

Part I

It’s no secret that “the law of attraction” is really just the latest rendition of a mind-over-matter philosophy that has been around for centuries: “the power of positive thinking,” “thoughts become things,” “like attracts like,” “ask and you shall receive,” “you reap what you sow,” “you get what you give.” The recent version of “the power of the mind” claims there is scientific evidence- from biochemistry to physics—that proves we humans have within us the power to change our physical reality with our thoughts. By using the power of intention you can, literally, change your life—your health, wealth and happiness. Can I think myself thin, rich and beautiful? I was feeling confused (and I have a master’s degree in experimental psychology), so how might the average person make sense out of the media bytes surrounding this old-is-new again concept? Is there reliable scientific evidence for the law of attraction and the power of intention? What is the truth and what are the ramifications for human development?

Indeed a diverse array of sciences are coming together to examine the concept and influence of mind and consciousness. The processes by which our thoughts and emotions affect physical and mental health are of great interest in the scientific, as well as medical, community. One field of science that is making an impact on this type of research is cognitive neurophysics. CNP is a branch of science, 20 years young, that integrates psychology, anthropology, sociology -- the “soft sciences” with physics, cognitive sciences, chemistry, biology, physiology, and neuroscience—“the hard sciences.” Essentially, it’s a hybrid science that grounds the behavioral and social sciences in the laws of the physical sciences. Ultimately, CNP aims to understand, predict, control, influence and change human behavior (toward optimum functioning) using the invariant laws that exist, and do not change (except for phrasing), across the major branches of science.

I needed a guide for what turned out to be a mind-blowing tour of mind, consciousness, intention, emotion, and behavior. Enter into the picture, Mark Evan Furman, author of **The Neurophysics of Human Behavior** and 35 seminal papers subsequently published in 42 countries. His book is currently required reading in many science programs at elite institutions such as Yale and Harvard. I spoke with Mark by phone, in early March.

KMR: Mark, can you provide an example of an invariant law across fields of science, to help set the stage for our discussion?

MEF: In physics there is a Law known as the Least Energy Principle, which stipulates that all atoms seek the lowest energy state to remain stable. We see this in chemistry, biology, and physiology. Stress

for example, is a high-energy state whereas relaxation is a low and more stable energy state. With human behavior, this law translates as humans seek maximum gain for the minimal energy expenditure possible.

KMR: What are the focus of your research and the practical application of CNP?

MEF: I study the anomalies of human behavior— and most of human behavior is an anomaly: Why do people think, act, feel and ultimately behave as they do? Why is behavior so difficult to change? My research extends from the physical or hard sciences and is applied to psychological science. Ultimately, what’s been put forth is a unified theory of brain, mind, behavior, matter, energy, and information that can help people gain power over the direction of their lives by understanding, predicting, and effectively changing behavior. The research and the methods that you and I will be discussing, MindImaging and the Neuroprint, have been used in educational settings, corporations, performance enhancement, psychotherapeutic and personal improvement programs.

KMR: When you refer to behavior, are you focused on anything specific?

MEF: Behavior is the total sum of our thoughts, perceptions, beliefs, emotions, actions. Essentially, behavior either binds us to powerlessness or can free us to engage our maximum potential. Our reality is nothing more than what we believe about the cause-effect relationships operating within the fabric of our lives. We cannot separate thought from emotion, they are inseparable because of the way the neural network functions.

KMR: The neural network? Do you mean the brain? mind? Consciousness?

MEF: The brain is the mass of neurons and biochemicals in your skull. Its network of connectivity extends to every system of the body. Its language is pattern and structure. It has an efficient network for keeping you alive and well. Most people get that.

Mind and consciousness are nebulous terms. There is no consensus among the various scientific disciplines on what constitutes mind or consciousness. What has been happening, without a universal working definition, is that researchers, think tanks, philosophers, self-help groups put forth a best-fit definition to match the data or hypothesis they are working with. Without an operational, universal definition, research loses its practical value. Socrates said wisdom begins with the definition of terms. If we are all working from different definitions then we are not all studying the same thing. Mind develops overtime as a result of discipline- is the sum total of an organism’s ability to think, which is to apply

logic. It has nothing to do with what most people consider “thinking”—worrying, deciding, gossiping, judging and so forth. The scientist and Pulitzer Prize winning author Douglas Hofstadter put the best definition of consciousness forth: Consciousness is the product of any complex system that eventually produces connectivity back to itself. In other words, consciousness is the ability to be self-referent and self-aware, to reflect back on one’s self, physically, emotionally and mentally.

The neural net is the pattern of electrochemical and psychobiological responses that takes place in the brain and body. It is largely formed of unconscious material acquired from birth through life experiences, everything we sense, perceive, respond to, and learn, when, where, and how— all of it creates a pattern. The more a particular pattern is used, the more groups of neurons fire together, the more stable the pattern. We use the phrase “neurons that fire together, wire together.”

KMR: So, are thoughts and emotions part of mind and consciousness? What then is the subconscious?

MEF: Emotion is inseparable from thought because of the way the neural net develops and functions. Both are a product, an effect of, the activity of the neural net. They are the result of a pattern and part of the pattern, but not the cause of the pattern. Emotion and thought really are biophysical states that we have given names to—anger, love, lust, sadness—in order to express ourselves. There are brain chemicals, called neuropeptides, and many kinds of communication patterns in the body associated with different biophysical states. The human body configures an enormous, but finite number of mood states and cognitive states. In fact, Roget’s’ Thesaurus documents 3200 named states. Unfortunately, the average person experiences only 4 - 60 of these states in a 30-day period. Every state of mind is configured differently, giving rise to a different set of potentials in a human being.

KMR: How much of all of this is within a person’s conscious awareness?

MEF: We are almost completely controlled by states outside of conscious awareness—that is subconscious processes. There are millions of cause-effect relationships that are out of our awareness, which affect our behavior. Consider that of 4 billion bits of information per second that our brain processes, we are conscious of only 2000 bits per second. Subconscious programming is up to 1,000 times faster than conscious awareness There’s a reason for this. If you needed to wait for conscious awareness to cue you to run from danger, you would not survive. The neural net makes a decision before the conscious mind is aware it had to act! As a result, 99% of behavior is processed subconsciously.

KMR: So, patterns that contribute to our behavior lie outside of conscious awareness. Is this why it is so hard to change behavior—or as Dr. Bruce Lipton puts it, this is what puts the “will” in will power?

MEF: Yes. To understand why someone is stuck, unable to change or to move forward in an area of life— they want to quit smoking, reduce stress, stick with an exercise program, or generate more clients for their business— whatever it is, you have to understand the structure & function of subconscious programming, The source of which is in the neural net.

We cannot simply think or intend our way to better behaviors—thoughts, emotions and actions included. Willful thinking is a process of the conscious mind while multiple layers of thought, emotion and the whole behavior pattern are driven by the subconscious mind. To change behavior stably, you have to alter the connectivity within the system –brain, mind and body—in a way that supports new behavior and destroys the old pattern. If you only address thoughts, or only emotions, or only outward behavior then you are going to relapse or fail every time because subconscious processing operates so much faster and that particular pattern in the neural net was not just formed – it is a habitual way of functioning.

KMR: Two things: First, are you saying behavior patterns are hard wired in the brain, mind and body? Second, are you suggesting that our minds, our consciousness, what we think and feel can or cannot influence physical reality?

MEF: Nothing is hard wired. Research conclusively shows that the brain has plasticity...new connections are formed as we learn and have new experiences, emotional, physical, and intellectual and so forth. It’s how we learn, remember, and forget. The more we use certain connections, the more stable they are and easier to recall. However, connections are state dependent. If you learn a new skill or study for a test in cram mode, and you are in that mood state during the exam, you are likely to score high on the test. Your retention of that material later on, when you are relaxed, will be poor. If you develop a pattern of eating in response to anger, then every time you feel anger or a related emotion, you’ll reach for food. All of that, though, can be changed. However, not through thought or intention ... we cannot change behavior or alter physical reality using the power of thought, alone.

I hate to leave you hanging, but I’ve used all the space for this issue. In Part II of this three part series we’ll dive deep for answers to questions about the physics of mind, brain and consciousness, observation and measurement of physical reality, and the mind as a bridge between the dreams we can conceive and the reality we can create in the here and now.

Part II

At the end of the first leg of this journey, we learned that the power of thought or intention *by itself* is insufficient for changing reality and manifesting goals and dreams. On this leg of the journey, we explore scientific law versus spiritual principle and learn how why the law of attraction is not really a “law” of the physical universe. There is a brief pit stop where we discuss “scientific stuff,” including useful information about and the quantum world. We wrap-up this leg with a basic overview of “intention experiments” and learn what, if anything, science has proven about the effect of mind on physical reality.

KMR: Are you saying the Law of Attraction, which states what we think or intend magnifies in the fabric of the universe and when we are clear and focused on what we want, the universe delivers, is a fallacy? How can this be?

MEF: There is no scientific law of attraction. It is a *spiritual principle* with no scientific evidence in the neurosciences or the physical science to support such claims as you mentioned. Michael Beckwith was on Oprah a few weeks ago and he was very careful to point out this is a spiritual principle, not a physical law of science. The way it is marketed to the public is irresponsible and uninformed. It gives the public a false sense of hope and elation about their life, but when people realize it doesn’t work, they will be left disillusioned and possibly damaged.

KMR: Mark, please differentiate between spiritual principle and scientific law.

MEF: Historically, anything written in religious scripture that is accepted on faith, regardless of which faith, is known as a spiritual principle (SP). These may be rules or codes of conduct, doctrine or assumptions related to sacred matters and/or supernatural beings or phenomena.

All legitimate fields of science, from biology to zoology, arrive at scientific laws by way of the scientific method. The scientific method is a standard set of procedures that includes identifying a problem, formulating a testable prediction about that problem (a hypothesis), collecting data through observation and testing the hypothesis through experimentation. A scientific hypothesis is a tentative assumption that predicts a relationship between two or more objects or behaviors as in the case of psychology.

A theory is a set of hypotheses that has been tested many, many times through experimentation. Each time a test produces the same results or effects we consider it to be *reliable*. This is why scientists want

other scientists to duplicate experiments and attempt to refute their theories: When we are unable, over time, to disprove a theory through valid testing, then it becomes a scientific law.

Remember from high school science class, the law of conservation of matter states energy cannot be created or destroyed. This explains how magnetic energy converts to electrical energy. It’s been proven over and over again for centuries.

KMR: Is there an easy way to recognize the difference between a SP and a scientific law?

MEF: Faith implies the absence of evidence and is not obtained through scientific methods. The key difference is that, for matters of faith or spirituality, there is no prediction that can be tested with scientific methods. If there is a testable prediction, there is not *100% reliability through cause and effect*.

If you were to test the LOA-- ask, believe, receive-- by asking for one dollar or 1 million dollars, you will not have 100% reliability between the cause (asking) and the effect (receiving). We also have no way to measure believing. On the other hand, you will have 100% reliability between cause and effect if you walk off the roof of the empire state building. You will be attracted to the earth from the moment you step off the building, with 100% reliability. And that’s the difference, when scientific methods produce 100% or near 100% reliable cause and effects relationships, then you are on your way to establishing a law of science. Until then, all you have are theories, ideas, hypothesis, assumptions and principles.

KMR: What is the source of the claim that scientific evidence exists for this principle of attraction?

MEF: First, I have to state that existing scientific evidence supports the opposite conclusion, which every school age child can tell you after her first experience with magnetism and electricity at the state science fair. Quite simply, we know, opposite energies attract while like energies repel. Believers (in the LOA) would respond by saying, “but we’re talking about *the Quantum Level* and things work differently there.”

Second, *there is absolutely no evidence to support the claim that the energy from a human brain can affect the physical reality at any level, be it quantum or classical*. It is true that magnetic waves from a functioning human neural net can be "recorded" by PET scans, EEGs etc. However, this form of energy that machines read in response to brain activity is **unusable** energy, known as “entropy.” This is primarily in the form of thermodynamic heat, which is not capable of doing any physical "work." *Thus, our thoughts cannot perform work outside of our physical body.*

The terrible misconception that **conscious thought** can affect the physical world through some "mysterious energy" comes from one interpretation of some early experiments conducted in the field of quantum mechanics and physics. The particular interpretation responsible for all the misconceptions is the

Copenhagen interpretation. In the 1930s, Quantum physicists were attempting to resolve a mathematical discovery that at the quantum level there appears to be multiple probabilities for every event (represented by a wave function). At the classical physics level, which is where you and I live and breathe, only one event actually occurs.

It was proposed by some scientists that perhaps the observer "collapses the wave function" when they do the act of observing. This idea seemed to be a reasonable way to explain the discrepancy at the time, since the **Heisenberg Uncertainty Principle** indicated that observers affect the systems that they observe by the "act of measurement."

Scientists, at that time, failed to account for the fact that *the "act of measuring"* affected the quantum systems, *not the act of observing simply with our conscious awareness*. In 1944, the brilliant Austrian physicist Erwin Schrödinger showed the Copenhagen Interpretation is implausible.

KMR: In science, isn't observation a form of measurement?

MEF: No. This is how the misinterpretation began.

KMR: Help me understand, how does the act of measurement, not the act of observing, affect quantum systems?

MEF: The instrument is doing the measuring, whatever that instrument might be. The human brain (which belongs to the observer) is decoding the meaning of the measurement.

KMR: What about research conducted at Princeton's Engineering Anomalies Research (PEAR) laboratory-- indicating a relationship between conscious intention and outcomes in random event generators?

MEF: The experiments with random event generators get people excited primarily because the human mind has trouble comprehending the ramifications of probability distributions (in statistics). If I were to toss a coin 10 times and record the number of heads and tails, I would very often get more of one than the other and may jump to the conclusion that my mind is affecting the outcome.

In the field of logic, this fallacy of reasoning is known as a "hasty generalization." However, once I have tossed the coin 100 times the odds will begin to align with the 50/50 probability distribution expected. As the number of possible events increase beyond two (head/tails), the number of tosses must increase logarithmically in order for the actual outcomes to align with the expected probability.

When random event generator experiments are done with a human subject, the number of trials never approaches the necessary threshold for this to happen. So, the researcher will falsely conclude that the outcome was affected by conscious intention. This error is not unusual for human beings to make. The gambling industry exploits this “statistical blind spot” in us to the tune of several billion per year. Even so, we don't stop believing that one day we'll get lucky.

KMR: How is it that REG research done at Princeton, and other prestigious institutions, is so easily misinterpreted, even by researchers? Second, why do you think the scientific community has not been more vocal about the misinterpretation or misrepresentation of quantum physics research to the public?

MEF: Not all scientists are trained with the same skills of logic as are theoretical scientists. Many so-called scientists are simply technicians that operate equipment or they work in an extremely narrow part of their field of research. In addition, even scientists are guilty of seeing what they want to believe is true, a kind of an experimenter bias. After all, scientists are human, too.

KMR: Does science offer any evidence about the effect of intention on physical reality-- the fabric of our lives?

MEF: Again, there is absolutely no proven cause-effect relationship between "intention" and the physical world. If this belief continues, there is a danger that people will waste large portions of their lives attempting to acquire abilities that are not possible for the human brain to perform. This happens at the expense of developing amazing abilities of mind and brain that are far more practical and valuable to an individual as well as to humanity.

*I believe the “law” of attraction is a beautiful spiritual principle and is but one source of Wisdom. Science is a source of Wisdom that allows for an objective examination of all that we perceive, if it is used with integrity.. Each of us must discover how to balance the scales of Science and Spirituality within the fabric of our lives. The challenge lies in learning to embrace and **to live** the science in the spiritual and the spiritual in the science. The final leg of this journey will explore a cutting-edge approach to developing the potential of the mind in order to manifest the goals and dreams you have for living a very real life.*

Part III

Welcome to the final installment of The Truth. At the end of the second leg of this journey, our guide, cognitive neurophysicist Mark Evan Furman, showed us the many ways quantum physics research is misrepresented and we learned to differentiate between laws of the physical universe and spiritual principles, including the “principle of attraction.” Now, we will turn our attention to Mind Imaging, a technology that any person can use to align the amazing, latent potential of mind and brain in order to manifest their goals and dreams.

KMR: Mark, is there a simple way to understand the untapped mental and emotional potential of the human mind and brain?

MEF: All memory, learning, behavior, decisions and perceptions are state-dependent or state-bound. At any given moment, depending upon the context they find themselves in, a human being has access to only those resources available in the present biophysical state. In common parlance we refer to our biophysical states as emotions (anger), moods (melancholic), feelings (discomfort) and cognitive states (confusion). The average person can record 4 - 50 states within a 30-day period. This means they access roughly 1% of the total emotional, behavioral and cognitive resources—or potential—available to meet their daily challenges. Every state is triggered by external events that are not within their conscious awareness and conscious control. Without a model of the connections between triggering events and biophysical states, a person goes on reacting, responding, deciding and emoting in a fog of unawareness. They never access their true potential.

KMR: How can Mind Imaging help individuals “clear the fog” and access their cognitive and emotional resources necessary for changing behavior?

MEF: When a system is unable to perform a function, we look for the underlying structural flaw. Mind Imaging is a ten-step process through which we discover “design flaws” in the person’s mental-emotional structure much like an MRI can reveal structural damage from a stroke that results in a change in mental capacity (function).

Usually, a person knows there is problem—they are not reaching their goal. This level is insufficient for changing behavior. Awareness has to expand into the cause-effect relationships that results in a particular behavior or a situation.

At a Mind Imaging workshop, we begin with recording the emotional states a person experienced in the previous 30-day period. We identify the frequency with which these states repeat during a typical 7-

day period. Next, we identify the amount of time a person spends in any given state (duration). Within these states are cognitive and behavioral choices that occur naturally—such as gaining weight due to overeating. And, there are unique decisions a person makes in each state—such as deciding to remain planted on the couch instead of going for a walk.

Next, we look for patterns that connect thoughts and beliefs to emotional states. Lastly, we identify factors that trigger the emotional and behavioral patterns, including people, places, things, events, situations, concepts and symbols. In a flow-chart fashion, this information is sketched on paper, giving each person a map of the behavior patterns that prevent her from a desired outcome. This map is the NeuroPrint. It provides a person with a visual of their body-mind states and reactive patterns—all of which are usually subconscious. Like the MRI, the NeuroPrint pinpoints where the problem is so a person can make change. Some people will see the links and feel motivated to change on their own. Other people require support and guidance through the change process, such as coaching or therapeutic work.

KMR: Mark, let’s run through a specific example, say “making more money.” How does Mind Imaging help a person get from “dreaming it” to “manifesting it?”

When a person discovers a gap between where they are in life and where they want to be we want to answer one critical question: What is holding them back?

A person who is stuck in a relentless pattern of “wanting to earn more” but not “being able to” is commonly blocked by a set of subconscious beliefs about money. As a result, the NeuroPrint looks like a maze with no escape. Their mind trap is this: The desire for money, and what that represents to a person, leads to a positive emotional state. Perhaps, they want to feel important or to escape feelings of inadequacy. The underlying faulty belief, “I don’t deserve,” prevents the person from *taking the action steps* necessary to make more money. The person experiences internal conflict and emotional pain; they links directly back to a negative cognitive-emotional state, “I don’t have sufficient income.”

When a person uses their NeuroPrint to disassemble the old pattern, they free the energy bound-up in the old pattern and are able to tap their true potential for manifesting change. In this case, the person’s perceptions of financial opportunity will expand, their disempowering beliefs will become supporting beliefs, and they will *consciously engage in new behaviors*, without internal conflict, that support the goal to generate more income.

To summarize the action steps in Mind Imaging: A person *awakens to* the cause-effect patterns that produced undesired outcomes and situations in their life. Next, they *establish a clear direction*, a clearly defined goal or dream so that the brain always knows what it is moving toward and when it is off course. Third, using Mind Imaging, a *feedback system* helps the person identify the distance between where a she is and where she wants to be. Consequently, she selects the most appropriate behaviors,

thoughts and emotions to close the gap rapidly. Finally, to *unlock the power to change (or create)* the person removes limiting, debilitating mental-emotional-behavioral pathways in the neural net. She adds pathways that consist of desired, empowering thoughts, emotions and behaviors that lead to the goal. She also has to remain aware of the factors that trigger self-sabotaging behaviors so that she can interrupt that pattern with new, empowering behaviors. She will continually measure the stability of the new patterns using Mind Imaging.

You see, when the invisible—the structure of thoughts and emotions—is made visible, the subconscious, becomes conscious. As a result, you can engage in new, empowering thoughts, emotions and behaviors that allow you to manifest your dreams.

*What I've learned from Mark is the scientific equivalent of what Carolyn Myss teaches in the audio program, “Your Power to Create.” She states that to stand in your power and create a new reality for your life requires discerning what you **really want** and taking **disciplined and inspired** action. I believe inspiration comes from Source, Spirit, as the word implies. God, however, does not do the work for us. She gives us gifts, talents, and resources to cultivate and apply in our life. This requires discipline. Discipline scares most people. Most people want what they want without having to work at it or without risking change. No, discipline is not easy, which is why people do not change, do not heal, and do not manifest what they want in life. We have to become fearless to take action, accepting that we, and those around us, will change in response to or in spite of our action.*

As for me, manifesting my dream to be a writer requires a lot of change—foremost in the beliefs instilled in me as a child: “not good enough,” “not an artist.” I have to wrestle with these limiting beliefs almost daily. I have to work them out of my system through disciplined actions, processes that I tweak every day and that become more natural and empowering over time. There is no universal genie. I cannot order a “successful writing career” from some mystical catalog. What keeps me fearless? My inspiration is my daughter, Angelina. Her birth awoke in me the long-abandoned dream to write. In return, I want to inspire her to live her dreams.

*You can dream. You can believe. But, you still must **do** if you want the dreams you conceive to manifest in the fabric of your very real life. I leave you with this final thought, paraphrased from Buddha:*

Believe nothing just because a so-called wise person said it. Believe nothing just because a belief is widely held. Believe nothing just because it is written in ancient books or is claimed to be of divine origin.

Believe only what you yourself test and judge to be True.

To learn more about Mind Imaging: www.MindImagingTechnologies.com

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