive generations in the form of culture. Without these things, we would have no culture, no religion, no history, and probably no awareness of one another. Feelings, thoughts and ideas are what motivates and communicates our behavior. They are the source of human culture, and if in the final analysis this is true, then feelings must be real. If feelings are real then they must come from an exploitable chemistry that humans use. In some sense, the feelings we have inside us must be real, otherwise how can one explain shared intuitions, and how is it we know when someone is staring at the backs of our heads. If feelings are real, then it is likely they result from human manipulation of a real and exploitable chemistry here on Earth. The question becomes what is the chemistry we are using to generate feelings?

 The chemistry we exploit for feelings may lie somewhere within the numerous ways the sun’s electromagnetic spectrum [light] can be used. Solar radiation is a fundamental part of Earth’s environment and there are endless chemical opportunities created from these emissions. Our eyes process photons to see light. The same abundant radiation is the source of power for rain and weather. Windmills, solar cells, and hydroelectric dams are all solar powered. Coal and oil can be viewed in a simple way, as stored solar energy.

 Lack of sunlight can lead to depression in some people, which implies a direct relationship between light and some behaviors. Light may also be the trigger behind migrations and changes in plants and animals. Animals, fish and insects use light in a myriad of different ways to help them survive. Everything from pigmentation to feathers to vision has its roots in light. Plants use the sun for photosynthesis, which further demonstrates an essential link between light, the atmosphere, and almost all of life.

 Light in all frequencies will free itself from the gravity of Stars and planets. This light travels the length and breadth of the Universe carrying stories about its origin. But light does more than carry information. For instance, we can track some of the uses of sunlight on the planet. But all light, even the light that arrives here from space becomes an exploitable part of Earth’s chemistry. For example light reflected off the surface of Mars impacts Earth’s chemistry in a most peculiar way…it causes some forms of life to wonder, plan, and build rockets. Who could dream up a more unusual affect caused by photons than this? Light has a strange ability to cause chemical activity. And in a reversal of this strange phenomenon, the spectrums of light that reflect and radiate off Earth, will travel freely through space carrying information about our lives. But this same light is also a chemistry usable elsewhere in ways that could easily exceed our wildest imaginings.

 There is probably no limit to the way light and all chemistries in the Universe can be processed and manipulated, including the chemistry we use for thinking and feeling. This endless variety of unknown opportunity fuels the premise behind research. New research in DNA research may some day, unravel the mysteries behind survival and evolution. The only limitation to research is that all chemical relationships in the Universe exist between beats of a clock, but that clock runs differently for everything.

The real opportunity arising from knowledge about life is the probability that humans propel their own destiny. What we do, and want, and think today may be the catalyst for what we become in the future. Not just tomorrow, but the day when we see our genetics manipulating chemistries that travel freely into space. And when this happens and we are freed to travel away from Earth, we will probably find the new highway just as beautiful and crowded as the road we travel today.

 To talk more specifically about the math of the universe, let’s speed things up and accelerate the world.

 Imagine watching a 5 second film clips showing a flower bud opening into a full blossom; or a 10 second clip showing the movement of clouds across the sky for a full day. This is the premise behind our new accelerated world.

 In our new world, we take all the events from 100 years and condense them into one day. So now 100 years is a single day. After a full week, we’ve been able to see 700 years of Earth’s history. Or for each second of time, we would see slightly more than a full month. Obviously at this speed, events on Earth would pass by so quickly that our world would no longer contain ordinary days.

 So let’s have a look at the new world and see what’s changed. We’d see for the first time, the migration of plants and trees. And at last we’d be able to see patterns in the movement of stars, allowing us a greater sense of the galaxy.

 Erosion of mountains would become visible, volcanoes would be puffing and erupting each day, and sand dunes would ripple like water. Meteorites would rain out the sky and big meteors would divot the earth every other week. Rivers would pulse continually with water. Snow and ice would move to and fro across the face of the planet, and the land would be positively shuffling from earthquakes.

 Sound waves would now travel faster than the speed of light, and these vibrations would cause never-before seen phenomenon in the environment. The resulting interactions between sound vibrations and other properties of the planet would create environmental niches and opportunities unique to the accelerated world. Seemingly unrelated phenomenon would become connected and explain mysteries about life that baffles science today. Many new patterns and sequences would emerge and each would require new scientific studies and mathematical explanation.

 In the accelerated world, time would be passing by so quickly that waves, tides, and currents would make water appear as a dense fog, totally devoid of the living things we understand. In fact, no animals would be visible in our new world…no insects, or birds, or microbes, or termites, or seeds, or the balance of nature as we see it. These things would still exist and their math would be worked out somewhere in the planets’ formula, but their actual existence would have to be inferred.

 New relationships would exist in the accelerated world that cannot exist here simply because of time. There are things that happen over thousands of years that profoundly affect life yet seem inconsequential to our own everyday world. For example, in the accelerated world, mathematical patterns arising from migrating trees might let us see interspecie genetics. But in regular time, these events occur so slowly the information is beyond the reach of our math and science, and we cannot gain agricultural advantage from this genetic knowledge. The factor of time limits the chemistries available for human manipulation.

The accelerated world contains a mathematical reality different from our regular day, and in reverse, today’s math explains a reality invisible to the accelerated world. Both mathematic exist simultaneously and both are correct, but there may not be an obvious connection between the two.

The real point for inventing the accelerated world is to illustrate how multiple mathematics are needed simultaneously to weave the overall fabric of the world.

This example shows what mathematicians have discovered about the Universe…that multiple mathematics exist simultaneously. And if everything we know and see, all the stars, planets, cars, and people, were taken away, 90% of the universe would still remain right here…unseen yet necessary to make the universe what it is. The mathematics of the Universe is layered, complex, and ever changing.