

I can do all things through Science

Culture is a strange beast that grows and develops over time. An idea one day that seems to be such an integral part of society can be gone the next. Individuals merge on a common theme, united through an underlying aspect of life. Culture is governed by an authority that all individuals look to for answers. Today, intellectual pursuits lay in rationalism or the study of causation within the bounds of reason. This search for causation has led to a sense of determinism and a chainlike cause effect system found in natural laws that has taken the place of God in governing the world. Thus, authority in modern culture is no longer an omnipotent all seeing God, but a troubled academia of science that believes in the breakdown of the universe to find meaning and order. The more science and the culture devote itself to the breakdown, the more problems emerge. These problems accent conflicting axioms, and brought chaos in the modern world to the surface.

The face of religion has drastically changed over the past 500 years. In this short amount of time, the world has turned away from religious ideals as any type of authority in reality. It was not long ago people believed events occurred because they "ought" to happen, and the force that decided what "ought" to happen was God. Religion united all human beings; it tied them to the Universe, the Earth, and all things within. Through religion, a person had a sense of purpose and an answer to the question, "why." But as the years passed, corruption grew deep in the church. With the help of emerging science, firmly held axioms were torn apart through scientific experimentation. No longer is the Earth the center of the universe, nor do the planets revolve in a perfect Euclid circle. People for the first time had a reason to question the Church and its teachings. Three types of criticism of the Bible grew: a lower criticism, which dealt with the truth in the actual words, a higher criticism, which searched between the lines for a general implication of the words, and a historical criticism, which tried to place events in chronological pretences. It was not long before the Church finally broke. With this break, came wars, but out of the bloodshed came a sort of freedom for the newly liberated individual, who now had the right to worship however he may choose, or not to worship at all. This new outlook on life came without challenge from the Church, which recoiled from society. With the loss of God as the answer to the questions of the universe, man turned to science.

Science allowed man to explore the universe on his own terms. Man grew more confident that the universe was governed by specific laws, laws that could be understood. From this perspective, man had the capability to manipulate and eventually control the universe. Deism became a popular belief for intellectuals, and reality was thought to be governed by Euclid's geometry and the Cartesian plane. Every object in the universe could be described by mathematicians using these tools. Scientists began using linear equations to describe all systems in the universe. These equations could be broken apart, solved, and added back together to get the answer. Thus, the world was seen as a machine working according to specific principles. This machine, as a linear equation, could be dismantled, and the separate pieces broken away from the whole worked the same on their own. Men must separate himself from any hypothesis and nature in order to study it and find conclusions. It became science's goal, starting with Descartes, to break the universe into simple parts and understand how the parts work separately. This broken understanding put together equals the whole. As science turned mechanistic, so did culture.

The value dimension that was such a vital part of the humanistic outlook no longer has any logical substance due to the physical nature of science. Events no longer occur because they "ought" to, they occur because the universe is governed by laws, and these laws cause events. Through studying these laws, men developed a view of the world. Einstein showed through his theory of special relativity that there is no absolute truth. Scientists and Mathematicians alike realized that, "geometry (Euclid's) is not inherent in nature, but imposed upon it by the mind (to order it)" (Fritjof Capra, 149). All spatial specifications, positions, and directions change depending on the position of the viewer. No two *rights* are exactly the same. Two observers traveling at different velocities or standing in different positions will perceive the same object in two different ways. With the high velocity of light compared to other perceived velocities, two viewers can see the same chain of events in different chronological orders. Time also becomes relative. Einstein showed that there was an interdependence of time and space, and time became the fourth dimension. Another states, "All these relativistic effects seem strange only because we cannot experience the fourth dimensional time-space world with our senses, but can only observe its three-dimensional 'images'" (Fritjof Capra, 158). If no two people can view the same physical object, then no two people can come to the same conclusion. Science no longer holds objective conclusions, but widely agreed upon data-based results that hold value for a short time before a new comer gets different data that sways the scientific community. Modern science

gives only a partial truth involving pure, physical, sensory, data-based explanations to the world, while completely dismissing all facets of value. Man can no longer look outside and find whole absolute truth. He is forced to look inward for some sense of internal value. The only view of the world that can be taken as fact is a subjective view, and that view coincides only with the individual. This subjective view involves value, and therefore cannot be significant in the modern culture.

Science gives answers to questions and allows for man to control his own destiny and to explain the world in factual terms, but science ignores the entire area of knowledge that includes values. With the separation of man from universe and from other men, the value in the individual and the materialistic view of happiness arose. As long as each individual on his own isolated from society is happy, the whole of society is happy. With scientific advances, the Industrial Revolution occurred. Industrialization even with good pretenses has caused man to be "sacrificed to the efficiency of the technological system." Man no longer has a vocation, but a job. A job that is required to support oneself in the material world, but materials are like "fools gold" that never satisfies. A person needs a sense of purpose and an answer to the question "why," and the only answer that will suffice is full of value and "ought." While becoming industrialized, each person has lost any sense of meaning and purpose, which has caused divisions in the relationship of man to man, man to universe, and man to self. A split in the self becomes a necessary means of dealing with this broken reality. The self that consists of value retreats to a safe hidden place within the individual, while the culturally dictated self lives on the surface. For most people, the self changes dramatically within different social contexts. A person is an employee at work, a mother, a friend, a wife, a Christian on Sundays, a hostess at parties, and whatever the situation at hand demands. People put on these masks as a defense mechanism, and the longer one plays a role, the longer one loses the whole self. We have scattered and compartmentalized ourselves so much that the whole self has become hidden even from ourselves. We can no longer have real relationships and can no longer feel real emotions; schizophrenia runs rapid. As a result, we have become lost, desperately searching for some solid substance of meaning to cling to. We feel a growing anxiety, fear, and alienation, which has lead to depression, boredom, and anomie. As a consequence, we fill the ever- growing hole in the self with futile activities such as TV, alcohol, drugs, and therapy.

The shift in world views can be seen in all areas of life. The writer faces new challenges in depicting

reality. Literature as an art form is meant to speak to a generation, but through subjectivity men in today's society are isolated from the universe, other men, and even themselves. The fact that no two men share common experiences, beliefs, or religious, political, economic ideals becomes a barrier the writer must face in his work. The point of view in a story is easily manipulated to depict this new reality. There is no longer any value in having an omnipotent point of view. A reader needs to see the conflict from all sides in order to see the whole. Multiple voice point of view emerged. Anita Shreve's novel, Sea Glass, a story of a factory town during the Great Depression is broken into chapters each one devoted to a different character in the story. The same events are told over again from each character's point of view. No two characters point of view is exactly the same, and the reader's opinion of the events changes dramatically with each new layer of views. Another technique called stream of consciousness grew popular. A person does not make logical connections but psychological ones that can be absurd. Stream of consciousness is a "stream" of disconnected thoughts that go through a character's mind in an instance, and allow the reader to get a whole picture of the character's personality. Characters mirror the modern man, and become more complex. They wear masks hiding their true selves from society. By examining a character's actions, one cannot get a true picture of the real character. A character is no longer grounded in value, but faces personality splits. Through the character's thoughts and unspoken emotions between the lines of their words, the reader gets a better picture of the character. In Fyodor Dostoevsky's novel, Crime and Punishment, the plot is devoted more to the protagonist, Raskolnikov's, thoughts about his actions than to the actions themselves. With the new views in science, the author gained freedom in setting choices. Jumps in time and space are considered perfectly natural. Kurt Vonnegut's novel, Slaughterhouse Five, takes setting risks to the extreme. The reader couldn't possibly make a time line for the novel. The protagonist, Billy Pilgrim, has the ability to go to any time period in his life from birth, to death, to war, to marriage, to retirement, and so forth. Time as we perceive it is completely gone. The loss of value in reality has caused a loss of value in words. Words are unoriginal and their definitions are subjective. Words can no longer accurately describe the world, and are thought of as only chatter and a means of filling the silence. This idea gave writers the freedom to create their own words and grammatical systems. In a work, modern writers enjoy playing with words and language creating chaos.

With the breakdown of form, new patterns and arrangements are introduced that do not necessarily

consist of a beginning, middle, or end. In romantic and even realistic literature, a novel could not be taken apart. Each sentence, each word, each comma was strategically placed and could not be taken out without changing the point of the story. Modern literature follows no guidelines. Writers believe that their works should be able to be taken apart, put back together, and still form the same whole no matter what way an audience reads it. E. E. Cummings's poetry is a classic example. Modern authors have created works that are fragmented, disjoint, and lacking in most literary aspects.

Readers have been taught since elementary school how to read, and what to read for. A reader is taught that a novel "ought" to have a beginning, middle, and end, but the modern novel fails to live up to the taught standards. The modern novel lacks any "ought" and is plagued with chaos. It is the readers job to find order, to find meaning, and to find purpose. Modern literature mirrors modern culture with the demise of meaning, objectivity, and humanistic principles. The reader like man in the world is left to find his own meaning in the novel.

Visual Art, as an art form, is not meant to be pretty, cute, or fun. There are specific, "...principles that... govern its (art) development at every stage," which come from civilization's "essence of reality" at a given time (William Fleming). The artist as the writer must form a picture that fits his generation. Through the years art has paralleled science. As science's views on reality have changed, the artist has altered his form to match.

When the common thread among the people was church, painters produced pictures of religious themes. As the church lost power and modern science took over, painters started to paint portraits of people, landscapes, and even still life to portray reality. When photography came into everyday use and took exact replicas of "reality", the artist had to dig deeper into the world to find subjects. With the help of modern science and its new theories on space and time, art was given a broader range of subjects including light, emotion, and energy. Art became more than just looking, it became about feeling. It now seeks to find, "... a more comprehensive, stable and deeply rooted reality than the product of mere visual perception" (H.L.C. Jaffe, 2).

The breakdown of form in art started with the scientific rejection of matter as a discrete substance in the universe. Monet, an Impressionist, in his work *Water Lilies*, painted the same subject multiple times in different light, which caused the subject to lose value, and light to gain it. Through light, Monet showed that

any subject changes constantly and that no one is able to paint the "reality" of a subject by just painting what they see at one specific time. Cubists believed the mind gave form, while the senses distorted reality. The mind is mathematical and thinks geometrically; therefore, their paintings were of geometric shapes viewed from all directions. They tried to break down reality into its simplest form. It was not long before all artists like scientists realized they would never be able to truthfully depict physical reality through geometry, which is an order placed on the world by the mind. The question no longer asked how to depict reality, but if there was a reality to depict. Abstract painting, painting that has no basis in physical reality, was started by Kandinsky. Several artists and groups tried their hand at abstract painting each with different principles or "will to form" because there is no longer an objective form that "ought" to be followed. The artist must will his own form. For example, the De Stijl Group used only straight lines and right angles to create absolute harmony. Abstract paintings were formed as a subjective way to deal with reality by using disordered and chaotic ideas. Contemporary art tries to get at the soul of the generation, but the soul has been methodically devoid of value. With the loss of these values, there has been nothing to take their place. The artist has been forced to strip his works of all content, producing unintelligent works for the mass audience. Without a sense of inherent value in the individual, instrumental value is placed on objects or material goods. The artist's subjects are replaced with everyday objects sometimes found objects. Without an objective definition of art, anything can be called art. Art mirrors the mechanistic and subjective view of the universe and modern man.

Modern art and literature are intensely screaming at society through a massive amount of fragmented and severally deficient pieces devoid of objective meaning. Man has inherent needs including physical and humanistic. One set of needs cannot be ignored without severe consequence. Conrad Aiken (in E.M. Adams's Philosophy and the Modern Mind) says, "We need a theme? Then let that be our theme." Out of our fragmented and unstable lives created by the mechanistic view science has put forth comes a theme of uncertainty and desperation. In the modern mindset, there is something so profoundly wrong that everyone can feel it, yet no solution has been put forward. Science gives answers to the physical problems, but there are deeper emotional and spiritual issues that science cannot even begin to explain, and any source including the religious sect that tries to quench the thirst society has for meaning and purpose is summed up as foolish by a culture immersed in rationalism.

There is no logical room for any value answers in the world. Science has become the only champion in intellectual circles. Man can only achieve through science. Along with the lack of a humanistic aspect in the field of science, new discoveries have led to several criticism of the scientific world view. Modern scientific experiments have shown that the world is full of chaos and that man is unable to predict let alone control outcomes of simple systems.

Modern science has dug so deep, it has begun to uncover ancient mysteries. The EPR effect has challenged quantum theory and the law of local causes; it proved information in the objective world can be exchanged instantaneously. As a particle is broken into two separate parts, the parts are allowed to travel in separate directions. As one part is acted upon and forced to spin clockwise, the other part starts spinning counter-clockwise simultaneously implying that a unifying force is at work. Even though, the two parts are separated, they still act as a whole. Since each part is dependent on the other, a linear equation is not sufficient enough to describe the particle. Scientists spent years simplifying all physical systems in the world into linear equations that can be broken up and solved in parts disregarding the whole. From these equations, a futuristic prediction could be made, but this view has been changed thanks to Edward Lorenz and his make-shift computerized weather system. Lorenz, considered the first chaologist, showed that chaos exists in some of the simplest systems in the world.

Many meteorologists were in the process of simplifying the weather when Lorenz shattered their dreams of domination. It was believed that if the initial conditions could be changed, a specific outcome could be achieved because a small percent change in an initial condition yielded a small percent change in solution. For many man-made linear systems, this axiom holds. But for the majority of the natural systems in the world, linear equations are not sufficient enough to describe and predict outcomes due in part to massive amounts of feedback present in all systems. Feedback is the process where part of the output of a system is returned to its input in order to regulate the system. For example, after giving a workshop, the director asks for "feedback". This feedback is part of the output or outcome of the workshop. It is then used by the director to change the input or preparation for the next workshop. Then new feedback is asked for, and this feedback or output is influenced by the first set of output, and changes the next set of input. This is an infinite process. Weather is determined by several initial values; pressure and temperature are two. Each is dependent on the other. An initial rise in pressure greatly affects output in temperature.

Lorenz accidentally showed any minute change in the initial weather conditions is going to vary the outcome greatly due to the ever present feedback in the system. Nonlinear equations are needed to describe the weather and any other system involving feedback. Lorenz proved that chaos would always emerge from any weather system, and took his results a step further. By using three simple nonlinear equations, he plotted the unfolded divergence and created what is called a strange attractor. The plotted solutions to his equations are chaotic and never repeat themselves, but are "strangely attracted" to a specific bounded area. The strange attractor in weather is more commonly known as climate (Briggs 60).

These new scientific discoveries challenged the basic principles of scientific study. Because of our ever present feedback in nature, a system is no longer able to be broken. A new science of chaos is starting to emerge in some scientific circles. This view no longer accepts mechanistic principles, but calls for a holistic view of the universe. David Bohm claims, "The information of the entire universe is contained in all of its parts." In modern field theory, Ernst Much's principle states, "the inertia of a material object is not an intrinsic property of matter, but a measure of its interaction with all the rest of the universe... material objects are not distinct entities but are inseparably linked to their environment."

Benoit Mandelbrot years earlier had discovered the basic principle of chaos in economic systems. He used a computer system to create what he called fractals, what Lorenz called a strange attractor, or what mathematicians call images of chaos. Fractals have five basic characteristics including recursion, self-similarity, scaling, infinity, and fractional dimensions. Once finding a set of equations used to generate a computerized fractal or used to describe a complex natural system like Lorenz's three nonlinear equations, *recursion* is the process of using a repeated algorithm, or feedback from the system, to define the functions. Fractals contain several images; each is an exact replica of the whole and each occurs in different sizes and is therefore *self-similar* on different *scales*. The recursion process can be repeated infinitely producing an *infinite* set of solutions that have been shown to fit into a bounded area. Because the solutions form a strange attractor and enfold upon themselves yet never overlap, *fractional dimensions* arise.

Chaos can be found everywhere in the world, hiding in the deepest crevices of the sea to dramatic appearances of lighting across the night sky. With each occurrence of chaos, fractals can be used to find an order. Fractals in turn are found everywhere and are holistic in theory, "the pattern that we perceive is composed of an endless variety of interwoven patterns (that) reflect the absolute relationship of the whole

and the infinite significance of each part whether the part is an element or an action or a process" (Briggs, 31). The fact that these systems produce an image that is made up of smaller self-similar images that will be infinitely reproduced, and each smaller image contains the exact image of the whole as well as all the information needed to reproduce the whole mirrors the theories that have emerged in modern physics due to the problems that have arisen from such experiments as the EPR effect and experiments in modern field theory.

In The Holoverse. Larry Dossey writes, "They (the EPR effect and modern field theory) are not mere poetic and metaphysics musings about how the world behaves." The findings are based on scientific experimentation. Fractals have just as much basis in reality as the fact that a man has five fingers on one hand. Modern science through experimentation has finally proven the modern interpretation of science wrong. These new findings within the scientific community have shaken traditional, basic, and fundamental beliefs. For example, no longer is the world able to be seen as machine with separable parts that can be broken, simplified, studied, and controlled. The universe is an indivisible whole that cannot be broken apart because each system is dependent on its environment. The fact that systems are chaotic breaks down the egocentric ideal of control. No longer is man able to dream about controlling the weather when man cannot accurately predict five days in advance if it is going to rain or not. Due to the existence of an underlying principle that is slowly being shown to connect all physical phenomena, an order has emerged.

Science, as all culture, has been thirsting for a unifying theme to connect man, and through the desert, has stumbled upon a fractal lake of fresh water. Science in the modern culture is the *sgxT* authority. When order through the breakdown of the universe was science's goal, so it was in every other area of study. As the loss of an objective "ought" seeped through the culture, chaos is rising. And now that this new scientific and mathematical aesthetic, fractals, has been experimentally proven to be found in the universe, it has led to the development of new holistic creations and ideas across the board.

We left Modern literature and art with creations void of meaning and order. Some contemporary artists, such as Jackson Pollock, started painting chaos. Nachume Miller said, "The way I go into certain processes is fairly chaotic.. you respond to a chain of events that happen when you work" (Briggs, 28). Eve Laramée, a sculptor, creates pieces, "out of copper, salt, and water... the salt dissolves and begins to eat intricate, ageless fractal shapes into the copper so that the piece evolves over time (Briggs, 32). Frank

Lloyd Wright, an American architect, created buildings that were impacted by the environment, or the larger system the house would become part of, and by the family that was going to live inside the house, or the small system that would also become part of the house. His buildings encompassed holistic characteristics. Every part of the house was planned down to the smallest details, and each detail was an intricate part of the whole. Most importantly, the house did not overtake its environment. It was harmonious and flowed smoothly. Unlike the tearing down of forests to build unnatural ordered suburbs, and skyscrapers that stick out like a sore thumb and leave no breathing room.

Our world is plagued with problems that can only be solved using a humanistic world view. Sustainability has been a key word for many activists. The current environmental crisis can be seen through problems that have arisen due to the mechanistic world view. The view that man is unconnected from his environment and from other men leads to waste and overuse. Take, for example, a furniture factory. The factory's as any other firm's main goal is to maximize profits. It is only concerned with getting resources, wood, transforming the wood into chairs, and then selling the chairs, but there are several in between steps that are left out because the factory's mind set is that it is its own entity unconnected from its environment and customers. The fact that it is cutting millions of trees down without replacing them, or that it emits millions of carbon emission into the air adding to pollution, or the waste that is accumulated from its cheap unsustainable chairs that end up in a landfill after a year is not even thought of. Board meetings consist of deep discussions on how to make their product as cheap as possible and still sell x-units for x-price. No time is spent on discussing the "entire" product and its implications. The factory is a similar example to all firms in the world ranging from big corporations to small family farms or even to a normal everyday household. Many environmentalists fall into this trap. Incandescent light bulbs were designed with good intentions, but are packaged in a copious amount of plastic. When they do eventually die, there is too much mercury to throw them away. The new question is what to do with all of them. By trying to solve one problem with a mechanistic world view, more problems arise. Through a mechanistic world view, modern science forced order on the universe and its systems, which has led to chaos in itself. For example, the cutting away of forests, which are then replaced with neat and orderly rows of trees, leads to disease and pest infestation (Briggs, 180). The damming of the Nile River to control floods and harness electricity has

lead to the depletion of the soil downstream (Briggs, 150). The use of suntan lotion to control the exposure to ultraviolet rays had led to implications within the kidneys. Heating food in a plastic container has led to a heightened chance of breast cancer. Through order and control, science has created chaos and contradictory determinism.

Environmentalists are a few among the many who are calling for a shift in the world view. According to Briggs, "The question is, shall we inhabit a world shaped by lifeless mechanistic interacting fragments driven by mechanical laws and awaiting our reassembly and control? Or shall we inhabit a world-the one suggested by fractals and chaos-that is alive, creative, and diversified because its parts are unified, inseparable, and born of an unpredictability ultimately beyond our control" (180)? The world once again can be seen objectively with a value dimension. There will be logical room for an omnipotent authority once again. Events will happen because they ought to happen, and yes, some events will even become accepted as out of our control. With science backing the switch in world views, freedom will remain within bounds. One does not have to accept Christianity or even religion in general. One just has to acknowledge there is something, maybe fate, ancestral spirits, or "chi," that unifies the world.

Culture is a strange beast and through reason, we have shown that reason alone is insufficient as all art forms have been trying to show the generation. Einstein once said, "We can't solve problems by using the same thinking we used when we created them." Through science, culture once thought we could do all things, but we were poorly mistaken. We created a broken universe, and out of that unnatural order came chaos. The culture is slowly waking up from a trance understanding we have been using the wrong methodological guidebook. Martin Luther King Jr. once said, "Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand." Imagination is needed to see through the present chaos and find a balanced, unified world view.