# LENSES OF PERCEPTION

*A Surprising New Look at the Origin of Life, the Laws of Nature, and Our Universe*

*Doug Marman*

**Excerpt from**

# Lenses of Perception

*A Surprising New Look at the Origin of Life, the Laws of Nature, and Our Universe*

Doug Marman

Lenses of Perception Press
*Ridgefield, Washington*

Lenses of Perception
*A Surprising New Look at the Origin of Life, the Laws of Nature, and Our Universe*

Published by
Lenses of Perception Press
P.O. Box 656, Ridgefield, WA 98642
www.lensesofperception.com



LCCN: 2015914927

Publisher's Cataloging-in-Publication

Marman, Doug, author.
Lenses of perception : a surprising new look at the origin of life, the laws of nature, and our universe / by Doug Marman.
pages cm
Includes bibliographical references and index.
ISBN 978-0-9793260-3-5
1. Science—Methodology. 2. Science—Philosophy. I. Title.
Q175.M3675 2015 501
QBI15-600191

Text design and composition by John Reinhardt Book Design
Cover Design by Phil Wellman, Wellman Advertising & Design
Author photo by Jeremy Boldt

Printed in the United States of America

1 2 3 4 5 6 7 8 9 10

# Contents

# Introduction

THE STORY OF THIS BOOK began when I was eleven years old. I found myself in bed, recovering from a broken jaw—the results of a classic boyhood accident with a skateboard. My head was wrapped in a wire frame to hold my jaw in place while it healed. My teeth were wired shut to prevent any movement and I was forced to eat everything through a straw.

I couldn't go to school for a month, which felt like a vacation for the first few days, but soon became a bore, since there was no one to share it with. Having nothing else to do, I found myself developing a love for books. My mother, a librarian, kept me well supplied.

That's when my interest in science began. I ran across Isaac Newton's book, *Opticks*, where he describes his experiments with light. I was transfixed. It wasn't just his experiments using prisms to separate colors in a ray of light, or his curiosity about lenses and how they focus and spread sunbeams, or his interest in the way light diffracts as it passes through water and glass, or even the amazing conclusions he arrived at. It was the depth of his insights.

He brought clarity to a field that had been muddied by vague and misleading ideas. He set aside the guesses and assumptions of others and focused on his own observations and experiences. He literally found his way in the dark to a deeper understanding. His confidence

and the precision of his explanations showed a level of awareness I had never seen before.

A year later, I read Newton's most famous book, where he reveals his laws of motion, including his explanation for gravity and the mathematics of calculus he devised. I was hooked and began reading other books, especially about electromagnetism, astronomy, and antimatter.

However, I didn't find another scientist with Newton's deep sense of understanding until I ran across Albert Einstein's Special Theory of Relativity. By that time, I was in eighth grade. It was a bit of a struggle, but I followed Einstein's equations and could see how he arrived at his conclusions. But where did his ideas come from? His comprehension seemed broader than the scientists of his day.

Looking back, it was Newton and Einstein, among others, who showed me how science can open up new areas of knowledge about reality and change the way we see the world.

In high school, I had the fortune of having some of the best physics teachers in the US: Richard Mihm and Marilyn Milsop. Their classes were structured as self-directed experiments. The lab equipment we used was better than that at many universities. It was the perfect way to learn a deeper sense of how things work.

Unfortunately, college was a disappointment. I ran into the same mindset that Lee Smolin describes in his book, *The Trouble with Physics* (see Chapter 14 for quotes from Smolin). Physics professors were no longer teaching science as a way of comprehending nature. But that's what I was looking for. I wanted to find the understanding that inspired Newton and Einstein. The professors discouraged my questions. "Just read the textbooks and learn the math," they told me.

After talking to a number of teachers, and finally meeting the head of the physics department, I realized the problem was systemic. Not one of them was interested in really understanding. At the time, I couldn't see why they were ignoring my questions. In fact, only while writing this book did it become clear to me why physics teachers stopped encouraging the type of discovery I was looking for.

As a student it didn't make sense, but I saw the writing on the wall. It was the end of a childhood dream. I wasn't interested in physics if I

couldn't understand it. Fortunately, as one door closed, another opened. That's when my study of consciousness began.

I soon found that this new field was filled with the same kind of misinformation and vagueness that Newton faced when he studied light and gravity. Rather than discouraging me, Newton's example inspired me to continue. I knew I could find my way, even in the dark.

There's a huge gap between science and the study of consciousness. Science gains its credibility through experiments that are repeatable. It validates its theories empirically. Consciousness, on the other hand, can't be studied objectively, no matter what people might say. Therefore, it seems impossible to verify what is true when everything is subjective.

However, a robust study of consciousness is possible, and it uses many of the same principles that we find in a rigorous study of science. For example, we need to test our ideas. We should consider alternate perspectives and points of view before arriving at conclusions. We must be honest about what we know and what we don't know. No single source of information, by itself, gives us the whole truth. In the case of consciousness, this means we need not only our physical senses and our mental senses of logic and reason. We also need our intuitive senses and our emotional senses. And most important, we need to wait until we can see how all the elements fit together as a cohesive whole. Then, and only then, do we find a deeper understanding.

Consider physicians when they start their practice. Research shows that they often have the feeling that they're not real doctors. Their white lab coats remind them of the role they're playing and convey a sense of authority to others. But after eight years of scientific study, it's still common for new doctors to feel like imposters, until they've worked for a while. They need experience with real patients, on their own, to prove to themselves that they know how to use the tools they've learned. They only see themselves as true physicians after doing the job and helping others.

In other words, objective knowledge isn't enough to be a doctor. Experience is also needed.

This element, experience, is the distinguishing factor between science and the field of consciousness. It's generally overlooked in science

because it's subjective. However, if you want to understand states of consciousness, then experiences are your bedrock. The moment you discount your experiences, or reject them, you have nothing left to work with.

Therefore, we have two different ways of learning. First, we can study things from the outside, by reading, going to school, and using logical analysis and reason. This approach gives us objective knowledge.

Second, we can understand a field by working in it. We get to know our friends and the ways of the world the same way: We absorb it, you might say. Apprenticeship was once the main approach to learning a trade. This is also the path we take to find wisdom. It comes through experience.

I've had many good teachers. They've opened my eyes to new possibilities and started my search. However, depth of understanding requires experimentation, staying open to different perspectives, and learning from our successes and failures. Therefore, the path we walk to wisdom is largely on our own, and only we know when we've found the level of truth that satisfies us.

Childhood dreams are hard to forget, so thoughts about physics followed me down through the years. I began wondering if some of the lessons I've learned through the study of consciousness could fill a gap in science. Perhaps they can help explain, more deeply, the meaning of gravity and light, the emergence of life and multicellular creatures, the mysterious nature of the subconscious, and the strange relationship between the brain and consciousness. In other words, I wondered if they can help answer the questions I asked those professors at college, decades ago.

That's the story behind this book. And having just finished, I can now look back and see that what I was trying to do, without realizing it, was restore something that was lost from science a century ago, when relativity and quantum mechanics entered the scene. That's when many scientists began divorcing themselves from philosophy.

For thousands of years, even back to ancient Greece, natural philosophy and science were inseparable. What caused them to split? It wasn't just scientists spurning the efforts of philosophers. The breakup was mutual. And a similar divide has grown between the sciences and liberal arts, as well as between science and religion.

The first third of this book explores the cause behind this fracturing of our world. It shows that lenses of perception created these divisions. In the process, something important was lost. In fact, many of the gaps in understanding that physicists, biologists, and neuroscientists face today are directly related to this issue. The last two-thirds of this book describes a new solution to these problems.

That raises the question: What are lenses of perception? Simply put, they're ways of seeing. We change lenses when looking at the world in different ways. Seems simple enough. We all do it, partially, when we relate to another person, dive into the artificial reality of a movie, or think outside the box.

However, if we want to be more than just a tourist and truly understand how life looks through a different lens, we need to first let go of everything holding us to our old worldview. Then we must pass through a zone of confusion and bewilderment. We feel lost until another lens makes sense. Only then can we fully adjust to a new perspective. Who wants to go that far?

This is why breakdowns in communication are so common. Without a strong desire to understand, other points of view seem wrong and confused. Thus, in our age of specialists, we're more like ships passing in the night. We rarely realize how different our perspectives are. It's easy to write everyone else off as fools. The problem is that we look just as foolish to them.

More importantly, learning to switch lenses is a vital necessity in a society changing as fast as ours. It's the only way our inner selves can adapt and keep up. If we avoid the path of wisdom and understanding and focus only on objective knowledge, modern culture soon seems alien and wrong to us. We see ourselves as outsiders and feel disconnected. Adjusting our lenses of perception allows us to connect at a deeper level, where we can see that things do make sense.

Here's an example: The first major earthquake I experienced registered 5.4 on the Richter scale. It was powerful enough to make the ground beneath the San Francisco Bay area move in long undulating waves, as if it were fluid. The illusion of solidity vanished. I felt more like a surfer than someone standing on firm land. My sense of location disappeared as the earth itself flowed beneath my feet.

People around me screamed and froze, not knowing what to do. Others ran outside. However, a few old-timers smiled and calmly walked to the door. One of them said, "It's nice to feel one once in a while."

They'd been through the experience before. They knew what earthquakes feel like, so it didn't shake them to their core. They retained a sense of orientation because they learned another way of seeing.

We don't like changing lenses. Most of us fight tooth and nail to avoid the feeling of nausea that comes from a new mindset. We build up our defenses to hang onto our picture of the world, whether philosophical, religious, or scientific.

If we can pry our fingernails free from our precious perspectives and let go of our death grip, we can discover new perceptions we've never seen before. These experiences alter our understanding in deep ways. They shine new lights on who we are.

Shifting perspectives not only broadens our understanding of other cultures; it also allows us to peer deeper into nature, solving mysteries that science has pondered for hundreds of years. When I first sat down to write this book, I had no answers to the questions of quantum physics. I didn't know what was missing from Newton's laws of motion. I sensed that the theory of evolution was incomplete, but I didn't know why. I had no explanation for the mind-body problem or the scientific enigma known as "emergence." The five unsolved problems of physics seemed inscrutable.

I only knew from experience that, when I changed lenses, I found an added level of comprehension. I learned this after making a practice of switching points of view, as an experiment, to explore the nature of consciousness. This doesn't mean that a new perspective, by itself, gives us better insight. No, it's the contrast. Seeing from another angle adds context.

While writing this book, I soon realized that I'd underestimated the importance of this simple tool of changing points of view. It's far more powerful than I realized. It not only offers the key to seeing in the dark, you might say, and getting to know realms that are new and unknown to us, it also restores our sense of wholeness to life. It bridges the gap between science, philosophy, the arts, and the spiritual experience of being. This is what happens when we connect with nature at a deeper level.

However, explaining lenses of perception isn't easy. It's hard wrapping our brains around the impact they have on us. Reading about them isn't enough to see how deeply they affect our connection with the world. If we want to understand—to truly understand—we need to experience changes in our way of seeing firsthand. That's what this book attempts to do.

Successful writers know the importance of "showing" rather than "telling." A good story pulls us into a world where the scene unfolds as if we were there. Telling gives us only a clinical, literal description; it doesn't move us to a new perspective.

So, to explain lenses of perception properly, I'll be using words poetically at times to evoke new views of the world, even when talking about science. This is how we can find what is hidden in plain sight.

But words can't pull this off alone. The reader must do some heavy lifting. This book is more like a tour guide. We are, in a sense, going on a jungle safari to explore untamed points of view. Hopefully your mind will be boggled. That's the point of this journey.

I'll start with familiar views of the world. At first you can retain your normal way of seeing and thinking. Yet the quest soon takes us into dense underbrush where the most valuable treasures are hidden. If we want to unearth the gold, we must let go of the way we usually see reality. That's where we discover that lenses of perception are not just tools that help us understand the world, they're fundamental to reality itself. We'll see the scientific evidence that supports this.

To make such a leap requires a completely different mindset. It will probably feel unsettling at times when the ground starts shifting. New perspectives can shake us to our core. This is true for everyone. I experience the same thing.

If a section of this book leaves you feeling disturbed, even if in a subtle way, try setting it down for a while. Give the ideas a chance to percolate. Then go back and read the section again. You might be surprised. Remember, the goal here is to experience the uncomfortable feeling of confusion and then, breaking through that, to learn how we can change the way we see.

When writing this book, I didn't expect to be pulled into questions about the laws of nature. I was simply trying to understand the

problems of our modern times and see where the story led. Each chapter took me by surprise, as if the sails of my ship were being blown onto a new course by powerful winds. The thread of the story kept leading to deeper and deeper insights. I found myself farther from shore than expected, facing a whole new view of the world and the meaning of human understanding.

If you're interested in a wild ride, buckle your seatbelt. Then join me on the path of discovery I took to find the dimension of life that scientists have been missing. We'll use new tools to guide us: lenses of perception.

# 1

# Forces That Shape Our Beliefs

"I CAMPED ONE NIGHT in the high country of the Yellowstone area," said Jim Bridger, nineteenth century mountain man, guide, and explorer of the American frontier. He continued:

*When I woke next morning, I saw a bull elk grazing not twenty feet away. What luck, I thought. Grabbing my rifle, I took aim and fired.*

*The critter just kept chomping the grass. Never even looked up. I rubbed my eyes. Was I dreaming?*

*Quietly, I reloaded and took another shot. He didn't budge. I couldn't figure it. Never missed such an easy target. My rifle, or my eyes, must be goin' bad. How could such a fine animal not hear the blast? Was he deaf?*

*When a third shot failed, my only chance was to rush him. So, grabbing my knife, I sprung for the creature.*

*Four steps away I hit a wall of glass, not twenty feet from camp. I spent the rest of the day riding around the glass mountain. When I got to the other side, I saw it was a perfect magnifying lens. That bull elk wasn't twenty feet away; it was twenty miles, on another mountain.*[1]

Jim Bridger loved telling tales, and he told some wild ones. The problem, he said, was getting people to believe his real discoveries. They gulped down his tallest fables but couldn't swallow the truth.

Bridger was the first white man to see the Yellowstone area. People had a hard time believing him when he first described geysers of water spouting from the ground as regular as clockwork and hot steam beds of bubbling earth in the middle of winter. He was also the first to discover the Great Salt Lake. This raised doubts further, since it was hundreds of miles from the nearest ocean. His descriptions of the Grand Canyon seemed impossible, a clear sign of exaggeration. And when he talked about a land of petrified trees, solid as rock, they were sure he'd been living too long on his own.

However, when he added that he also found petrified birds in that forest, and those birds had petrified songs, well now, people were interested. And when he said the Grand Canyon was so deep that, if you shouted into it at night, the echo would wake you up next morning, they lapped it up and wanted more.

Whenever exploring new territory, we face a similar issue. If others haven't experienced anything like it before, it sounds unreal, like a pipe dream.

It's the same with this book. I'd like to explain up front the new insights into physics and biology that I've discovered. However, the words keep falling short. I've come to the conclusion that it isn't fair to make claims about lenses of perception before you've seen them for yourself. To make it as clear as possible, I have to start with experiences.

This goes against the grain of how we typically learn. To become a medical doctor, for example, we expect years of studying physiology, respiration, circulatory systems, and digesting volumes of detailed facts about the human body. We need to master this knowledge before practicing medicine.

To understand lenses of perception, however, we must start with experiences. This may seem odd for a discussion about science, but this is the only way to see what we are up against.

Soldiers, for example, watch comrades die in battle. They live through the devastation of war. This changes them. They can never see life the

same way. After returning home, they try to resume old friendships and pick up where they left off, but it's hard to connect with others the way they did before. It's as if a wall, an impenetrable communication barrier, stands in the way. They try to explain what their tour of duty was like, but soon realize that others can't understand how deeply it affects them. This isolates them. They feel like strangers in their own homes. Only fellow soldiers can understand.

Life-changing injuries can also alter the way we see. If you were born with normal sight and woke up blind one day, your world would be turned upside down. Serious illnesses force people to abandon careers and dreams. Our very purpose for living changes when we find out that we can't have children or need a wheelchair. It isn't possible to fully explain this to those who haven't experienced it. Words aren't enough.

Teenagers realize that the last day of high school spells the end of life as they know it. Whether they go to college or find a job, their world won't be the same. Friends head off in different directions. Teenagers expect all of this, but it doesn't prepare them for what they face. They feel like outsiders in a new world. The depth of confusion and feeling of disorientation surprises us when we're teenagers. Why couldn't anyone have prepared us better? Does it have to be such a shock?

Yes, it does, because dramatic changes alter our lenses of perception. No one can prepare us for radically new experiences. No teachers, books, theories, or logic can eliminate the bewilderment.

Primitive cultures in the past had rituals for honoring the rite of passage. It was a way of welcoming youth into the experience of adulthood, helping them make the leap into a new life with new responsibilities. "You must leave your old life behind," the teenagers were told. "Everything you experienced as children was only preparing you for your true purpose in the world."

But is this true? Do we really stop being children? If this is a rite of passage, what are we passing from and where are we going to?

We've made a big mistake. Belief is not the most significant force shaping our perceptions. Philosophers, religious leaders, and scientists came to the wrong conclusion because they were thinking too much about ideas.

We got it backwards: Our beliefs are shaped by lenses of perception. These lenses, the ways we see, come from experiences. This is how our worldview is fashioned at its deepest levels.

Every major shift in human consciousness occurred for the same reason: new experiences. Our thinking today is different from our ancestors' because the world we live in is different. Even changes from generation to generation create gaps in our ways of seeing. This is the natural order because we learn from the life we live. Ideas are secondary.

Once you see petrified trees and geysers, you know they're real. You don't have to believe in them. You don't doubt them, either. You just know. But it's hard to describe an experience. That was Jim Bridger's problem.

What does it feel like to run your hand across a petrified tree? Well, it feels like a rock, right? But isn't there more to it than that? Doesn't it change the way you see rocks? Don't you wonder how living trees became frozen in stone? Aren't you moved to awe standing in the silence of redwoods that once were alive, their bodies now lying intact where they fell hundreds of millions of years ago?

Describing the experience is impossible. We don't even try. We just say to our friends, "Wow. Unbelievable. You gotta see this."

Unfortunately, lenses of perception are harder to explain because there's nothing objective about them. We can't run our hands across a point of view or snap its picture with a camera. We excel at observing the world objectively; however, that skill is no good to us here. You can't understand lenses of perception through thoughts alone.

Another problem is that shifting to see through a new lens means giving up our old map of the world. This is usually a traumatic event. Our mind fights against such a move. In fact, intellectuals find it the hardest because they construct more elaborate models for how they see. Imagining a new perspective isn't enough. The transition is more difficult than we realize as our lenses are largely unconscious.

Try letting go of your worldview for a moment. Hold no point of view at all. Can you do it?

I don't think it's possible. As long as we're conscious, we have a perspective. We have to. Otherwise, we wouldn't be aware of anything. Even a blank mind is an experience. Or, if we run into a situation that makes no sense, confusion is the thing we see.

Lenses allow us to focus on our experiences. They give us context. They frame everything we see and feel.

Whenever we face the unknown, we start searching for a perspective to make sense of it. We generally don't notice the process. We only know that it feels uncomfortable before we understand. Then, one day, a clear picture snaps into view.

The transition is so disturbing that most people cut the process short. They don't allow themselves the time needed to adjust to unfamiliar lenses. Instead, they try explaining new experiences from old points of view. They tell themselves: This is nothing different. I've got it figured out.

Not knowing is unnerving. That's why we stamp labels on whatever we see. We try to make everything fit our map of the world. Teacher, politician, salesman, doctor—we label everyone. We do it unconsciously. However, it colors the way we see people.

September 11, 2001: Millions around the world watched as a plane flew straight into the World Trade Center in New York City, one of the largest buildings in the world. It was bizarre. How could this have happened?

Seventeen minutes later, a second jet buried itself into the second tower. Then, an hour later, we watched as both of the twin towers collapsed into a pile of rubble with thousands of people trapped inside. What just happened?

The confusion was so upsetting that many lost their bearings. I heard people say that life as we knew it would never be the same. Others thought it was the end of the world. Some imagined we were being invaded by aliens. And an alien invasion would have produced the same surreal sense, hanging over everyone like a cloud, because we didn't know what we were seeing.

At the same time, everyone began racing to figure it out. This wasn't an accident. Someone must have planned this. We needed an explanation.

Soon, a story emerged. Terrorists had seized control of planes and flew them, filled with fuel and passengers, into the buildings. Another plane crashed into the Pentagon, and a fourth failed to reach its destination as the people aboard fought to regain control. Can you see how we searched for a lens?

Now, compare this to the way people, thousands of years ago, would have dealt with it. The differences are dramatic.

We knew there was a rational cause, a reason behind what happened. We knew that, by analyzing the facts and thinking it through, we could determine the chain of events.

TV broadcasts, radio discussions, listeners calling in, people talking with each other while watching the scene unfold—all were focused on setting aside the unreality of the experience to find a concept that could bring it into focus. We were looking for truth, but a particular kind of truth: We wanted to know what happened.

Our ancestors would have cared little about that. They would have asked why. Not how or what actions caused it, but the significance behind it. What did it mean?

They would have focused on subjective impressions more than objective facts. They would have disagreed with our truth of the event. Our analysis would seem fictional to them, creations of our imagination. What happened wasn't an external thing, they would say. Everyone experienced it differently. No outer point of view is able to capture the meaning of events with worldwide significance.

For example, the experiences of those with friends and family working in the World Trade Center when it collapsed were completely different from what firemen saw, rushing in to help survivors. People living in the Middle East, thousands of miles away, witnessed the crumbling of the superiority of the United States before their eyes, while most of them also felt pangs of sympathy for the lives lost. American soldiers around the globe knew this was going to change their lives. Everyone's story was unique and personal. There were millions of viewpoints. That's how people thousands of years ago would have seen it: As an event too complicated to pull apart. They would have tried to understand it as a whole.

Today we set aside our subjective feelings and emotions to find an objective picture. Our ancestors accepted their experiences as real. They didn't have the scientific tools we take for granted. We know how to track down and determine causes. It's second nature to us. They were blind to what is clearly visible to us.

On the other hand, they saw things we no longer accept. They searched for and found global meanings that went beyond the personal

intentions of those involved to explain big events. This is what they talked about and tried to resolve. Not the how, but the why: Why did this happen to them in their time? What should they learn from this?

We live in an age where we look for scientific explanations without even realizing it. That is the lens we see through. It is the lens of our age. It's so pervasive that it is invisible to us.

On 9/11, when the story was unfolding, few people stopped to think that objective reasoning could only answer how it happened, not why. Objectivity can't show us the meaning. Science can't tell us how we should respond. How many of us considered that when going through the experience?

Historians face the same problem. Looking back through thousands of years of recorded history, they find that people rarely see the full significance of the changes taking place during their lifetimes. We live too close to the trees. We rarely step back to see the forest.

How will people in the future, two or three hundred years from now, interpret the attack on the World Trade Center? I believe they will see something we missed. The event shocked us because it marked a turning point, but not the one we thought.

The terrorist attack was not a sign of mankind sliding backwards into superstitious religious thinking, as many have claimed. There was a message in the event, which is why it disturbed us, but we missed it because we were so focused on *what* happened that we couldn't see *why*.

As you'll see later, there are techniques we can use to help understand the meaning of events. Lenses of perception are tools that can reveal hidden contexts behind the patterns of life.

If you are a physicist and you hear the word "meaning," you'll be thinking, "Uh oh, here we go into the squishy world of philosophy and religion." However, the discoveries we are about to explore come from the equations of physics. There will be no invoking of higher powers in this book. We won't be using complicated mental gymnastics, since philosophy and religion also overlook the perspectives we are hunting.

If I was going to describe ahead of time what you might learn from this book, I would include an explanation for why our modern world has been fracturing into special interest groups, and why we've lost the "common sense" that once bonded neighbors together. You'll learn an

answer to the riddle that has puzzled scientists for centuries: How do our thoughts move our muscles? You will find a new solution to the mystery known as "emergence," when a higher-level system, such as an organism, acts as more than the sum of its parts—a theory pragmatically accepted by most biologists, yet widely rejected by physicists—and you'll see the connection between emergence and the dark matter that astronomers have detected in galaxies. You'll see why the behavior of individual quantum particles can't be predicted and how this is directly related to the herd behavior of animals. You will also resolve questions about what causes dramatic evolutionary leaps in biological complexity, such as the first living cell and the first multicellular organism.

What is most amazing is that all of these mysteries are resolved by a simple set of principles.

If I tried to say that understanding lenses of perception could untangle these centuries-old enigmas, as well as resolve questions in philosophy, religion, and psychology, you'd think I was telling you a story of glass mountains and petrified bird songs. So I won't claim any of these things. I'm just going to take you with me on an exploration, one step at a time, and let you decide for yourself what it means.

If you're open to trying on different lenses to learn something new, I believe you can catch the significance of what we've been missing. All these years it has been right before our eyes.

# The Origin of Perceptual Lenses

WHERE DO LENSES OF PERCEPTION COME FROM? They come from the tools we use. This was a surprise when it first hit me. The more a tool transforms our lives, the more it changes the way we see. Tools alter our experiences, opening us to new insights that subtly shift our beliefs. The process is so gradual that we miss it.

Think back to the first *Homo sapiens* who learned to speak. Imagine how it altered their relationship with nature. Calling out names for eagles, snakes, and stars brought those images to their mind's eye. It was like discovering a new power. Words are creative.

They also deepen our understanding. Returning from journeys, early hunters told stories of their experiences. These tales took on a life of their own and a sense of meaning. Parents passed these lessons on to their children through songs, creating a history for their tribe.

Words may only be tools, but they shape our thoughts. When we name and describe things, we connect with them. Toddlers experience the same sense of discovery.

I'm fortunate to have two one-year old grandchildren, Everett and Lena, as I write this. They're twins, just learning to talk. First, they picked up hand signs, then simple words. It's easy to see the leaps in confidence and understanding when children begin to speak.

Our ancestors made another dramatic shift thousands of years later when they learned to write. Written inscriptions allowed them to

record events. “Look here, Ug, you gave me four sheep last month, not five. See?”

People could etch pictures, numbers, and names onto stone and paper. These were symbolic marks representing ideas. Writing may have started simply as a tool for recording, but it taught people to think conceptually. Using symbols for numbers and words taught them how to see abstractions. Writing laid the groundwork for linear thought. Our culture was transformed.

Today we explore the heavens with telescopes. We can see other galaxies. How do we ever go back? Tools change our perceptions forever. Seeing the distant reaches of our universe, or microscopic organisms swimming in a drop of water, or the skeletal bones left from ancient dinosaurs, changes our philosophy and our beliefs.

Think of how your life was altered after buying your first cell phone, passing your driving test and getting a car, landing your first job, or moving into a new home. New tools transform our view of the world. We only understand the power of lenses after we experience the way they shape our ways of seeing. Talking about this isn’t enough. We need to become aware of the shift in our perceptions.

This book explores the impact that lenses have on our lives by looking at the most significant lens of our age: science. Scientific tools have revolutionized our lives. However, there is a major flaw in our modern thinking that springs from these tools.

Technology has created a world with so many innovations and incredible breakthroughs that we live lives that ancient kings couldn’t dream of. We use technical marvels to call friends who are thousands of miles away. Our wireless phones convert messages into pulses of light that travel down fiber optic cables stretched across the ocean floor. We sit down at a computer, connect to the Internet, and look at pictures of Earth taken by Neil Armstrong on the moon. We go to doctors for cures to diseases that once plagued mankind.

Our ancestors never experienced the world we know but they saw something that we’ve lost along the way. Something important is missing. Our perception is flawed in a peculiar way that prevents us from seeing the problem.

What is the flaw?

Let's go back to the dawn of our scientific age, over 300 years ago. In particular, the discoveries of Isaac Newton launched a new age for physics. His tools were so successful in untangling the mysteries of planetary movements that they were soon adopted by almost every field.

His principles fueled the Age of Reason when a new approach to rational thought took central place in our beliefs. The same tools fanned the flames of the industrial revolution, democracy, and our modern understanding of economics. Does this seem hard to believe?

Two hundred years after he first published his laws of motion, these same principles helped crack the mysteries of electricity, magnetism, and light, while also laying the groundwork for sociology and psychology. Physics makes sense, but did he really influence sociology and psychology?

His discoveries shaped the fundamental ways we see the world and what we know. Newton would be amazed by how far his ideas reached. But he would also have seen the flaw.

Isaac knew that his methods were limited. It's clear from his writings that he realized these tools could not explain all of life, for a good reason.

Let's take the "Wayback Machine," as Sherman and Mr. Peabody call it, and journey to 1687, when Isaac first published his *Mathematical Principles of Natural Philosophy*, commonly known as his *Principia*, where he revealed his laws of motion. One century later, as one writer put it, "No one could deny that . . . a science had emerged that . . . so far exceeded anything that had ever gone before that it stood alone as the ultimate exemplar of science."[2]

Let's explore the lens of perception at the root of our modern beliefs.

3

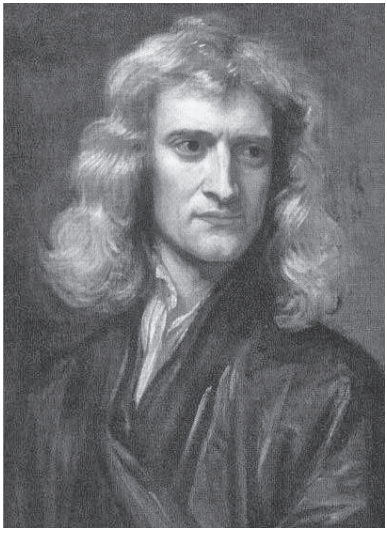
# Wonders of Science and Its Myths

NEWTON LOOKED UP at the night sky through his telescope and saw a mystery in the planets.

He knew that Johannes Kepler, a German astronomer, had proven the planets follow elliptical orbits, not circular as the ancient Greeks believed. But the orbits were only paths. Newton had a deeper question: What moved the planets around the sun?

*There must be a driving force compelling Earth and all of us on it,* he thought. *There must be a power acting this moment, every moment, guiding the course of Earth each step of the way.*

He even had a wild theory that it might be the same force of gravity that causes apples to fall from a tree.



Isaac Newton—painted by Sir Godfrey Kneller in 1689, two years after Newton published his *Principia*.[3]

It was an outrageous idea. Who would ever believe that the sun, millions of miles away, could tug the Earth as if it were a piece of fruit?

He hoped that unraveling this secret would allow him to lift the veil and see the laws that govern the universe. He was right. Not only his discovery, but also the way he proved it, would change civilization and the way we view the natural world. He developed a method that could be used in almost any field. It soon became the foundation of science.

Unfortunately, there is a limitation to Newton's tool. It has a flaw that shapes our perceptions to this day, preventing us from seeing an important principle of life.

To understand the depths of the problem, and to correct the flaw in our lens, we need to follow the steps Isaac took to make one of the greatest scientific discoveries of all time. We need to go through the experience with him.

• • •

NEWTON STARTED with the only clues he had: Planets revolve around the sun as regular as clockwork. Surely, he thought, this means the force moving them must also obey mathematical formulas. Unfortunately, the tools available in those days, 350 years ago, fell short.

He ran into a problem that had been tormenting philosophers since ancient Greece: How do you describe motion? You can draw a line, ellipse, or circle to show the path an object takes, but these are static patterns, not movement. Objects are in only one place for an instant of time, but this is a fixed picture. It's like taking a snapshot. It doesn't capture motion.

Newton wondered, *If the force that moves planets is at work in each and every moment, is this where the secret lies? Can an instant of time hold the answer?*

Newton began studying smaller and smaller spans of time. What happens if we go from the full year it takes the Earth to complete a revolution around the sun, to an hour, a minute, a second? He soon realized that, even if you look at tiny increments of time, some amount of change is taking place. However, the shorter the time period, the smaller the change. Therefore, an infinitely small instant of time would have no motion at all. He was back to a stagnant picture. This was the

same wall that had blocked the ancient Greeks, preventing them from understanding the nature of movement.

Isaac started over. He studied the problem from a new perspective. He knew that the force that drives the Earth had to be acting on our planet every moment. Therefore, he didn't care about the amount of motion. That was his stroke of genius: He realized the amount of movement wasn't important.

Whether there is a lot of motion in an instant of time or none, it doesn't matter. He asked: How is the motion changing? You see, if our planet never changes its pattern of movement, it will only move in a straight line at a constant speed. For the Earth to alter its direction, to curve around the sun, it must modify its rate of motion every instant. It is this rate of changing motion that matters.

After this idea hit him, Newton went back to studying smaller and smaller periods of time. This time he discovered something remarkable: The rate of change doesn't disappear. When you narrow time down to an infinitely small instant, the amount of distance you move goes to zero, but the rate of change stays the same.

For example, if you're driving a car at sixty mph, how far can you go in one instantaneous moment? You can't move anywhere at all. It doesn't matter how fast you're going. But if you're accelerating from zero to sixty, you're going faster each instant of time. As long as your foot's on the gas pedal, you're accelerating.

Newton had just invented calculus: a method of studying rates of change by looking at infinitely small increments of time.

Unfortunately, when Isaac tried to use this new tool of calculus to create a general formula for movement, he ran into a problem: it was incredibly complex. The equation for motion looks like this (Don't worry! You don't need to learn any mathematical equations in this book. I'll explain them all.):

$$\text{The distance an object moves over time} = V + ba_1^{\,2} + ca_2^{\,3} + da_3^{\,4} \ldots$$

Isaac had just dug himself a deeper hole. The formula for the changing motion of an object is infinite—it never ends. The three dots at the end mean that it continues on and on, forever. This was going in

the wrong direction. Newton needed something simpler, not impossibly complex like this.

Fortunately, he understood what the formula was saying. He realized that each of the elements in the equation represented something specific. For example, "*V*" describes the velocity of an object. This is the part of movement that is steady. The next element ($ba_1^2$) portrays fixed rates of acceleration. The third element ($ca_2^3$) represents accelerating changes in acceleration, and the fourth element relates to accelerating changes of the acceleration of the acceleration, etc. In other words, calculus breaks motion down into rates of change.

Since Sir Isaac knew what the equation was saying, he saw a way to make it simpler. He started by considering objects that move only at a steady velocity—in other words: objects with no acceleration of any kind. They don't speed up, slow down, or change direction. For objects like this, his formula was simple:

The distance an object moves over time = $V$

The rest of the equation disappears because everything else refers to acceleration or changes in acceleration. This became Newton's first law of motion: Any object moving at a uniform velocity (or at rest) will continue on its path until changed by a force.

Newton's formula reveals a law of the universe: Objects continue moving at a steady pace because of their momentum. But what about acceleration? If he wanted to explain the "movement of the spheres," he needed to know how planets speed up, slow down, and change direction.

Newton had another brainstorm: Forces cause objects to accelerate. So, he said, let's take each force separately and analyze them one at a time. He then applied calculus to find a new formula that describes the motion caused by a single force. The result was, once again, incredibly simple:

Force = $(m) \times (a)$

This is Newton's second law of motion: Force is equal to the mass of an object ($m$) times the rate at which it accelerates ($a$). Therefore, acceleration is the direct result of the magnitude of the force. If the force

is twice as strong, the object will accelerate twice as fast. It also tells us that, any time an object speeds up, slows down, or changes its course, a force must be driving it.

So, the impossibly complex formula for movement was reduced to two simple equations: One that describes steadily moving objects, where motion continues due to momentum, and the other describing individual forces that cause objects to accelerate. This is the tool Newton discovered.

With the second law of motion, Isaac could show that the force of gravity, by itself, creates the orbit of the planets. Their elliptical patterns prove that gravity is the governing principle that compels planets to follow their assigned paths.

The far-reaching impact of his simple tool is breathtaking. It is almost impossible to describe how completely it changed our way of seeing the world. Obviously, physics has been built on this technique. But read Émile Durkheim's definition of sociology. Durkheim is considered the principle architect of modern social science:

> *"A social fact is every way of acting, fixed or not, capable of exercising on the individual an external constraint; or . . . every way of acting which is general throughout a given society."*[4]

That's a complicated way of saying that sociology applies Newton's method to study the way forces move people. Analyzing social forces by observing the changes they create is the same approach that Newton used to study gravity. This is what makes sociology a science.

This is also why Sigmund Freud searched for underlying psychological forces that move men and women. He claimed that repressed desires and sexuality were prime motivators.

Not long after Freud proposed his theories, Alfred Adler, an Austrian psychotherapist, added his theories about inferiority complexes and the desire for power as hidden causes that impel people. Abraham Maslow, an American professor of psychology, then grouped dozens of psychological forces together, to show how they form a hierarchy. For example, the need for safety is more important than the need for belonging, self-esteem, personal growth, and freedom.

All of these psychologists were describing forces that drive people, just as Newton showed that gravity moves planets. They didn't use calculus, but they applied the same technique of studying forces by determining the changes they produce.

The field of economics also followed in Newton's footsteps.

> *"In the eighteenth and nineteenth centuries, the founders of classical economics—figures like Adam Smith, David Ricardo, and Thomas Malthus—conceived of the economy as a closed system in which interactions between parts (consumers, products, distributors, etc.) are controlled by forces external to the parts (supply and demand). The central legitimatizing principle of free market economics, formulated by Adam Smith, is that lawful or law-like forces external to the individual units function as an invisible hand… The resemblance here between the invisible hand and Newton's universal law of gravity… should be fairly transparent."*[5]

Using these principles, economists argued that open markets and free enterprise are more productive than government-controlled trade. They analyzed the impact of economic forces, showing that monopolies create depressions and recessions when the prices of goods are raised too high, beyond their worth. When prices are pushed beyond the limit people are willing to pay, demand crashes. Economists can now understand these effects by isolating forces and measuring the changes they produced.

This insight fueled the emerging Age of Reason when rational, objective, and logical thinking became established as the best way to discover truth. Reasoning was more than sorting through ideas and organizing them. People used reason to find underlying principles, to see how things work. Newton's tools showed that simple laws govern reality, and we can discover these laws by identifying the forces that drive change.

> *"…the success of Newtonian physics in providing a mathematical description of an ordered world clearly played a big part in the*

*flowering of this (Enlightenment) movement in the eighteenth century."*[6]

The Enlightenment philosophers were so encouraged by this revelation about forces moving the world that they felt empowered to make the bold move of getting rid of kings. Leadership could come from those best suited for leading. Elected representatives could carry out the will of the people. Ancient Greeks proved this was possible. Now they could add new methods of voting and balancing power in government. These became the testing grounds for experiments in democracy. Rational thinkers and philosophers were confident in their ideas because of their ability to see the forces governing people and economies.

*"The word* idéologie *came into use in the French revolutionary era . . . The* idéologues *postulated a sure and encyclopedic form of knowledge upon which social engineering could be based. They endorsed the revolution as an opportunity to construct an ideal commonwealth founded on Enlightenment precepts of empiricism, human reason and natural law . . ."*[7]

Of course, it took more than Newton's discovery to reveal everything we know today, but his method for discovering forces by observing change is at the root of all our sciences. Newton's technique has become so ubiquitous that it is almost invisible. We take it for granted. It shapes our belief system so thoroughly that we've forgotten it is a tool with limits, especially when trying to explain life.

Can you see the flaw? Did you notice the mistake made by modern thinking?

Look again at Newton's approach. To make the impossibly complex formula of motion simple enough to use, Isaac made an assumption: The force is external. It is separate from and independent of the object it is moving. In other words, Newton's apple has no power to change its own path.

That's not a bad assumption for planets and fruit. We don't see moons and apples picking themselves up and moving somewhere else.

If you study our planet closely, you'll see that internal forces affect its movements in small ways, such as the way it wobbles on its axis or the shifting of tides. However, Newton's method can explain these effects by separating out the rotational forces of the planet and the tidal effects caused by the moon. His tools work, because these are each separate forces moving Earth. Our planet is not changing course by its own volition.

In fact, scientific analysis can break down even highly complex machines into independent forces and actions. As long as you can separate a force from an object, Newton's method works.

What about life? Can we apply Newton's method to biology? Don't living things have the ability to change their course? Even the simplest organisms act and move by their own choice. They act autonomously. If these are actions based on free will, then they can't be caused by external forces. They have to originate from within, somehow. Can we break life forces down until we find the mechanisms that give living things their power of voluntary action? No we can't.

Okay, we may not have the answer today, but every day we get smarter and smarter, learning more and more through new scientific discoveries. Surely, one day we'll be able to understand the building blocks of life.

But the problem isn't a lack of intelligence. We've been running into this wall for hundreds of years. Brilliant people have tried solving it. We don't need more brain power. We're missing something basic.

What if we can't reduce life down because it's impossible? The question staggered me. I had to think about it over and over. Could this be true? Finally, the realization hit me: Newton's principle of cause and effect can't help us answer this question because it tells us nothing about causes originating from within. It applies only to external forces.

Does this mean that science will never, ever, be able to explain the secret of life? Never? No, but it suggests that we need a different approach. We need new tools and a fundamentally new lens to show us how powers can originate from within.

We now stand on a precipice looking at something we have no way of explaining. Even the thought feels disturbing. It's natural to reject things

we can't comprehend, but we shouldn't let this stop us. Not knowing feels uncomfortable until the day it makes sense.

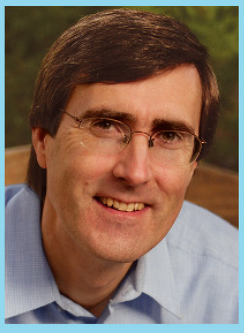
Arguments and theories aren't enough to settle this matter. Logic and rational thinking aren't going to change our minds. We need the kind of new experiences that reveal another perspective. It's time to shift directions.

Science / Consciousness
USA $19.90

*"An important work for scientists who have suspected that consciousness and subjective perceptions are fundamental to the universe and not some epi-phenomenon. Marman's work brings 1st-, 2nd-, and 3rd-person points of view into the fabric of the universe. The reader will never look at the world the same."*
—Michael Clarage, PhD, Physicist

**How did the universe come into existence out of nothing? Why is biological life irreducible? What deeper principles create the laws of nature?**

*Lenses of Perception* reads like a detective novel, as it dives into the foundations of physical reality and uncovers the surprising role of consciousness. A new story emerges from the experiments of leading scientists.



Our scientific way of looking at the world as outsiders was pioneered by Isaac Newton. This third-person "lens of perception" allows us to objectively analyze forces with incredible precision. But the limitations of this lens are clear.

It can't explain the paradoxes of quantum mechanics or figure out how life began. It doesn't even see consciousness, since awareness is invisible to outsiders. This is why physicists have been struggling with the same problems for decades.

*Lenses of Perception* offers promising solutions to "The Five Unsolved Problems of Physics." It also restores a crucial missing piece to the story of evolution. And it describes how our mind controls our body—a puzzle that has baffled scientists for centuries.

These mysteries are resolved, not by introducing new theoretical concepts, but through three simple lenses of perception.

ISBN 978-0-9793260-3-5
51990
9 780979 326035