

BECOMING A CONSCIOUS BUSINESS



EXPAND YOUR LIFE & WORK THROUGH
THE SCIENCE OF ENERGY FLOW

SAMUEL P. CHIN

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**Expand Your Life & Work Through
the Science of Energy Flow**

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To Emma Watson,
*who I hope leaves this book
in the subway someday*

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FOREWORD

When people ask me “So, how do you know Sam?”, I’m never sure what to say. Technically I know Sam because we’re family – our mothers are sisters, and we used to play together as children. But by the time I moved to New York City in 2016, we hadn’t spoken in over a decade.

On the basis of our – at this point – tenuous family connection, Sam invited me to crash with him for a week or two while I was getting settled and finding a place to live; and to the surprise of both of us, I basically never left.

It was in that apartment that the seeds for this book (and the business which inspired it) were planted; although on that first night, when I arrived jetlagged at my cousin’s place ready to crash after a long flight from London, I had no idea that this was where we’d end up less than two years later. This reflects the sort of serendipity and expansion which happens naturally as one becomes more aware of the energetic patterns of the universe, patterns which Sam explains so eloquently in this book.

I remember when Sam first completed the outline of the book draft. The first thing he said to me was, “I’ve figured out the meaning of life!”. Of course I teased him at the time for his exuberance, but when I finally read the manuscript, I began to understand what he had meant.

This is a book about business, yes. But it also is about nature, creation, evolution, the flow of energy, finding love and joy, overcoming fear and ultimately, understanding the purpose and behavior of all living things within the greater patterns of the universe. (No big deal!) It is a personal story ... and also the story of everything.

This book is a scientific text told through the lens of individual experience. If you are looking for a business tactics guidebook or self improvement advice, you might do better to pick up the

latest work by Seth Godin or Simon Sinek. And if you are looking for a book on spirituality, I'm sure that Sam himself would be the first to direct you to the work of Eckhart Tolle (and others like him).

What you will learn from this book, however, is a new way of viewing the world and building a business through tapping into the energetic flow of the universe – unlocking your own process vision, as Sam calls it. When we start to look at life from the perspective of that energy flow, everything becomes simple. And, in the process, we learn more about what it means to be part of nature, what it means to be human, and how businesses are the next stage of the universe's evolution towards ever-more complex form.

Sam's academic background as a biologist has informed his work as a process scientist and a student of human nature. The first part of this book is all about nature and the evolution of living forms, from the Big Bang right up to humanity and a higher form of consciousness. In this section, Sam describes how nature is designed to always optimize its own processes for creating the most value possible, and how this natural (organic) optimization eventually developed into human form, bringing in a new era of life on this planet.

In the second section, Sam focuses on the human experience and our own personal growth. Applying these evolutionary principles of value optimization to our personal lives, we begin to see how the same universal energy that flows through nature can inspire our growth as individuals (overcoming our innate fear of the unknown to embrace transparency, presence and love). But it doesn't stop there.

As humans, when we begin to bond with one another and come together in creating social structures and other organizations, we set the stage for the next phase of the evolutionary process – the rise of the business as a living organism with a will and

consciousness of its own. This leads us into the third, and final, section of the book: an understanding of business as a living entity. This understanding is what enables us to most effectively remove the obstacles that prevent energy from flowing through and expanding the business organism to its full potential. This is how we “raise” our baby businesses to full maturity, finding a sense of personal fulfillment in the process.

You might be thinking, this all sounds well and good, but does it work?

The scientific method outlined in this book is not just theory. The principles and frameworks that Sam describes are the result of years of experimentation and real world application in a variety of industries and organizations, culminating in the creation of our own business: Cavi Consulting.

Cavi Consulting, which grew out of a collaboration between Sam, myself, and our friend and co-founder Hassan Khan, is a model for this new way of approaching entrepreneurship and business growth. Through the experience of becoming a business ourselves, as well as in our work with clients, we have seen firsthand the many ways in which a business can start to become its fullest self by rebalancing and removing obstacles to its natural energy flow.

It is our hope that with this book, even more businesses — and the people who comprise (and love) them — will be better able to thrive and achieve their highest potential.

Bridget Randolph
Manhattan, New York
April 18th, 2018

INTRODUCTION

“...there are many worlds but they
share the same sky one sky one destiny”

Kairi

Process science is the study of how energy flows through the universe. Everything I will share with you in this book ends with being able to describe the study of process science, but this isn't a book about defining or practicing a new academic discipline. This is a story about integrated discovery, learning to love, and finding purpose by understanding the universal energy pattern that governs everything in our lives.

Growing up watching TV and movies, I always thought the "meaning of life" was something to be searched for but never found. The concept was a romantic, unsolvable puzzle which the hero was meant to contemplate and answer as best he could; only to be validated by reflection at the end of his life.

I see things differently now.

The shared meaning and purpose of all our lives has been in plain sight the whole time. When I realized what it was, and how to best align with it, it brought me serenity and joy. Much of the fear I struggled with throughout my life has disappeared.

I'll admit that I ended up here by accident. It was never my intent to search for peace by understanding my place within the energy flow pattern of the universe. It was simply a consequence of my fixation with exploring the concept of process, and why the term is relevant to humans both personally and professionally.

I've always been a nag (in addition to being obsessive), and I was that proverbial kid who asked "why?" repeatedly until I was either punished or satisfied with the answer. In the context of process improvement work, which I fell into early in my career, I kept asking "why?" to many aspects of the job and kept getting back unsatisfactory answers, often creating more ambiguity than clarity. For example, if you google "process" right now, you will get back several definitions and not all are similar. In fact, the more you listen to people talk about process, the more you will notice that everyone is thinking of something different

when they refer to it. Some people hate process, because to them it means bureaucracy, while others seek process because they think it will give them additional clarity or guidance within their work. If asked, most process professionals will give you a personal, as opposed to a standard, definition for the word "process".

As a young process professional, I was justifiably annoyed that I couldn't concisely define the word "process", which also meant I had no chance of clearly articulating what it meant to improve processes as a profession. To remedy this, I set out to create a standard, universal definition for process that everyone might adopt and understand. What I initially thought might be a simple exercise ended up not being solved within the week, or the next month, or even the next year. There were times when I gave up, or was distracted by other things in life, but I always had an itch associated with knowing that the clear definition of the most foundational element to process improvement was still outside of my reach. Eight years and many revelations later, I finally figured it out: process is the mechanism that transforms energy into value.

With this definition, it follows that everything is process. Anything with energy flowing through it is a process, and that includes almost everything that exists, including you. For an unknown reason, or perhaps randomly, the universe consistently seeks to create value, which is the difference between benefits and costs ($\text{value} = \text{benefit} - \text{cost}$); and it does so by transforming energy into value, using processes.

The way in which the universe allocates limited energy into processes is the highest order "pattern" that I will refer to in the narrative that follows. While I began to study process through the lens of business, I realized that my scope was too narrow. To come to the above definition of process, I had to integrate all my life experiences, as well as intentionally explore additional topics, including psychology, spirituality, natural science, history, and many more.

When all the knowledge I had gathered came to a critical mass, everything suddenly organized itself and I started seeing the pattern that governs processes, and the energy flowing through them. As a human process with this universal energy flowing through me, I could see myself in the pattern, and experienced such overwhelming comfort that it brought me to tears – the knowing was cathartic beyond words.

I'm going to attempt to share the knowledge I discovered, in a sequence that may help you to understand quickly what I had put together in a random way over the course of many years. I will recount events and learnings from my life that were milestones in the discovery process and put them within the context of energy flowing through three subsets of our universe: the way energy flows through nature, the way it flows through humans, and finally the way it flows through business. I hope that by sharing my personal journey you will more easily find your own process vision and can experience the same joy and calmness in better understanding the process science that governs our universe.

NATURE'S FLOW

**“Never does nature say one
thing & wisdom another”**

Juvenal

VIDEO GAMES

Since childhood, I've been attracted to video games. My Dad had the first Nintendo Entertainment System, and playing it with him was the beginning of an obsession in me that has never dissipated. I didn't realize until many years later that I was developing a mind for process by spending countless hours completing the various games I had access to. Video games were my first teacher of process, and they intuitively taught me several critical pieces of the puzzle: scarcity, experimentation, and the power of simulation. The way that energy flows through nature is influenced by these same concepts, and I think many of us start to learn them through play – we just don't realize it.

If you don't know much about video games, or at least the type I enjoyed, they act as simulations of exciting, entertaining, and/or fantastical situations that we typically wouldn't be able to experience. For example, in first-person shooter (FPS) games, you play as a weapon-carrying individual who is usually forced to kill enemies in the context of a mission or dangerous situation. In role playing games (RPGs) you progress as the hero in some epic quest to save the princess, save the world, or some similar premise. No matter the context of the game, they all simulate common elements that appeal to our instincts. Simulations themselves act as a unique basis for learning, in contexts an average person normally wouldn't be able to experience. It is also a powerful learning mechanism to be able to experiment with the same simulation multiple times, each time with the ability to make different choices and observe the outcomes.

At an early age, I could see how my choices impacted situations, and if I didn't like the result, I could repeat the exercise with different variables and see how it changed my in-game fate. I later realized that simulation and iterative experimentation is the foundation of the scientific method – it's just that now, video games allow us to internalize this process from the

minute we pick up and operate technology.

Access to technology and games aside, why would a child, or anyone for that matter, want to experiment with a simulation over and over again? It is because of the last element we haven't addressed yet: *scarcity*. Video games mirror the realistic energy flow through nature by setting up the construct of energy scarcity.

When you start a game, you are given a limited amount of energy to experiment with and achieve desired results. It could be currency, health points, skill points, ammunition, time, or anything else you can think of that would be useful, but it will only be provided in limited quantities. When you are in an environment with scarcity it creates urgency and pressure – this is what makes it exciting!

With limited energy, each choice during the simulation must somehow create benefits in excess of the energy it cost. That way, you can use that benefit at each subsequent stage to progressively gain more energy and move the game to completion. If you can't manage to consistently create value with your choices (energy expenditures) over time, the trials of the game will overwhelm you, resulting in starting over and trying again. Most people play games because the thrill of creating value from limited resources is viscerally satisfying, even if they don't articulate it that way. You could say that the pleasure of iteratively energizing processes that provide value is hardwired into our nature – which is exactly the case.

Scarcity of energy is the environmental condition required for benefits and value to exist as meaningful concepts. Without scarcity, there is infinity, which means that the relative energy cost of doing something (compared to the infinite amount you have of it) is always 0. If the cost in the value equation (value = benefits – cost) is always 0, it creates an interesting dynamic: value will always equal the perceived benefit, and it becomes

impossible to prioritize achieving benefits that hold the same value. The inability to prioritize in this case results in random behavior when faced with a choice.

Let's take a video game example that covers scarce and infinite resource conditions:

Resources are scarce and I have 10 energy points to make my next decision. I only need to worry about health points for the next level, and I have two food options of equal benefit to me because they provide the same amount of health points – one is meat and the other fruit. (“Benefit” as a variable in the value equation is always determined subjectively from the perspective of the agent making the value determination, which means we can quantify it however we want, knowing both benefits in question already give us the exact same thing). Let's assign the expected health point benefit an arbitrary value of 10 for this example.

The last piece of information outstanding is the cost: the meat costs 8 energy points and the fruit only 3. Now we can do some math using the value equation: The meat option yields 2 value units (value (2) = benefit (10) – cost (8)), whereas the fruit option yields 7 with the same math ((value (7) = benefit (10) – cost (3)).

Intuitively, you already know you would buy the fruit, but the point is to start letting your mind relate to the value-based language that you instinctively speak without knowing it. Even though the benefit of both options is the same, the value is different considering the cost. The reason this is important should become clear when we compare it to the infinite resource scenario.

If I have no costs in the same situation because I have infinite energy points, then the same two benefits from

our food example would also have the same value (value (10) = benefit (10)). Between two benefits with the same value, I have no way to figure out which to pick, so I would simply pick the meat or fruit at random, if I only had space for one of them. Or maybe I would grab them both if there was no restriction (why not?).

Back when I was a kid, there were in fact “cheat codes” you could enter into video games to create such conditions. Once used, you would get infinite energy resources and do whatever you wanted within the simulation's broader limitations. Not surprisingly, when these conditions were created, the drive to create value to beat the original conditions of the game disappear entirely, and the players act and entertain themselves through random activity. For me, this was a huge aha moment: the fun wasn't simply in getting to the end or having all the resources you needed, it was in the value creation itself – by discovering and putting my energy into the right choices (or processes).

Between two equal benefits with different costs, given conditions of energy scarcity, you can see that a pattern, or a “pull” is created. People will invariably conform to putting their energy where value creation is highest; value being defined by the conditions of the environment around you. It follows that over time, people will stop spending energy on benefits that yield less value than similar options, and the inferior option will eventually cease to exist. It is in this way that games also become directional, or in a way, guided. Players who buy the meat at the first stage will be punished by having less energy later, and when they replay the simulation, they will not make the same mistake considering the wasted energy on the meat. The conditions inherent to the environment force players to change the pattern in their play styles in specific ways, in order to create enough value to complete the game.

Relate this to your own experience – have you internalized some of the same dynamics of games you've played over the years (video games or otherwise)? Do you feel pulled to do certain things in your environment because it's the more efficient or effective way to do it – even if it may not be your preferred way of doing a particular thing?

Video games are simulations built in such a way that players can experiment within conditions of energy scarcity with the intent to create enough value to “win” the game. Described in this way, video games reflect the flow of energy through nature almost exactly – which in nature we call “natural selection”. Even though I was only a child, playing games was the start of me internalizing the pattern of how energy is prioritized and moves through natural processes. This background helped make it easier for me to understand real life concepts when I started studying them in college.

SCIENCE

I did my undergraduate degree at the University of Virginia, where I went with the intention to become a doctor. My degree ended up being in biology and psychology, but I also had to study the other natural sciences as part of the pre-med program.

I'll admit that I had no real reason to become a doctor. I made that decision without much thought, because in high school I was too preoccupied with video games to do any self-reflection or meaningful career planning. Despite that, the pre-med program ended up being extremely stimulating and it was there that I learned a lot of important truths that helped me to more clearly see the pattern of energy flowing through nature's processes.

Thus, science was my second process teacher, and even though I could geek out about science forever, I am going to limit this chapter to those select topics from biology, chemistry, and physics

that eventually led me to major discoveries in the pattern.

Within biology, learning the theory of evolution had the most profound effect on me, as it concisely describes the processes governing nature from the beginning of life. The word *evolution* itself describes *the gradual development of something*, especially from a simple to a more complex form.

As you may remember from biology class, the scientific theory of evolution developed around the concept of *natural selection*, first articulated by Charles Darwin in 1859 in the book *On the Origin of Species*. Darwin had observed that, in nature, living things will change in small increments from generation to generation, in order to increase their ability to survive and thrive. This process of micro-evolution, which he termed natural selection, occurs as individual creatures are born with small variations in physical traits and behaviors. These variations, in turn, act as a sort of random experiment whereby those individuals whose attributes are best-optimized for survival are also most likely to reproduce and continue passing on their genes, while those with variants ill-suited to survival will not live to do so. Over time, the variants with the highest success rate of survival become the baseline and the cycle continues.

Natural selection – sometimes referred to as “survival of the fittest” – distills all the complexity we see in nature to a simple, verifiable pattern of genetic inheritance that reacts to the changing conditions of scarce energy resources in the environment. Just like in my childhood video games, scarcity of resources is what fundamentally drives process prioritization for living organisms. Those animals that represented the most effective process to transform scarce energy into benefits were selected over others to survive and build flow and direction within the pattern.

Darwin's theories have taught me more about process than any other single source of knowledge, and there's not a day that goes by where I don't see the pattern in nature unfolding around

me as consistently as he observed it in the 19th century. While I would encourage everyone to further reflect on *On the Origin of Species*, I will move on for now to my own critical learnings from evolutionary theory which are necessary for the conversation at hand.

Within *phylogenetics*, or the study of evolutionary histories of organisms, there exists a concept called “maximum parsimony”. I’ll never forget the day I learned this, because it represents a paradox from our perspective. It states that when studying the complexity of changes that an organism could have undergone during its evolutionary history, the smallest amount of changes that cohesively ties the evolutionary history together is acknowledged as most accurately representing the correct path through time.

This helped me understand the relativity of natural “complexity”, and that randomness for the sake of being complicated is rarely exhibited in nature. The energy that flows through nature manifests itself through highly complex details from the human perspective, but it navigates that complexity in a very ordered and surprisingly simple manner.

From nature’s perspective, nothing is complicated, but is simply the path of least resistance to evolve and continue the creation of value from its own perspective. It’s a basic pattern, and one that is starting to resonate more with humans as they seek structures that are more “organic”.

Organic, in the context of human invention, refers to *structures that are more like living organisms* as opposed to the linear, simplistic structures that have represented human design since the industrial revolution. New Age thinkers are starting to understand that the perceived complexity in natural structures may appear random or indecipherable, but there is incredible value and efficiency in its form, sometimes beyond our comprehension.

This acknowledgement, that we as humans can trust the simple pattern of organic optimization which lies behind all the complexity that nature represents, is moving us towards what I consider to be the next level of understanding evolutionary theory. I acquired an affinity for “organic” structures more intuitively than some, as studying evolution established in me an incredible respect and deference for nature that many don’t adopt as zealously.

When you contemplate the logic of natural selection, it stands to reason that everything that presently exists is close to the best it can be at producing value in its given environment.

It’s never a question about whether something makes sense, it’s a question about how it makes sense.

I see a lot of people who have lost this truth, in the arrogance that is associated with human ingenuity. People think of nature as aimless or simple in purpose, not equipped to create beauty and form like only the human mind can conceive. We sought to improve on nature by mechanizing and automating the very limited aspects that we could understand over the last few hundred years, in hindsight often to negative results (e.g. monocropping). This notion that there is strength inherent to natural models boils down to a simple mantra that has brought me great success in applying process improvement over the years: *if a process exists, there is value being produced*.

Practically speaking, you should always seek to understand what exists in front of you before attempting to change or improve it. If there was no value being produced by something, then it wouldn’t exist for you to observe or study!

Think back to the pattern of energy flow we started to establish in the video game discussion. Energy stops flowing through processes that don’t transform that energy into value. Unless you’re observing something in transition, the living processes in nature won’t exist for long if they don’t produce value. Just

as games establish direction in the processes they want players to use in order to navigate the simulated environment, nature is structured the same way; except that in nature the environment is our world, and the player is the universe deciding how to channel energy through nature, and by extension, through us. This is the most significant addition to what Darwin started to articulate with his theory of natural selection: to say that the universe has direction, driven by its own definition of “benefit,” and its own assignment of value to certain processes over others.

What is the benefit I’m alluding to? What does the universe value? Which processes does the universe prefer over others? The answer to these questions eluded me for a long time. In some ways I was confused because of the narrow geological timeline in which Darwin studied living forms, and the reverence I had for the absolute logic of natural selection. In Darwin’s view, things got stronger and more complex simply as a matter of mutating and being randomly better at surviving in the face of dynamic environmental conditions.

While this might be comprehensive if you set your scope of observation from the beginning of life, the universe didn’t start with life; it started with nothing but inanimate energy; so Darwin’s pattern wasn’t complete. Why would living things be driven to survive in the first place? Why does everything with form strive to maintain its physical form? From the beginning, there was no such thing as survival, because nothing was alive. Yet the universe’s energy selectively flowed into processes nonetheless.

The pattern of what was produced by processes over the entire history of the universe tells us empirically the universe’s definition of value: the transformation of energy into increasingly complex physical forms. This is also the purpose of all life, a purpose shared by every process in the universe. Nature is a collection of living processes that receive energy from the universe in the same way it has been distributed since the start of form.

Everything that exists and lives strives to create more complex patterns of form. It is what the pattern defined by the universe created us to do.

The actual origin of the universe is irrelevant to our conversation, but—for the sake of narrative—I’ll borrow what I understand from Stephen Hawking’s *A Brief History of Time*, and assume that the universe suddenly burst from nothing into physical form with a giant explosion that scattered basic particles throughout the universe. These first particles (or some basic combination of them) are what I refer to when I talk about “energy”. They were particles with the potential to create motion (e.g., more complex form), and ultimately life. In addition to exploding itself into existence, it did so with scarce, finite energy. The origin of our universe is almost magic as far as we understand it, and it could have been just as plausible that the universe created itself with an infinite source of energy to power it – but it didn’t.

My point here is that as soon as the universe began, it created a dynamic of energy scarcity, which is the foundation for a value-based process prioritization system to exist. In the simplest sense, after energy brought itself into existence it began to bind together through process to create value, evolving through increasingly complex forms. Energy became dust, dust became rocks, rocks became planets, and other particles combined to become other more advanced celestial bodies with their own properties, like our sun and moon. Whichever way you look at it, it is a pattern that only goes one way: in aggregate, process never takes energy and reduces the complexity of forms over time. It is self-driving and directional. It is not the result of random scientific events, but is the direction of the universe itself, playing out consistently over time.

From the Law of Conservation of Energy, we know that energy can never be created or destroyed, it only changes form. All forms that have been created, from rocks to galaxies to humans,

are made up of the same fundamental units of energy taking on increasingly complex forms driven by the universe's selective flow of energy into some processes over others. In the universe's pattern of creating increasingly complex form, life and nature were created.

From Earth's perspective, when the first self-replicating proteins became animated, life began, and the universe had established a game, a living simulation, to create more complex forms at an exponentially faster rate than ever before. This brings the origin story back to where we started this chapter: the study of natural sciences.

Science has revealed a lot of the process story, and I'll end this chapter with my greatest learning from chemistry. Before you understand chemistry, when you look at a glass of water, you see water. You see that it's a bluish liquid, and you learn that you can drink it to support your bodily processes.

Once you learn chemistry you know, despite what your eyes see, that what you are actually looking at is an unfathomable amount of hydrogen and oxygen atoms interacting with each other at a rate and scale which is also beyond your comprehension. It is a living latticework of energy binding together inanimate atoms, constantly changing form based on what it needs to do to create value. Once you have this knowledge, you can begin to think beyond your senses, and realize to a large extent that your standard view of the universe is unique to you as a human, boxed in by the limits of your own physiology.

This is the concept of 'umwelt, or the "self-centered world", a term drawn from the field of semiotics and first used by the scientist Jakob von Uexküll. My deepest hope with this book is to expand your process vision, or your ability to see the flow of energy, beyond your umwelt by making you aware of the universal patterns that exist beyond your physical senses. You won't physically see anything differently the more you know; however,

you will understand everything in a fundamentally different way. You will be seeing beyond your umwelt, and that type of vision sits within your consciousness.

WATER

Science gives us the background to better understand and see the true nature of our universe, but it is flow that allows us to see the movement through it.

After college, I decided not to go into medicine and had a bit of a post-grad crisis. I worked a few random jobs for a while including waiting tables at Outback Steakhouse, serving as a salesperson for Abercrombie & Fitch, and selling insurance policies on the street.

After I admitted to myself that I wasn't cut out to sell insurance, I was able to leverage my UVA degree to network into what I considered my first real job: a pilot plant engineer at a water and wastewater treatment equipment engineering company. They usually hired civil or mechanical engineers, but a decent interview, coupled with my biology and chemistry background, landed me the role. The company sold large scale water treatment technologies; our typical clients were cities or municipalities. These technologies would be giant filter units, or bioreactors, able to clean millions of gallons of water per day.

As part of the sales team, I managed the small-scale pilot units when we were called upon to test our technology against competitors, with the intent to prove in a pilot study that our technology was the best option from an effectiveness and cost standpoint. For a given study, I was responsible for building the smaller pilot unit ('smaller' being the size of a large truck and capable of processing hundreds of gallons of water per minute), getting it to the client site, and running the study using the client's water at their location. I did this job for about two years,

and in the process I spent a tremendous amount of time with my third teacher of process: water.

I spent those two years at the water treatment company thinking and learning a lot about water, and nonetheless I never felt like I was even close to understanding its complexity. Water is a complicated and cruel master. Because the properties of water in a natural environment are so complex, I had to leverage all my paltry undergraduate knowledge of biology, chemistry, and physics so as not to embarrass myself on job sites.

When you pull water out of a river (or worse, the sewage line) it is filled with life and energy. From microorganisms, to plants, to small animals, all manner of things make their lives in water. Beyond that, there are huge amounts of mixed organic and inorganic solids, metals, complex human waste, and other minerals and trace chemicals. Then there is the energy itself, which moves in water and manifests in the form of heat, kinetic, or chemical energy. And on top of all those variables... water flows.

Flow was the most difficult part of managing water, because it's always on the move. Flow represents directional, continuous, uninterrupted motion. Water is the quintessential example of flow, and spending the better part of two years in a trailer watching it move got me very well acquainted with the principles of flow.

What was I doing in that trailer the whole time? I was dumping chemicals into flowing water in order to treat it. I was wrestling with my pilot machine configuration to speed up or slow down the flow through the unit, attempting to manage contact time and kinetic energy. I was also testing different combinations of chemicals, dosage, and energy combinations, followed by monitoring and sampling the results. All these activities were done to meet our water treatment objectives and create a defensible report that highlighted the strengths of the technology and various chemical configurations.

During this work, I not only came to respect the power of flow,

but also to understand the consequences of impeding or creating obstacles to flow. Water flows for a lot of reasons, but unless you're wasting a ton of energy pumping it and making it flow yourself, most water treatment plants try to capture the natural flow of water based on gravity and the movement of the Earth. That source of flow (gravity) is very powerful, especially with large bodies of flowing water. Blocking that flow can be very difficult.

The one thing I internalized very strongly from this experience is that to block flow, you need to be ready to spend energy to counter the existing energy coming at you. Flow has direction, power, and is already moving. To go against it means to expend energy in the opposite direction. You already know the answer to the question "would you rather swim upstream or downstream in a flowing river in order to move yourself?" This is an important process principle: *it costs energy to create mechanisms that block flow.*

The other important lesson I learned here is that unless you block flow completely, it will continue to push forward, shatter any obstacles you place in its path, or otherwise find ways to get around your barriers. Water is notoriously brutal in this way. If you plan to change or impede flowing water, you'd better have a, well, "water-tight" solution; otherwise, be ready for the water to figure out how to get around the blockage and continue on its way.

The principles I learned about water made it easier for me to see the pattern in energy flow more broadly. Energy flow behaves the exact same way as flowing water – if something flows, it has direction, power, and intent, inherent to its behavior. An intuitive example of the universe's flow of energy into nature is the constant flow of photons from the Sun to the Earth. You can even imagine this as a perpetual river of energy that pours forth from the Sun into all processes on our planet.

In the case of the universe, instead of gravity being the source of

flow, the source is the behavioral pattern of the universe itself as exhibited by its choice to concentrate energy into processes that create more value through complex form. Whichever processes create more value, these attract more energy to themselves over time, thus creating the pull, or the flow. The flow of energy from the universe is incomprehensible in power and magnitude.

Like water, if you set up obstacles that act against this energetic flow, it immediately finds ways to flow around them, and in time it will always destroy those obstacles.

The rest of nature is more aware of the flow than we humans are, and doesn't set up obstacles or purposely block that energy flow. Generally, non-human life exhibits a synergy with the universe that we as humans have not been locked into. We have the free will to set up barriers or go against that flow at our own discretion. It was never the universe's intent for us to do this, but it is a natural byproduct of the flexibility and power we were given. It is in this way that the flow of energy through nature differs significantly from the flow of energy through humans.

ONENESS

While we have spent some time establishing a foundation of definitions related to process science, this last chapter will deliver what the section title promised: the patterns of energy flow through the collection of living processes that represent nature.

This flow is the simplest pattern, following the general theme that nature seems complex, but actually operates via a small number of fixed principles. The reason for this simplicity in flow is that nature is truly one with the universe, separate only in that it is an extension of the universe that is "alive" from our perspective. That oneness means that there is never any difference between what the universe wants and what nature is doing.

For most of my childhood, my dad was the parent who stayed home with the kids while my mom worked. He is a very active man and loved taking me and my sisters into Washington D.C. for day-long trips to visit parks, museums, and the national zoo.

I have a lot of fond memories of spending the day at the zoo, and—for a child with a notoriously short attention span—I would be entranced for hours watching animals and running around the different exhibits. One of my sharper memories from those days involves seeing the ant colony exhibit for the first time – the type where you see the entire colony working in their chambers through a see-through pane of glass. A zoo staff member pointed out where the queen was and explained the different classes of ants, as well as how they all had their own function to support the colony. You could see the speckles of green plant matter along the black rivers of ants constantly moving back and forth from the nurseries and other important functional areas of ant life. It was the first time I registered the "hive mind" structure of life, and it always fascinated me that disparate living things could work so synchronously to promote the same agenda – the ants are all separate, but in terms of energy and purpose, they are one.

I'm not the only one who thinks this concept is cool. The *hive mind* construct shows up a lot in fantasy and sci-fi; some of my favorite examples include the bug race from *Ender's Game* by Orson Scott Card, the Borg race from the Star Trek series, and the Zerg race from StarCraft.

The idea of the *hive mind* is that a species is organized by being differentiated functionally and yet collectively represents a single entity, as opposed to being a collection of multi-functional individuals each attempting to survive on their own (e.g. mammals). There is usually a "queen bee" or some central heart or brain to the species, and all the other organisms are in service to that higher-level organism. It's not that different conceptually

from the way the cells in your body all act in concert to collectively form “you”. If I transformed “you” into a hive mind-type organism, it would be as if your head and brain got to relax in a safe space at home while your limbs leave the house and autonomously heed your will to gather food and make money and return these resources to you.

The relationship between the universe and nature is very similar to the one between a hive brain and its various subordinate organisms. The energy pattern of a hive can be seen as uninterrupted signals coordinating everyone in concert with the brain's will. In the case of the universe, it similarly coordinates all its inanimate and animate parts as instruments to more effectively fulfill its pattern in creating more complex forms. Just as the ant queen spends her energy to spawn worker ants, which then devote their entire lifecycle without question to her bidding, nature is similarly subject to the universe.

The combination of organic and inorganic components greatly enhanced the universe's ability to iterate form, and for millions of years it enjoyed the ability to supply a continuous energy flow to nature and be rewarded with the emergence of increasingly complex and beautiful forms. If you imagine that nature in its entirety is a single extension (a worker ant) of the universe (the queen ant), it will be easier to conceptualize that the energy flow through it is always balanced and even – it does not set up obstacles to its own flow or resist its master's will. By separating species that could only breed with each other, the universe set up discrete variables and functions that could evolve on their own paths and co-exist to form ecosystems that flexibly balanced themselves within a dynamic, inorganic universe.

For form to continue to evolve in complexity, it had to build more complex species in stages, each setting up stability in the ecosystem to support more complex forms. For example, if plants hadn't come first, things that eat plants couldn't have come after them.

Also, nature would have faced a problem if these plants tried to replace themselves altogether with plant-eating animals, because then those animals would have had nothing to eat. If you think about it in terms of the pattern, nature stabilized the value production of a species, and as a result, species with more complex form were able to discreetly introduce themselves into the system, and a beautiful ecosystem continued to evolve co-dependently.

Let's think of nature more simply as a collection of different species that interact in a shared environment. The species level could be considered the basic unit of experimentation from the universe's perspective. Each species represent a single, unique process. They take only certain energy inputs and produce value in a way that only that particular species can do.

Despite the uniqueness of conditions and value creation for every species, they all play by the same rules and collectively represent one entity. Species don't kill more than they can eat, acquire or hoard resources they can't use, or endanger themselves needlessly for emotional reasons – they live in balance with an absolute knowledge of the universe's pattern. They consistently and cautiously survive, and when they reach evolutionary stability within the current environment, a new natural function can evolve—in the form of a new species.

From our perspective as humans, it is hard for us to relate to the hive mind, or the oneness, that synchronizes species or animals together without strong individual identity. For me, it became easier to grasp by reflecting on the human construct of “time”, and the impact of nature not recognizing such a concept.

Humans think of everything in terms of time. However, it's actually an arbitrary measurement construct that doesn't represent anything physical. If you put yourself in the universe's perspective where there is only physical form, time and other intellectual constructs don't exist.

An example would be the human measurement construct of a meter. A meter describes an amount of something, but a meter itself doesn't exist. It's a metaphysical language construct to help us relate to an amount of physical existence (i.e. a meter stick) more quickly than if we described the amount to someone by using an alternative approach. When I say the universe doesn't recognize things that don't exist, it is because it has no need to relate things to other things, like we do. To the universe, everything simply is as it is.

Time is the same type of construct as distance, and generally speaking, what it helps us measure is changes in form. Personally, I struggled with this for a long time (sometimes to the point of self-described insanity), and I still can't explain it to you in words, because every word in the human language is bound by a time orientation (explaining when and where things are in time relative to each other).

For example, even words like "measure" and "change", which I just used in my loose definition, are bound in time, implying states of being before and after each other. We're not going to spend a lot of time here because it is a vexing conversation to have, but I recommend you internalize it as truth that time doesn't exist, and from this point, let your brain work on what that means in the background of your consciousness. It is important to acknowledge here, because understanding the absence of time is foundational to understanding the pattern.

I can "see" the existence of form without time, but it can only construct itself as energy patterns and images in my mind's eye, because again, this understanding can't be articulated within our current language constraints. (If you wish to gain a better grasp of this topic, I recommend first studying an abbreviated version of Einstein's work on the relativity of time, which helped my brain process this concept when I first started contemplating it.)

Nature is a direct extension of the universe's intelligence; so,

by extension, it cannot recognize time. Because of this, nature can only operate in the present moment. Without being able to conceive a future or a past, nature can't possibly act selfishly, emotionally, or irrationally, because its full attention is always focused on what's happening in that very moment.

Not being able to think in time also means that animals can't perceive scarcity. The universe (the brain, the thinker) operates and prioritizes energy flow based on scarcity, but nature does not. If you perpetually live in the moment, there is only what is around you, so the concept of things "running out" can't be considered – you either have something right now or you don't. Not comprehending scarcity also means that animals can't be afraid in the same way we are. They can *seem* afraid, and they certainly avoid danger and death, but fear as humans experience it comes from the unknown – animals always know everything they need to know because it's happening right then. This is the major reason why animals always seem at peace, and that connecting with them allows us to share that sense of peace. It is because the energy flow through nature is without fear.

This is important to relate back to the idea that *evolving directionally is based on prioritizing choices with a consistent progression*. Nature does not have the same flexibility or ability to make choices for where its energy goes; the energy it receives is more in the form of a directive from the universe, like when we use our brains to send energy to our limbs.

I got my first dog in college and have had dogs ever since. When I observe them, my first impulse, right or wrong, is to personify them and relate to them within the context of my human psyche. Can dogs love and recognize you, and all these things? Yes, definitely – but it's different from how we do with each other. The way a dog processes the world is always in the present moment; and everything they do is with intent, based on instinct and given whatever circumstance is going on right then.

Whether it's sleeping, or cuddling, or begging, or playing, the dog is responding instinctively to its environment in order to improve its biological fitness. Dogs are like very complicated machines with one program: keep your process alive so that it can continue to fulfill its unique value proposition. For domesticated house pets and other animals that support human form, it is in supporting our energy flow that they have departed from their own. Even with that being the case, however, their behavior is still consistent with their stable evolutionary position in nature.

As a living process, animals only have one mode: on, and it never deviates from its design of a) processing what's going on in its environment, b) creating value through stabilizing the ecosystem, and c) contributing to more complex form. This has a lot of implications which you can verify through observing natural behavior, but generally it allows us to think of each species as a single process that will only ever do one thing within the physiological boundaries set by the system – like differentiated hive functions.

It is because it is so predictable and reliable that our ecosystem has been able to grow so diverse and complex. Without the stability of nature's pattern, chaos would have prevented complex form from getting to this iteration in the first place. Imagine if every ant in the colony had its own will and could behave in its own interest without considering the colony's survival. The chance of the queen meeting her objective to survive and propagate the colony would be severely diminished by the random behavior of individual worker ants.

The universe has only two types of energy flow through nature: doing and changing, which it balances based on the dynamics we have been discussing in order to most efficiently meet its goals. When I say two types of energy flow, you can think of it as nature being organized into two types of processes, and these processes form the only channels where the universe invests energy.

The constantly activated “on” mode of nature I casually referenced

earlier is the “doing” process type of energy transformation, and represents one flow path. This is the state of transforming energy directly into value by changing the physical environment in ways that stabilize a living process' ability to stay alive (or more simply for an animal, converting energy into the act of living).

The other flow path for energy is the “changing” process type, which represents energy being transformed into variation as a mechanism to experiment and iteratively navigate the environment, in order to make sure that the “doing” process stays relevant and continues propagating form. Energy flowing through changing processes manifests itself as all the mechanisms that promote genetic mutation and diversity in organisms. The doing versus changing mechanic will appear in different contexts as we progress to the discussion about energy flow through humans and business, but fundamentally, the universe only prioritizes energy on those two process paths.

In nature, these two energy flows always occur simultaneously at the species level. An individual animal can only ever be doing things; however, at the species level, energy is spent in changing at the same time, through mutation and variation within the species itself. Let's say my dog has a litter of 6 puppies. Each puppy individually will only perpetually do things based on its form and process design, but each puppy will be slightly different. This is the universe's way of experimenting and iterating within the simulation. Some of that energy will go into puppies that are inferior, given present environmental circumstances. That energy will end up going to waste, to a certain extent, as that puppy's genes fall out of the gene pool.

Energy spent in changing processes is always going to yield less value compared to energy spent in doing processes. That cost is offset by the puppies that end up stronger or more fit than the parents. When they proceed to do what they are meant to do, their form will continue to become more stable in the envi-

ronment, produce more value, and support the continuation of the pattern. The value that offsets the opportunity cost of the changing flow is that it acts like insurance that reduces risk and ensures the system of natural form remains viable. This is a different way to describe and expand on evolutionary mechanics, with increased attention to the way in which the universal flow of energy is prioritized through nature.

This worked well for the universe for a very long time, but the pattern is always changing to produce more value. How does the universe know when it should change the pattern to create increasingly more value? With nature working well, why ever change the pattern?

The answer lies in the fixed aspects of nature's process. The ability for nature to gain more complexity in form has a maximum energy to value transformation rate: a species can only change form through natural selection, limited by certain physiological barriers to dramatic mutation, and new forms can only emerge with ecosystem stability.

Am I suggesting the universe is impatient and wants to evolve faster? Not exactly. We have now acknowledged the fact that from the universe's perspective—and nature's as a subset of the universe—time doesn't exist. It's not about moving faster or slower, but rather, it's about the pattern in energy flow becoming more efficient, focused, and higher in magnitude. Remember that the flow of energy is constantly favoring process that produces more value. As energy flow continues to favor certain processes over others, those processes have more intense flow. If, like most processes we observe, the transformation of energy flow into value doesn't scale 1:1, plateaus eventually occur which result in large build ups and resistance to the increased flow.

Imagine the universe's favorite process as a very large pipe. At first, while flow is finding that pipe, energy flows straight through and value is created as fast as the flow itself. As the magnitude of

flow increases, the physical structure of the pipe itself eventually becomes its own barrier, and energy flow becomes constricted (like pushing more water faster through a fixed pipe).

Just as in chemistry, when energy builds up at a certain configuration, it allows for dramatic transition states to be navigated and more efficient and complex forms to emerge. From my perspective, these events in the history of the universe are few, and we've already covered one: the emergence of life and nature. Initially, the universe spent a long time optimizing energy flow to create complex, inanimate forms. After the inanimate universe became stable, energy density in the overall process reached a critical mass. At this point, flow started to become impeded or blocked by the system itself. At this juncture, life emerged, and again the flow started to become more efficient by routing energy to a new pipe (organic life).

What happened when the energy flowing through nature and living creatures couldn't keep up with the stronger flow and again hit a new milestone?

Us. Humans emerged.

All the value and complexity that nature created led up to the milestone of our creation as a new species, in order to more efficiently continue the pattern. As humans we are strongly tied to the flow of energy through nature, but also have new process mechanisms to manage and control that flow at an individual level, unlike our animal counterparts. While nature can only do and change at the species level, humans were given the ability to process doing and changing energy types at the species and individual level.

The ability to harness the energy for changing at the individual level has untethered human evolution from generation to generation iteration, substantially speeding up the human ability to adapt and propagate form. Individual humans can iterate and evolve alongside their broader species' evolution.

This milestone of humanity is as significant to the pattern as the emergence of life itself when the universe was only inanimate energy. As a part of nature, humans are still subject to the universe's pattern to create more complex form. It is our purpose, and what all energy flow we receive is meant to do, but we have more powerful and flexible ways to achieve that purpose than anything that existed before us.

In the next section, we'll discuss how human processes build upon the doing and changing energy flow pattern, in a way that allows more flow to move through us compared to all of nature combined.