

THE POWER BEHIND GOD

God is always on the side of the strong battalions.
-Napoleon Bonaparte

Reason by association

It's fair to sympathize with primitive man's attempts to understand the nature of his environment. Try to imagine what it would be like to live two thousand years ago and beyond, when man knew nothing about nature beyond what's needed for basic survival. We take our understanding of nature for granted today, but ancients had none of that knowledge. The core of what they believed came from everyday experiences and by whatever was passed on orally from elders.

Their method of learning and understanding was based on what comes most natural to the human mind. If a particular pattern had a familiar effect, then they would associate similar patterns with the same effect. Sometimes they would associate impressions to have opposite meaning. Or if two or more patterns coinciding in some way, they might conclude that one affected the other. There is nothing wrong with this; in fact all learning is based on associating the unfamiliar to the unfamiliar. The problem is that learning by pattern association by literal interpretation usually leads to superstitious beliefs.

Examples. Observation: Humans and animals initiate actions on their own. Conclusion: Acts of nature are caused by beings who can't be seen. Observation: Breath can be felt, but it can't be seen. Conclusion: The wind comes from the breathing of invisible beings--souls and spirits. When the wind enters the body, it brings life; when it leaves, it brings death. Observation: The stars above move in repeatable patterns. Conclusion: There are beings up above in the heavens. Observation: When a woman gives birth, water (amniotic fluid) leaks out first. Conclusion: water is associated with birth--the birth of the universe, the birth of earth, the birth of a nation, etc.. These examples, by the way, comprise the foundational principles of theology.

Now reasoning by association is an effective way of understanding something complex. But as I've showed above, associations do not necessarily have cause and effect relationships. It would be unfair to criticize ancients for thinking that way. But now that we are in the twenty first century, it should give cause for rejecting these ancient beliefs as a truth, and concern for the sanity of those who parade it shamelessly like some moral imperative. That brings us to the topic of Biblical political theory.

By association, religious thinkers see the world they know as a series of beginnings and ends. So they reasoned that the universe must have a beginning and an end. Because of their bias, they associate social order with authority. Therefore the universe must have an authority who keeps order in the universe. Third, an authority is separate from those he rules over. Therefore the authority figure cannot be in the universe he rules. Finally, the family ruler is the father. Therefore the authority head of the universe must be a father.

To continue this series of superstitious associations. The human father comes before his offspring. Therefore the divine father came before the universe. And what follows is that the father produced the universe. They were wrong in that females create life, not men; but this is a man's club. Anyway, from their point of view, God is everybody's father; the church is the mother, and the rest are their children. It's an archaic notion of authority--and not coincidentally, self-serving too.

As a side note: The etymology of the word, God, comes from the German word *gott*, meaning, that which is invoked. The word *divine* was borrowed from astrology. Astrologers were known as dividers or diviners. More about biblical astrology some other time. Back to politics.

The holy wars

A common paradox of human psychology, is that the less we know, the more we are sure we know. While the more we know, the less we realize we know. Given the abysmal state of religious ignorance, Church thinkers believe their knowledge of God is infallible because it was given to them by God himself. And who should dare disobey them was-by analogy again--an act of treason against God. Americans take the First Amendment and the freedom of speech for granted. But with religious dogma, wrongful thought is ordained as a crime punishable by eternal torment. That's pretty intimidating if you buy into it.

There are two dates that stand out as the beginning and the end of religious influence over secular politics. 330 CE marks the date when the Roman Emperor, Constantine, made Christianity the state religion. And the year 1648, marks the end of the Thirty Years War and the demise of the Holy Roman Empire. Within this period, the ruling elites believed that the best way to maintain social order was to commit their empire to enforcing a single religious belief.

Persecutions started with the pagans and graduated to heretics. Then there were the Islamic jihads, the Crusades, the Inquisition, the witch-hunts, culminating in the corruption, persecutions, massacres, pogroms and wars during the Reformation period. This is not the place to go into the gory details; but it serves as a lesson to the pitfalls of the lethal combination of political and religious rule--politics over the body and religion over the mind.

I wish I could say it's stopped there, but it hasn't. Islam still dominates secular politics in the Middle East. There's the middle east wars and acts of terrorism between Jews and Muslims. Asian religious violence is a topic in itself. The Protestants and Catholics still fight among each other in Ireland. The Christian' labeling of Jews as Christ killers led to centuries of Jewish pogroms, culminating with the Holocaust. When you think about the idiocy of Christians claiming that the coming of the Jewish savior, Jesus, was prophesized in the Old Testament. Whereupon Jesus turns out to be the rallying cry for Jewish persecution.

If religion served some practical moral purpose, it would have been apparent a long time ago. Apologists say religion has changed since then. Not exactly true! There is not one instance in history where the Church has voluntarily relinquished its political authority; in every case, it was taken away. Still cocksure they are on the right side of every moral issue, almost every major religion lobbies for political influence as a matter of policy. There is not one among them who has renounced political coercion--in words and in deeds--as a means of achieving its ends.

It's more accurate to think of the Church as a corporate interest group. Since their product is based on emotional beliefs, which can be anything imaginable, there are hundreds of them in competition, and dozens of different Bibles in print. All promoting themselves to keep their coffers filled. Give to God, they say, as if God needed the money. Come visit once a week and get lectured to like you're a child. The theory of Darwinian evolution doesn't have enough evidence, they say, as if the idea of God has any supporting evidence at all.

There's poor old helpless omnipotent God, who without the Church, would have no one to believe in him. And there's the Church, God's professed representatives. If history is any guide, God abandoned the Church a long time ago; only the clergy doesn't hasn't figured it out yet. The Church can complain about too much materialism, but if that is the direction society is moving, then by its own logic, it must be part of God's plan. Judging by the decline of religious influence in the past few hundred years, if there is a God, it certainly doesn't fit any religious definition.

Like the proverbial question about which came first, the chicken or the egg, there is a political controversy that rages to this day. Implicit in the Genesis of Creation is the idea that the authority of a God had to precede society, otherwise there would have been no social order. According to the naturalistic view, man is inherently self organizing. The idea of authority developed in late evolution as a need to establish common standards of agreement and as a means for self defense. Science and historical evidence supports the naturalistic side.

In prehistoric times, the earliest human tribes couldn't afford a governing authority; everybody had to forage for food. There were no gods, no priests, no written laws, no kings, no written language, no armies, no police, no professional politicians. There were probably rogues, but generally, life was too perilous; cooperation was essential to man's evolutionary survival. It wasn't until about 10,000 years ago, when farming enabled the production of enough surplus food to support an elitist class. Religious authority is a relatively new invention in the evolution of human existence. The perfect word that God created in the Garden of Eden is a child's story.

The nature of social order

There are essentially two poles of thought that go into explaining the nature of social order: coercion verses cooperation. Religious dogma and political ideology comprise the coercive authoritarian model. Social order comes by way of the masses supporting an elitist class to create and enforce a system of laws. There is a sad fact that runs throughout history: More people have been killed and persecuted, in the quest to enforce arbitrary religious and political law, by their own government, than they have by common criminals and foreign powers. This coercive model, by definition, relies fraud, fear and force to garner support. They are the same means employed by criminals.

The cooperative model is the most efficient in terms of maximizing social well-being. It follows that man could not survive alone in prehistoric days. He owes his survival to his cooperative nature. In the twenty first century, we can see man's cooperative nature embodied in the market economy. The cooperative model recognizes the need for a minimal political authority to protect the rights of every individual to conduct his affairs in peace.

There will be more to say about the abuses of language later, but for starters there is no such thing as an entity called Society. Politicians use that term the way clergy use the word, God. Society, in real terms is a collection of individuals. And thus, laws can only be enforced at the individual level. The coercive model favors conformity, while the cooperative model favors the right of every individual to life, liberty and the pursuit of happiness, as the Declaration of Independence puts it.

The conformity ideal has proved to be an impossible goal and inconsistent with human nature. In the last century, we've seen it do its misdeeds in the Communist and Fascist movements. Equally, the Medieval Church went down the same path and failed.

The Church says God has a plan, but they do not know what that plan is. Now if there was a God in command, as the Church preaches, then we must take heed to the long decline of Church influence, in favor of secular concerns. Two thousand years of history gives us enough information to see in what direction God's plan is headed. The results are in. Clearly, the Church has no benefactor, proof that the Church concept of a God doesn't withstand any test of truth. Reality can't be changed by words and beliefs.

Creation Denies Process

The effort to reconcile science and religion is almost always made, by scientists. Theologians are smart enough to see that the two things are entirely antagonistic.

Biblical creationists make too much noise about Darwinian evolution, believing that if they can discredit Darwin, they can discredit evolution. It's too late; the genie is out of the bottle.

First, we need to clear up some of the language confusion about the word, *evolution*. *Evolution* has two meanings. In one context, it defines a seamless process. Everything-and I mean *everything*-in the universe is in motion at some level and consequently in *process* of change. It is impossible for one thing to change without affecting something else.

This is not a speculative theory; it is one of the best known facts in modern science. From the tiniest atomic particle to the largest super nova, absolutely everything is in a state of flux. The word scientists use to describe this flux is *chaos*. What we humans see as *order* is in a state of *>dis-order* at unseen levels.

In the second context, *evolution* means *history*, or what the process looks like at any period in the past. Forensic scientists, biographers, archeologists, historians, geologists and cosmologists, to name a few, all face the same daunting problem of reconstructing past events with only fragments of information.

Now we can examine the falsity of the anti-Darwinist argument which states that because there are gaps in the history of biological evolution, there was no process of biological evolution.

If we apply anti-Darwinist logic to other subjects, for example, it would mean there is no history because historical records are incomplete; or that there are no crimes whenever forensic evidence is incomplete; or that there was no geological evolution because geologists can't trace all the steps.

The religious view held until contrary evidence poured in. Fossil discoveries tell us that organic-living-systems started out as simple chemical proteins and grew more complex. Archeological discoveries give us evidence that modern civilization once had a primitive past. Even in medicine, doctors have found that some strains of bacteria have developed a resistance to antibiotics, though they can't trace the steps.

And the fact that fossil evidence is fragmented-and admittedly sometimes wrong or misleading-does not mean there is no evolutionary process. If there is change, there is process. If there is process, there is evolution.

Even the Bible went through a process of evolution before it reached its final form. But if we apply anti-Darwinist logic, it would mean that because so little is known of the Bible's authorship, was produced in one instant. There is an enormous amount of biblical text for which there is no evidence. Worse, most it contradicts the scientific evidence.

To sum up, the precise events leading to human evolution are irrelevant to this argument about evolution verses creation. Though some of the evidence may be fragmented and speculative, the process of evolution is a well proven fact backed up by an abundance of evidence and a legion of scientists. To deny process is to deny nature.

By comparison, Creationism rests on the premise that a supernatural being communicated some bits of knowledge to a few unknown priests in their dreams (revelation) thousands of years ago. The only proof creationists offer is the convictions of their conceit.

The Church has a long inertia going for it and has amassed a good deal of wealth and supporters. But now that it has been stripped of its military and police powers, it has to market itself like any other corporate business. An important question to ask then, is how well are sales doing?

Well, there are some facts which suggest sales have been declining for the last couple hundred of years. 1) A couple of hundred years ago, there were more clergy than scientists; now there are more scientists than clergy. 2) Atheism has become the dominant belief system today. It is so dominant that it outnumbers all of the worlds' religions put together. Only it's not called atheism; it is called science.

Science and religion are as incompatible as fire and ice. Science is completely atheistic in that the God factor can't explain nature. Science is apolitical because arguments from authority do not hold up as a proof of truth.

Religion serves no useful purpose that could be better accomplished by accepting reality on its own terms. Conversely, it's almost impossible to be religious and deny science. As hard as some theists may try, the biblical world view never existed. They can't go back. In the story of Sodom and Gomorrah, when Lot's wife looked back, she turned into salt. Religion faces the same fate.

TO JUDGE IS HUMAN

God is the immemorial refuge of the incompetent, the helpless, the miserable.
They find not only sanctuary in His arms, but also a kind of superiority,
soothing to their macerated egos; He will set them above their betters.
-H. L. Mencken

Should one trust in faith over science? Or should one trust in science over faith? I think these two questions sum up the antagonism between science and religion. The answer, in my opinion, can be found by rephrasing these two questions.

Should one trust in clergy? Or should one trust in scientists? The answer to both questions is a categorical no! Humans are fallible. There is not a person alive who is not to some degree, prejudiced, dishonest, stupid, greedy, irrational and ignorant; myself, no exception. In sum, I think it is a safe assumption to argue that human testimony, in of itself, is not completely reliable.

Second question. Should one ignore the evidence? Or should one consider the evidence? The answer to the first is no. And to the second, yes. Physical evidence has none of the handicaps of human testimony. Its presence tends to keep people honest and realistic. There is a word of caution though. Physical evidence cannot speak for itself; it requires human interpretation. And a warning: To ignore evidence is the surest way to invite dishonesty and false conclusions.

Despite Jesus' advice not to judge, every waking minute of our lives we have to judge and make judgments. We listen to testimony; we look at the evidence; we make decisions; and we act. Then we reevaluate the results of our actions; it's a continuous unbroken process. In a sense, we act as jurors and scientists everyday of our lives. It is not foolproof, but it is the best system possible within our limitations.

Evidence can be misinterpreted when we think it is self-evident. It can be staring us in the face and we don't see it. Sometimes we look at the wrong direction. Other times we don't want to look in any direction. Some evidence is impossible to analyze, but we attempt it anyway. In the final analyses, it is whatever we do with the evidence which determines our fate.

There is a singular quality about evidence which makes it what it is: It comes to us through any combination of our external senses-sight, sound, touch, taste and smell. When it is not evidence is when we stimulate thoughts without use of sense input. The differences are between what is real and what is imaginary. Or between what is natural and what is supernatural.

The key difference between religion and science, I argue, is that religious ideas are based on tradition and testimony exclusive of evidence; while scientific ideas are based on evidence and its discovery and interpretation. Said another way: Religion is authority centric whereas science is reason and experience centric. No two formulas could be more different and neither could their respective accomplishments.

A believer might say, so what! Science does nothing for us morally and spiritually. That's false propaganda too. It takes the most negative view of human nature.

Every day experience tells us that humans are naturally cooperative. There will always be a fringe criminal element, but on the whole, humans prefer cooperation over confrontation. If we humans were naturally bent on destruction, we would have destroyed ourselves a long time ago. In fact, our market economy could not exist if the human animal had anti-social instincts.

Where we do see evidence of massive human immorality is whenever people organize themselves under authority rule. The history books do a pretty good job of cataloging the wars and misery caused by the corruptive temptations of political and religious organized power. Scientists may disagree, but you won't find them killing each other over it.

As for spirituality, the religious definition is impossible to achieve. That's why clerics find themselves intense about too much materialism and not enough spirituality. Our bodies are dependant on material reality.

Spirituality is one of those vague religious terms, a better term is *contentment*. The religious way of finding contentment is by escaping into a world that exists only in words. The scientific way is by understanding the physical realities and dealing with them on the basis of reality. Admittedly, many have found contentment by self deception through religion. But better results can be achieved by sticking with reality all the way.

CREATIONISM'S NEW LANGUAGE

The scientist who yields anything to theology, however slight, is yielding to ignorance and false pretenses, and as certainly as if he granted that a horse-hair put into a bottle of water will turn into a snake.-H.L. Mencken

One of the most important principles which separates science from religion is the law of non-contradiction: when two or more ideas don't reconcile, one or the other or all have to be false to some degree. A second important law is the law of causality: Every event is caused by a preceding event. And a third, the first law of thermodynamics: The amount of energy going into a system equals the amount of energy coming out of a system. Until someone comes along and proves different, these are some of the best we can know about the fundamental way in which the universe works. There is no room for God in the real world.

In contrast, the religious view starts with God as an unshakable given. So whenever believers come across contradictions, they have to either ignore them or rationalize them in some way. When they base our beliefs on words alone, all they have to do change the words to fit our beliefs. They would never think of questioning the validity of their premise. Believers and creationists alike have acquired a habit of living in a world of words and contradictions all their lives. What's a few more.

The canonized biblical view describes a static view of existence of how the Universe appeared magically from nothing about 4,000 BCE without going through the dynamic process of evolution. God, so it says, is the unmoved mover. It's an idea that was taught in major universities up to the 17th century. The unmoved mover paradigm lost credibility when it was realized that energy is its own motivating force.

What this is building up to. If there is no evolution, there would have to be no energy, no thermodynamics, no causality, no motion, nothing. The Universe would have to come into existence from nothing. Such a possibility defies everything verifiable known about the universe. Energy is the material and the motivating force behind evolution.

To repeat again: the *process* of evolution--or of constant change--is a self evident fact we experience every day of our lives. While the history, or the cataloguing the events of the process is an extremely difficult task. The creationist methodology is to muddle the two. The pickings are the greatest in the evolutionary history of biological organisms because they are so complex.

Religion, being authoritarian based, is not bound by standards of proof. Thus some card carrying creationists insist that the biblical view is entirely correct because they know that to accept anything outside the Bible is tantamount to admitting the Bible is in error. They would rather live with their religious contradictions than add science to the mix.

Others have come to realize that the biblical view is untenable, so they adopted a strategy of combining science with religion, called scientific creationism. For several reasons, mixing science with religion is an admitted strategy of retreat in face of impossible advancement.

What's first notable about this strategy is that it doesn't make science sound more religious, it makes religion sound scientific. You can tell by some of the prominent buzzwords floating around: *creation science*, *anthropic principle* and *the intelligent design theory*. Some see evolution, is evidence of God's creation or that God may have planted a faith gene in everybody, though most of the human race doesn't seem to have one.

Let's call them *coattails*, for convenience, because their aim is to sound attractive by riding on the coattails of science's credibility. One of the newer scams is to appear to be using science to disprove science. The strategy fits

within the religious frame of mind because religion does not concern itself with scientific integrity; it measures its self worth by the quantity of believers like politicians do in the number of voters. And it is entirely word based, so it can morph without being constrained by the discipline of physical reality.

The *coattail* strategy falls into a no man's land--neither science nor biblical religion. Science is not science with God and religion is not religion without God. If anything, it makes religion sound more atheistic. by deferring to science, *coattails* only enhance science's credibility and places religion in a secondary roll. After a while, one should get to realize: What do you need religion for if it is giving science all the credit?

It was only a few hundred years ago when early scientists felt a need to justify their discoveries as consistent with their religious beliefs, sometimes to avoid threat. Times have changed. What is left are religious fanatics with science degrees, who still think they can prove religion is compatible with science. Progress evolves in subtle ways.

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REALITY AND ITS DISCONTENTS

It is not the strongest of the species that survive, nor the most intelligent,
but the one most responsive to change —Charles Darwin

To live or not to live in Reality? The answers you are going to read from this writer are categorically on the side of Reality. My reasoning is not complicated. I'm defining Reality as whatever exists. It could be an entity, an action, a value, a thought, a form of energy—anything within Nature. Reality is *the* standard of truth and fact. Reality is the only environment which every living being has in common. It's whatever happens, whether we believe it or not. It's the guiding force behind evolution, the mother of all life. Reality controls *us*; we can't control *it*.

As living beings, we can't live without it; in fact, we feed off of it. Contrary to religious hocus-pocus, if we can't live without Reality, we can't feel without Reality. To the degree we try to isolate ourselves from Reality, we shortchange ourselves. As to the question about whether or not to live in Reality? The answer is, we have no choice, for anything that's possible by peaceful means. I emphasize the term "by peaceful means," because Reality also guides us towards moral choices. To be realistic necessitates we be honest with ourselves and with others. That's why, by the standards of reality, there is no such thing as an honest crook, an honest politician, and an honest clergy.

And yet for as self-evidence as the absoluteness of Reality should be, it is not as understood as it needs to be. Symptoms are everywhere. Why do things go wrong? In Reality they don't. They only go wrong for us because our expectations weren't realistic. The great question: Why is there evil? Because the majority of good people either fail to recognize it or are too willing to accept it. Why do bad things sometimes happen to good people? Because Reality has no conscience or consciousness. Why do we feel stress when none directly threatens us? Because too often we imagine threats that don't exist in Reality. War, disease, poverty, taxes, oppression, emotional stress, and every other form of human caused suffering, are symptomatic of humanities' ignorance about the nature of Reality.

Synonymous with Reality, I'm an advocate of applied knowledge and voluntary cooperation as the only possible remedies for human betterment. We'll always have ignorance, no matter how knowledgeable we are for the simple fact of our limitations. Nature is infinitely complex; there are too many things going on at one time. But it's one thing to not know and to know we don't know; that kind of ignorance takes knowledge. And it's another to not know, and to think and act as if we do know. This is the form of ignorance that does all the damage. Our thoughts and our actions cannot change Reality, no matter how hard we try. Or we can retreat from Reality in our minds. But the problem of what to do with our body always remains. We cannot defeat Reality; we can only learn to live with it.

I'll take a shot at explaining why Reality is so poorly understood and ignorance so endemic. To start, we are born ignorant. It's not until about the age of two, when children begin to learn language, do they begin to experience unreality. It comes from our parents and from every other authority figure not wise or opposed to the ways of the real world. Ignorance requires passivity, to accept what passes for knowledge without questioning its fidelity to Reality. Unfortunately, children don't have that capability. We're creatures of habit. Once indoctrinated, we usually carry early beliefs with us for the rest of our lives.

By the standards of Reality, it would seem that religion should have become extinct a long time ago. The sad fact that it hasn't, leads to the observation that the great majority are rarely capable of thinking independently. On most questions they accept popular views at face value. They are equally content if born or coaxed into one set of beliefs or another. The first step for the few who are not content with the status quo is to break free from the restraining influences of the great majority. In Reality, every person is born free. It is only when he wills himself to obey the dictates of religious and political authority that he becomes a sacrificial slave in the eyes of a self-styled elitist minority.

The authoritarians know that they cannot get you to conform by coercion alone; they need your willing cooperation. To do that they have to convince you to deny Reality. From there you are at their mercy. In religion, it's taught that what does not exist in Reality, exists in Reality. In Reality, a thing is what it is; in religion, it's often something else. In Reality, a thing will act according to it's nature; in religion, a thing can act against its nature. In Reality a thing cannot be something else at the same time, while in religion it can. In Reality there are no contradictions, while religion is completely self-contradictory. In Reality it's our nature to strive to improve on our circumstances, while religion teaches to adhere to custom and tradition. And yet for as self-evident as Reality is, the population who can't or who don't want to understand it is of epidemic proportions.

To understand Reality we have to make an effort to be conscious of it; passivity and habit is primarily what holds us back. It's a weeding out process. It can be uncomfortable at times, but in the long run the rewards are overwhelming greater than the drawbacks. I don't want to make this seem like an either-or proposition. One extreme is suicidal, while the other is living life to the fullest; most of us live somewhere in between. I chose religion as a subject to explain Reality because no other area of human thought is more in counter-opposition. Politics is another area of thought devoid of Reality, but that is a whole other topic in itself. They have a great deal in common in that they threaten some form of punishment for disobedience to their particular brand of behavior. What applies to religion, applies equally to politics.

Fortunately there are positive roll models. We can give the development of the discipline of science a good deal of credit for pioneering study of Reality. A scientist doesn't try to change Reality. Instead, he strives to understand it. You don't find scientists trying to force their beliefs on others. Kudos goes to the entrepreneurs who aim to transform scientific knowledge into practical (and entertaining) benefits. Similarly, you don't find entrepreneurs coercing people to buy their wares. Combined, science and capitalism undermine the machinations of religious and political authoritarians. In Reality, we are free to choose according to our own self interests. Coercion is a form of unreality in that it is a means of producing social conformity in too many areas where it is impossible. We need to be mindful of it, so we don't support it or fall victim to it.

In presenting this series, I hope to convince you, the reader, believer, faithful, voter, patriot, taxpayer, or however you define yourself, that religion and politics are social cancers. Do you want to live your life by your lights or do you want to let others fool you, intimidate you and hold you back? The choice is up to you.

RELIGION AND POLITICS

The end of law is not to abolish or restrain, but to preserve and enlarge freedom....
For liberty is to be free from restraint and violence from others, which cannot be where there is no law.
-John Locke

But laws which sanction restraint and violence against peaceful peoples pervert their moral purpose.
-Raymond Hewitt

Government is not reason, it is not eloquence--it is force.
-George Washington

Religion is not reason; it is fear mongering embellished in eloquence.
-Raymond Hewitt

There is a cancer, called evil, that haunts all of human society to this day. It's not caused by some superstitious supernatural power called Satan. It's caused by a perverted class of moralists who desire power and glory by fraudulent and coercive means. Both the Church and State qualify as the epitome of this authoritarian mold. As much as they would like you to believe otherwise, they have no power of their own; it derives from the consent and the surrender of its subjects. They both conduct themselves according to the same political philosophy.

The dominate political theory holds that the interests of the individual and society (or the State and the Church) are fundamentally opposed; and that the individual has to be led to cooperate by Draconian compulsion. The political and the religious class believe that by virtue of their superior level of intelligence, education and wisdom, they have the ability to steer society into the best courses of action. While the individual, when acting according to his personal interests, sometimes acts in ways harmful to society in which he can't see or may not care. To achieve this so-called orderly society, the State typically threatens with physical punishment and the Church with divine punishment.

State law concerns itself with your actions. If it conducted itself as a defensive institution it would be living up to its billing to protect its citizens from street crime and foreign invaders. Unfortunately the State has invaded almost every area of business activity and far too many areas of personal activity. In the U.S., the average wage earner has to work almost six months a year to pay taxes. Roughly half of the arrests and court cases in the U.S. each year involve consensual crimes-actions that are against the law, but directly harm no one's person or property. It's been well documented that citizens suffer more harm from their own government than they do from other citizens and foreign powers combined. The point here is that the State has become a dangerous organization for the simple reason that good people cooperate with the system too readily.

Religious authority plays with your mind. It assumes that social cohesion cannot happen unless everybody thinks alike; it treats heretical thought as a crime. The enforcer in this case is a fictional supreme ruler over all mankind, called God. Now if this idea of a omnipotent God had any merit, everyone would be thinking alike and there would have been no need for the Church. I remind readers, that when the Church was at the height of its temporal power, it punished heretical thought with intense zeal. To go further, when we track religious influence over the centuries, we will notice that it has declined as human conditions have improved. The Church may think it is providing moral leadership, but it's dogma virtually outlaws the human body.

You, dear reader, as an individual are at the bottom of this pecking order. Like the overwhelming majority you are not inclined to lie, threaten, steal or murder to get what you want. Instead you try the best you can to get along with whomever you come in contact with. Yet you are being systematically robbed and plundered by the State, in the name of protecting you from thieves and plunderers. If you do something harmful to yourself, the State will do you one better by harming you even more. The Church attacks you from a different angle. For merely not thinking

their way, you are told you risk eternal torment in hell. We can only guess how many people, on their deathbed, went to their graves in fear of perdition. You don't have to subject yourself to this nonsense.

Ladies and gentlemen, there is no such thing as an all knowing authority, either here on earth or out there in supernatural la-la land. In the real world, such knowledge is impossible to obtain; everybody is different. About the only types of behavior you will find near unanimity as immoral, are acts considered fraudulent, threatening, coercive and murderous. But what we can see, if we will look, are two primary forms of social organization-the Church and the State-acting according to the means they pretend to prevent.

The giveaway to the menace of authoritarian rule lies in its necessity to bring about its particular brand of social conformity by enforcement. In the real world, it can't be done by coercive means or any other means. Every empire in written history, including the Church, has failed. Typically their life cycle runs out when they lose popular support. You can't lie yourself to a higher truth; and you can't beat up on people in the name of making them act morally. It's the cause of their eventual undoing.

If religion offered something of worthwhile value, it would have grown in stature over the years. Instead, it hasn't changed since the Dark ages because it's trapped in a world of words that can't find their way into the real world. It tells us that some all powerful supernatural creature made a perfect world for humankind until the Devil came and screwed it up. As a result, it's the job of the Church to help God fix what he can't fix himself. This is just too ridiculous.

Make no mistake about it. The voices you hear are not from God. They are from mortals like yourself. They are types who either have an overpowering emotional need to dominate others or who are one notch short of insane. You will find them the highest concentration of them in government and in religious organizations. What they all have in common is that they place themselves above all others because they think they know what is best for everybody else. It's the highest form of conceit and the root of social evil.

Religion's bugbear has been science; the State remains threatened by the market economy. The two, acting in unison, have tried to slow them down, control them and discredit them since the days of their inception. There is a point of view that needs to be stressed here. Despite all the propaganda nonsense about the will of God, or the will of society or the will of the majority, there are no such entities in the real world. Authoritarian institutions get their power by popular consent. When they cease to be popular, they lose their authority. History bears this out.

Which brings me to explaining my motives for taking on this project. By far, the most threatening menace to society is the State, with the Church close behind. I believe that a large segment of society who support State authority, do so because they were conditioned at an early age to accept Church authority. Religion has been in decline for the last few hundred years; the State, as it presently functions, has yet to run its course. If I can help to hasten their demise in any way, I consider it time well spent.

The scientific method

Science is built up of facts, as a house is built of stones;
but an accumulation of facts is no more science
than a heap of stones is a house.
-Jules-Henri Poincaré

The term "scientific method" gets paraded about as if the average person untutored in science knows what it is. Even in my engineering college days, I was taught the practice of the scientific method, but was given no philosophical understanding of it. I had to take a philosophy elective in logic to fill in the gap. So it is no surprise that so few understand what the scientific method is. I would describe it as a method of logic designed to keep us tethered to tangible reality. We don't have to be scientists to apply it.

I came across a book that explains the scientific method better than any publication I've seen. It's titled [How to Think Straight About Psychology](#) by Keith E. Stanovich. As the title suggests, the author is out to set the record straight because he thinks Freud and popular psychology has given the profession a bad name. The author's writing is so clear and concise that I've decided to copy selections verbatim. While his focus is psychology, I've sprinkled in some illustrative examples to put the scientific method in a broader perspective with an emphasis on religion.

Empiricism

The word "empiricism" defines the practice of relying on observation. Up to Galileo's time it was thought that knowledge was best obtained through pure thought or appeal to authority. Galileo's accusers refused to look through his telescope.

Scientific observation is termed systematic because it is structured so that the results of the observations reveal something about the underlying nature of the world. This is done by comparing theories with observations. The results of observations will either support or reject said theories.

Scientists avoid theories that are not testable or not solvable. Examples would be "What is the meaning of life" or "When did the universe begin." Even the question of "How did life begin" may not be solvable.

Falsifiability

The criterion says that for a theory to be useful, the predictions drawn from it must be specific. The theory should predict what should and what should not happen. If they don't happen, the theory has to be modified or replaced with an entirely new theory. Either way you wind up with a theory closer to the truth. In contrast, if a theory does not rule out possible observations, then the theory cannot be changed, and we are frozen into our current way of thinking with no possibility of changing.

As one example of un-falsifiability, a shaman might apply some magic potions to heal a sick person. If the person gets well, he takes credit for it. If the person dies, he says it was the will of the gods. He can't be wrong no matter what the outcome. The god hypothesis on any matter cannot be falsified. Today's psychologists consider Freudian theory to be scientifically useless: it explains human behavior after the fact; it can explain everything; it makes no specific predictions.

Theories

There is a misconception that one theory is as good as another, as if they were unverified hypothesis, mere

guesses, hunches. On the contrary, a theory in science explains a body of data and makes predictions about the results of future experiments. What scientists most often mean by a *solvable problem* is a "testable theory." The way scientists make sure they are dealing with testable theories is by ensuring that they are falsifiable.

When embedded into the principle of falsifiability, a successful theory is not one that accounts for every possible happening because such a theory robs itself of its predictive power. Bad theories do not put themselves in jeopardy in this way. They make predictions that are so general that they are almost bound to be true.

The difference between a layperson's and the scientist's use of the term "theory" has often been exploited by some religious fundamentalists who want creationism taught in the public schools. Grand theories that are so global, complicated, and fuzzy can be used to explain everything. Such theories are constructed for emotional support because they are not meant to be changed or discarded.

Hypotheses

Hypotheses are specific predictions derived from theories (which are more general and comprehensive). Current viable theories are those that have many of their hypotheses confirmed. If the hypotheses are confirmed by the experiments, then the theory receives some degree of corroboration. They are called hypotheses because they are incomplete, not because they are wrong in every respect.

The Bible has many errors, omissions and contradictions with established facts. Those determined to defend the Bible as inerrant, content themselves with hypothesize possibilities.

Laws

There are many relationships that have been confirmed so many times that they are termed laws because it is extremely doubtful that they will be overturned by future experimentation.

That scientists gravitate to those problems on the fringes of what is known and ignore things that are well confirmed (so-called laws)-is very confusing to the general public. It seems that scientists are emphasizing what they don't know rather than what is known. This is because to advance knowledge, scientists must work at the outer limits of what is known.

Religionists have taken these debates at the fringes as a weakness when it is a strength. Conversely, religion's weakness is its tradition of clinging to pure thought and authority. It's the same fallacious logic when Galileo's accusers refused to look into his telescope.

Essentialism verses operationism

Essentialism is defined as the idea that the only good scientific theories are those that give ultimate explanations of phenomena in terms of their underlying essences or their essential properties. People who hold this view usually also believe that any theory that gives less than an ultimate explanation of a phenomenon is useless.

Scientists do not claim to produce perfect knowledge; the unique strength of science is not that it is an error-free process, but that it provides a way of eliminating the errors that are part of the knowledge base. Nor does science attempt to answer "ultimate" questions about the universe. Scientists consider questions about "ultimate" to be unanswerable, and claims of perfect or absolute knowledge tend to choke off inquiry. This is why scientists reject essentialism.

Instead, science advances by developing *operational definitions* of concepts -i.e. how things operate. The

operational definition removes the concept from the feelings of a particular individual and allows it to be tested by anyone who can carry out the measurable operations. As such, theories must be grounded in, or linked to, observable events that can be measured.

For examples, scientists can explain how gravity operates, but they cannot explain its underlying essence. They do not engage in word games such as what is the meaning of the word *life*. They cannot define *hunger* by feelings of discomfort; they would use something measurable like blood sugar.

Testimonials

Scientists consider testimonials worthless as evidence of truth. First, there is the placebo effect which is well documented in medical research. Second, there is the vividness problem. When faced with a problem-solving or decision-making situation, people retrieve from memory the information that seems relevant to the situation at hand. Thus, they are more likely to use the facts that are more accessible to solve a problem or make a decision. Testimony is also dependant on honesty.

Testimonials open the door to pseudoscience such as astrology and parapsychology. Christianity, Judaism and Islam's claims to being revealed religions are based on testimonials.

Correlation and causation

The presence of correlation does not necessarily imply causation. The limitations of correlational evidence are not always so easy to recognize. When the casual link seems obvious to us, when we have a strong pre-existing bias, or when our interpretations become dominated by our theoretical orientation, it is tempting to treat correlations as evidence of causation.

Stanovich gives a case example when, based on statistical evidence, Pellagra was believed to be a transmitted disease caused by unsanitary conditions. Joseph Goldberger suspected it was caused by inadequate diet. He thought that the correlation arose because families with sanitary plumbing were likely to be economically advantaged. To prove his point, he tried to infect himself and volunteers with the body fluids of Pellagra victims; nothing happened. For his second test, he fed one group of volunteers on a high-carbohydrate low-protein diet and another group a more balanced diet. Within five months, the low-protein group was ravaged by Pellagra.

The directionality problem

When correlations become apparent, it is a common error to confuse effect for cause. There are such an abundance of these that pass for conventional wisdom that I couldn't scratch the surface. People will cite a list of social ills as if they were root causes, when in reality they are the effects of underlying causes. 1) When the economy is running well, political officials take credit; when it goes sour, they blame consumers for not spending enough. 2) My interest in nutrition, led me to discover that that most metabolic illness are caused by poor diet. Pharmaceutical medicines alleviate the effects of bad diet, but do not address the underlying causes while causing side reactions. 3) Are religious people moral because they believe in (or fear) God? Or are they moral because they had those inclinations in the first place?

Multiple causation

Human behavior often has multiple causes. History, economics and psychology come to mind.

Connectivity and Convergence

The connectivity principle states that a new theory in science must make contact with previously established

empirical facts. To be considered an advance, it must not only explain new facts but account for old ones. The theory may explain old facts in quite a different way from a previous theory, but explain them it must. This requirement ensures the cumulative progress of science.

If a new theory accounts for some new facts but fails to account for a host of old ones, it will not be considered a complete advance over old theories and, thus, will not immediately replace them. Instead, the old and new theories will contend simultaneously in the marketplace of ideas until a new synthesis renders them all obsolete.

The breakthrough model of scientific progress leads us astray by implying that new discoveries violate the principle of connectivity. This implication is dangerous because, when the principle of connectivity is abandoned, the main beneficiaries are purveyors of pseudoscience and bogus theories.

In what Stanovich calls the "Einstein Syndrome," his achievement has made it the dominant model of scientific progress in the public's mind. The tabloids are notorious for headlines that start with "New Breakthrough.." These theories derive part of their appeal and much of their publicity from the fact that they are said to be startling new. The second stratagem is to dismiss previous data by declaring them irrelevant. They say the theory is so new, such data are said not yet to exist. It's a rich environment for the growth of pseudoscience.

Evolutionary theory, the bugbear of creationism, displays connectivity with such disparate areas of science as paleontology, embryology, morphology, biogeography, and others. If the universe and Earth are only about ten thousand years old, then the modern sciences of cosmology, astronomy, physics, chemistry, geology, paleontology, paleoanthropology and early human history are all invalidated. Darwin's theory wasn't perfect. Called pangenesis, he abandoned the principle of connectivity to explain the mechanism of heredity to go along with natural selection. It was abandoned because it did not cohere with the rest of biology. The problem is that creationism shows no connectivity with anything else in science-in biology, geology, ecology, chemistry and genetics. Evolution shows extreme connectivity with all the other sciences.

Probability

Many laws and relationships in some sciences are stated in probabilities rather than certainties. We can see this in such fields as medical science, meteorology and psychology. Human activities generate the most controversies. In debates, it is easy to find exceptions to the general rule. For example, medical science can predict with confidence that the odds of developing lung cancer are greater among smokers, but it does not hold in every case. Therefore, in what is called cognitive illusions: it is a fallacy of reasoning to overweight individual case evidence and underweight statistical information.

The Gambler's Fallacy

The gamblers fallacy is the tendency for people to see links between events in the past and events in the future when the two are really independent. Two outcomes are independent when the occurrence of one does not affect the probability of the other.

Chance and randomness

Our brains have evolved in such a way that they engage in a relentless search for patterns in the world. We seek relationships, explanations, and meaning in the things that happen around us. What confounds our quest for structure and obscures understanding? You guessed it: probability. Or more specifically: chance and randomness.

Chance and randomness are integral parts of our environment. The mechanism of biological evolution and genetic recombination are governed by laws of chance and randomness. Why do bad things sometimes happen to good people? Answer: chance and randomness, being in the wrong place at the wrong time. There is a common

tendency to search for explanations of coincidental events on the mistaken idea that rare events never happen. The laws of probability don't guarantee even distribution.

What is seen and what is not seen

This is not specifically discussed in Stanovich's book, but it improves our skill at thinking scientifically. One should be alert to looking not merely at the immediate but the longer effects and side effects of any act or phenomenon. As discussed above, in nature there may be a chain of causes or multiple causes. With human actions, there can be a chain of consequences that cascade into areas not apparent.

In what he calls the [broken window fallacy](#), Frederic Bastiat, explains this common failure to take into consideration all the consequences of an action.

Final Note

We live in a sea of disinformation on topics for which we have no expertise, and even our own lives are full of uncertainties. The scientific method provides a framework on which to improve our judgment. In addition it requires curiosity, alertness and the willingness to trade better ideas for lesser ones.

Other sources

These sources do a commendable job of explaining science and debunking pseudoscience.

howstuffworks.com

[james randi educational foundation](http://jamesrandi.org)

junkscience.com

[skeptical inquirer](http://skepticalinquirer.org)

[skeptics dictionary](http://skepticsdictionary.com)

Thinking Objectively

When words lose their meaning
people lose their liberty
-Confucius

Thinking subjectively comes naturally; thinking objectively doesn't - it's an acquired skill. David Kelley explains why it is worth the trouble to improve on. I extracted this page from the introduction of his book, [The Art of Reasoning](#). This article is a companion to [The Scientific Method](#).

Thinking

In a broad sense, the word "thinking" refers to anything that goes on in our minds. As long as you are conscious, there is always something going on up there. In this sense, you can't help thinking. In a narrower sense, however, thinking is a particular *kind* of mental activity, the kind involved in solving a problem, planning an action, studying for a test, defending your position on a controversial issue. This is still a pretty broad concept, but we have excluded some things.

In the first place, we can distinguish thinking from feeling. Thinking is a cognitive process we use in the attempt to gain knowledge or to understand something, as distinct from our emotional responses to things. This distinction does not mean, as people too often assume, that someone with strong emotions is necessarily illogical or that a logical person must be unemotional. On the contrary, there is no reason we cannot have both: clear logical minds and passionate feelings. But thinking and feeling do have different roles to play, different jobs to do, in our mental lives.

Secondly, thinking is purposive. It differs from activities such as daydreaming and fantasizing in which we simply let our minds wander where they will. Thinking is something we have to *do*, usually with some degree of effort. And because it aims at a goal, it is something that can be done with varying degrees of success. You may or may not succeed in solving a problem, forming a plan, grasping something you read, proving your case. In this way too, it differs from daydreaming, where the concepts of success and failure don't really apply. Thinking is a skill. It's a skill that everyone has in some degree, but it's also a skill that everyone can improve.

Thinking skills

How can we improve this skill? It's analogous to a game of chess. We need to learn the rules and strategies of the game. And we need to practice the moves that implement those rules and strategies. With thinking, there are certain standards that tell us when we have achieved a clear understanding of some subject or succeeded in proving a case. These standards are the subject matter of logic, and our first task is to learn what they are. Our second task is to practice applying these standards to a variety of examples drawn from everyday life. The more practice we get, the more effectively we can incorporate the standards of logic into our habits of thought.

When we engage in thought, our goal is normally to find out something. We are trying to answer a question, solve a problem, prove a conclusion, learn a body of material. In many cases, we can't acquire knowledge by direct observation. We have to do some reasoning, putting two and two together, making inferences, drawing conclusions from the information we already have.

The core of logic has always been the study of inference. There are different kinds of inferences and rules for evaluating and distinguishing the good from the bad ones. Logic won't give you answers, but it will give you a method to follow for making decisions and backing them up. It will show you how to break an issue down into sub-issues, how to decide what evidence is appropriate to a particular issue. It will give you standards for deciding

what sort of evidence is appropriate to a particular issue. And it will give you standards for determining how much weight to give a piece of evidence.

Logic can also help us develop other, more subtle skills. Most of us have been in discussions that were frustrating because they kept going around in circles. That often happens when people "talk past each other" -when they are not really addressing the same issue. If the disputants could identify their differences, they would at least know where they agree. Another area of logic is concepts and definitions. People often talk past each other when they use words with different meanings.

Logic won't guarantee success, but it can give us a method to follow, and the method will pay immediate dividends in terms of clarity and precision of our thinking.

Objectivity

Objectivity means staying in touch with the facts. It means guiding our thought processes by a concern for truth. To some extent, objectivity is a matter of choice: the choice not to indulge in wishful thinking, not to let bias or prejudice distort our judgment, and so forth. But there's more to it than that. Objectivity also involves a skill. Even with the best will in the world, we can't really be objective unless we know how to follow and evaluate the arguments we hear, how to isolate the relevant issues clearly, how to avoid ambiguity and vagueness in the words we use.

The essence of objectivity is the ability to step back from our train of thought and examine it critically. This is a virtue because it is the only way to avoid jumping to conclusions, the only way to check the results of our thinking, the only way to make sure that we are in touch with the facts.

The results of our thinking cannot be any better than the process by which we arrive at them. There is no Book of Life with answers in the back where we can see whether we got it right. Good thinking is a self-directed, self-correcting process and you are the only one who can take responsibility for steering your own mind in the right direction.

Objectivity also has a social aspect. It means not only presenting your own ideas logically, but also listening to what others have to say. Objectivity does not require that you be neutral, nonpartisan, or indifferent to the issue. It does require that you try to look at the matter from the other person's perspective. Even if your view is right, it is rare that any single perspective reveals the *whole* truth. Objectivity requires that you give a fair hearing to the evidence and arguments for the other side. Even if you reject them in the end, knowing *why* you reject them will give you a better understanding of your own position.

Another aspect of objectivity is especially important in communicating with others. In order to get our ideas across successfully, we have to take account of the other person's context. A point so obvious to me that it hardly seems worth mentioning may not be obvious to someone else, and if I fail to mention it, he may not understand what I am saying. Objectivity is the ability to step back from our own thinking, so that we can see it critically, through the eyes of someone who does not share our outlook, our preferences, our idiosyncrasies. All that we can reasonably ask of our audience is the ability to follow our logical connections. In this respect, logic, language, is a shared framework without which we could not communicate.

When Science Replaced the Bible

Theology doesn't teach what we know about God;
it teaches what we do not know about Nature.

To believers, it is the Bible's antiquity and the prestige of the Church that gives it its power and mystique. The biblical world view went unchallenged until some major scientific discoveries set it in retreat. What follows is a brief sketch of some of the major landmarks in scientific discovery which have discredited beliefs rooted in the Bible.

Archeology

According to the chronology in the Bible, earth was created on 4004 BCE.

In 1798 Napoleon Bonaparte took a team of 150 scientists with him on a military mission to Egypt. Napoleon had to abandon his military ambitions, but his scientists stayed behind. A couple of years later they brought back artifacts from an advanced civilization almost as old as the biblical time of Creation, 4004 BCE. If there was such thing as a Noah's flood, it would have destroyed the Egyptian civilization at the time when they were building their pyramids. This would apply equally as well to all the other ancient civilizations around the world which have since been discovered.

Astronomy

Up until 1492, the biblical view of a flat earth was a commonly accepted belief.

It was on that date when Christopher Columbus sailed west to the Americas and proved that earth is round. The authority and dominance of the Catholic Church was at last fractured. Early scientists began asking questions that challenged long held dogmas about creation and the nature of the universe.

In 1543, the Polish astronomer, Nicolaus Copernicus, overturned the geocentric theory of an earth centered universe with his heliocentric, sun-centered theory. When Galileo Galilei, improved the telescope he saw more detail in the heavens than ever before. Around 1610 he published his first findings for his support for the Copernican theory of a moving earth. In 1633, he was ordered to renounce his discoveries and was kept in house arrest for the rest of his life.

Biology

When God created life, according to the Bible, he created them according to their kind. This was interpreted to mean that life forms were fixed according to the way they were created.

In 1665, with the aid of microscopes, Robert Hooke proposed the cell theory, which states that all living things are composed of cells, the fundamental unit of life, and that all cells arise from previous cells.

1859 brings us to the year when Darwin published his *Origin of Species*. His theory of natural selection argues that it is not so much a matter of survival of the fittest as it is, survivors produce more adaptable offspring. It's based on a simple observation that marginal variations in offspring yield different degrees of survival success. He also introduced the concept of related organisms which are descended from common ancestors. He introduced the idea that earth is not static, but evolving.

Credit for the founding of genetics goes to a Czechoslovakian monk, Gregor Mendel, who in 1865 announced his

findings based on 28,000 experiments with pea plants. There exists "atoms of inheritance" which we now call genes. Each parent contributes half of its offspring's genes. Genes come in different forms and are sorted and distributed randomly.

In 1968, James D. Watson published the *Double Helix*. His research led to the discovery of the double helix structure of DNA molecules. DNA is consistent with both Newton and Darwin. Like Newton's laws of motion showing matter is a form of energy, DNA contains the chemical blueprints for self-replication. Consistent with Darwin, the self-replication process produces marginal variations. It is not fixed the way creationists want to believe.

In the year 2000, J. Craig Venter and his company Celera Genomics, mapped the entire human DNA molecule. They found 30,000 different genes in a molecule, but the search isn't over yet. Apparently, they've found, each gene contains a collection of protein amino acids whose functions are not yet understood. The 30,000 genes can be seen as plans for housing development and amino acids, as the blueprints and building materials for each house.

Chemistry

In the Bible creation stories, God creates earth and then creates life. All matter was composed of some combination of air, water, fire and earth. Up to the nineteenth century, it was believed that living material matter was fundamentally different than dead matter. The notion that four elements controlled the nature of men and matter can be seen in Genesis 1 and has carried into the seventeenth century.

In 1828 German chemist Friedrich Wohler showed that living matter comes from dead matter when he synthesized urea from ammonium nitrate-urea is produced mostly in the liver as the end product of protein metabolism. This means that at the level of atomic structure, living matter cannot be differentiated from nonliving matter.

The first to discredit the idea of four elements was an Englishman, Robert Boyle, who in 1661 published *The Sceptical Chymist*. His contribution was to realize that matter is composed of a range of elements, each of which, in its pure form is a collection of identical corpuscles or atoms. He was responsible for placing the emphasis on careful experiment and for his rejection of occult explanations.

Education

About 1452 Johannes Gutenberg invented the printing press. Up to that time books were hand written. Writing was a slow process, so not many books were produced. It was comparatively easy for Catholic censors to destroy any book not to their liking. With the spread of the printing press, books got produced too fast for the censors to keep up and literacy increased. The Protestant Reformation was one of the outgrowths of the printing press.

1900 was the first year religious works did not outnumber all other publications. It wasn't long after when colleges were graduating more science majors than theology majors.

Geology

In 1795 James Hutton published his theories in *Theories of the Earth* in which suggests that processes such as sedimentation, volcanism and erosion caused changes in the surface of the earth and had been operating in the same manner and at the same rate over a very long period of time. This aroused strong opposition from those who believed in Archbishop James Ussher's biblical chronology published in 1650, which stated that the world was created in 4004 BCE.

Building on the pioneering work of James Hutton, Charles Lyell published his theory of *uniformitarianism* in 1830.

Uniformitarianism contradicted the theory of *catastrophism*. Catastrophism claimed that only major catastrophes could change the basic formation of the earth, and that earth was only about 6,000 years old. Catastrophism supported the belief in Noah's flood. Lyell's theories influenced the work of his friend, Charles Darwin. He eventually became a strong supporter of Darwin's theories.

Law And Economics

In 1789 the U.S. Constitution was ratified. The First Amendment prohibited the federal government from making any laws "respecting an establishment of religion." It was the first time a nation formally divorced itself from religious influence. Paradoxically, the United States remains one of the most religious countries in the world, and the most diverse. The paradox has to do with market economics. Without government protection, freedom gives religious denominations the incentive to compete for their audience. In other words, since no one can agree on God's message, marketing becomes the deciding factor.

Medicine

According to the Gospels, Jesus affected his cures by ridding his subjects of demons. Up until the sixteenth century, Catholic nations reinforced their views on sickness with piety. Prayers to saints and the virgin, pilgrimages to miraculous shrines, votive offerings, use of the sacraments and the anointing of the sick with holy oil remained extremely popular. For their part, soul-searching Christians could regard illness as divine punishment for sin or as a Job-like trial of faith. How a person died was crucial, for it determined whether they went to heaven or hell. For Catholics it was essential to make a last confession and to receive the sacraments and so die in a state of grace.

The year was 1878 when Louis Pasteur presented his germ theory of disease. He proved convincingly that micro-organisms were responsible for disease, putrefaction and fermentation. Particular organisms could produce specific conditions; and that once those organisms were known, prevention would be possible by developing vaccines.

Physics

To religionists, God is the principle mover of all things; without God, there would be chaos and disorder.

In 1687 Isaac Newton published his *Principia*, in which he developed the laws of motion and planetary gravitation. Newton showed that forces lie within the bodies themselves. By this time, Newton's works were widely acclaimed and the Christian Church could pose no personal threat.

Since the 1970's, a new science has emerged called the science of complexity and chaos. Whereas the traditional scientific view saw the natural world as regular and predictable, the chaos theory suggests that nature is in fact, unpredictable and irregular. Now that scientists are looking, they see chaos everywhere. They see it in weather patterns, smoke rising from a fire, turbulent flow of air and fluids, automobile traffic, the market economy, and organic metabolisms.

Conclusion

And now in the early part of the 21st century, there is one class of hold outs who think science can prove the existence of God: Creationists.

At the level of human sense perception, the universe appears orderly. But at the unseen level it is extremely complex and chaotic. Matter contains its own energy. Genes contain their own self-replicating blueprints. Everything in the entire universe is moving and shifting like clouds in the sky, in accordance with the law of causality. The idea that some supernatural deity can intercede is utterly preposterous.

Creationists can continue to nit-pick about missing evolutionary links to no avail. The process of evolutionary change and the law of causality are indigenous to every branch of science without exception: biology, chemistry, human history, geology, physics and astronomy. It's not only science; it is nature itself.

What that leaves is the Bible with all of its religious factions fixated on first century beliefs while human progress moves farther into the twenty first century. Like anything else that can't adapt, religious influence will continue to recede towards evolutionary extinction. For my part, the sooner the western world rids itself of these superstitious beliefs, the better.

Other Sources

For a view of what the world looked like in Bible times, see [What did God Create](#)

[Chronology of Science](#) by Lisa Rezende

[Asimov's Chronology of Science and Discovery](#) by Isaac Asimov

Words With No Real Meaning

In the beginning was the Word, and the Word was with God, and the Word was God.
-John 1:1

John 1:1 is one of the most popular verses among Christians. Christians visualize something like an image out of a Michelangelo painting of a bearded man with raised arms watching an amorphous cloud take the shape of the universe. That verse was authored by a first century priest who wrote what he believed. It was written at a time when words were thought to have magic powers. Though it didn't happen, nothing biological prevents anyone from imagining it happened. Religion stands out as the earliest evidence we have of the confusion between words perceived to have real meaning when they have no real meaning.

There is much to praise about language. Surely one of the great biological differences between humans and other animals is our voice box. Without it, communication would be limited to grunts and groans. Without it we would still be living a primitive existence in tribal colonies, still hunting and gathering for food.

Over time, the utterances from our voice box evolved from roughly 40 sounds into thousands of complex languages with millions of words. The development of verbal and written language enables us to register our thoughts and actions, to communicate between generations, express complex ideas, learn from the past and build on it. Alas, it is easy to get lost in this labyrinth of words without being conscious of it.

The classical Greek myth about Theseus and the Minotaur monster exemplifies the solution. When Theseus entered the Labyrinth to rescue King Mino's daughter, Ariadne, he tied a golden thread to the entrance. After penetrating deep inside the Labyrinth, killing the monster and rescuing the princess, he found his way out by rewinding the ball of golden thread.

The golden thread is to Theseus what word logic is to realists. Perhaps 20% of what we know comes by direct experience; the remaining 80% comes indirectly from human sources through words. Word logic guides us through the labyrinth of language, keeping our mental golden thread connected to reality. Our objective is to apply words with the same reliability as if they came from direct experience.

Let's start with the self-evident premise that anything that can be imagined can be symbolized with words. Some words represent physical objects and places. Some words represent abstractions like values. Some words represent fictional things assuming their creator presents them as fictional. But what about when we use words that we think represent real things when in fact they represent fictional things? This word fallacy is more common than realized.

There are negative consequences to not being conscious of how meaningless words get mistaken for meaningful words. They galvanize our biases and actions towards issues that have no solution. They instill fear, helplessness and insecurity. They motivate us to seek refuge from a power stronger than us. There are other forms of organization that thrive on word confusion, but on the whole, religious and political organizations have risen to the top of social pecking order because of this fallacy. For convenience, let's call them non-words. For this special case, I've coined a word for their practitioners: imaginists.

What distinguishes a word from a non-word?

Our mental calculations are only as good as the information we feed ourselves. The scientific method has earned the reputation as the most efficient means of describing the universe in which we live. The scientific method teaches that precision in thought and action necessitates precision in the way we apply words. We don't have to be scientists to apply the same methodology to everyday life.

- Words are to physics what non-words are to metaphysics.
- Words refer to concrete things, things that exist. Non-words refer to abstractions, things that do not represent anything in reality.
- Words describe things and concepts as they were, or are or will be. Non-words refer to things as they would have been, should have been or should be.
- Words aim for accurate definitions so the logic that follows is accurate. Non-words exist solely in the mind of the speaker and the evaluations that follow.
- Words are necessarily found in science and capitalism. Non-words are common to religion and politics.
- The words of science and capitalism are relatively new in human history, roughly 400 years. The non-words of religion and politics have been with us since prehistory.
- Words differentiate: they aim to distinguish relevant differences. Non-words integrate: they group entities according to similarity.
- Words classify collective entities like state, nationality, race, religion and gender as types. Non-words classify collective entities as if they had a single life form.
- Words communicate a common meaning between speaker and listener. Non-words have different meaning between speaker and listener.
- Words are context sensitive. That is they are understood from the speaker's frame of reference. Non-words are taken literally and redefined subjectively.
- Words are necessarily for problem solving. Non-words lead to problems.
- Words are time sensitive. What is true in one time frame may not be true in another time frame. Non-words don't adjust for time.
- The words "is" and "are" define identities, as in: mice are members of the rodent family. They transform into non-words when the entities don't have identical qualities, as in: men are mice. The confusion is in not recognizing the metaphor.
- Abstractions like "truth" and "justice" are words when they are attributed as a belief of an actual person. They are non-words when they have no real source.
- Lazy speech is common everyday dialogue. As an example, one must be cognizant that "I am an American" means "I am one person who lives in a territory called America." Convenient terms transform into non-words when an imaginitive believes that when saying "I am an American," he feels as bonded to the label as he does to his mother.
- The phrase "I am" can lead to confusion between words and non-words. Case in point: A realistic judge would interpret the law as it was meant to be interpreted by its legislators. An imaginitive judge would think "I am the law" justifies interpreting the law as he sees fit.
- Words demonstrate cognizance of cause and effect. Non-words do not.
- Words have predictive value. Non-words do not.
- Using the idea of a map as a metaphor for words, it is through words by which we map the world around us. We use words to navigate reality. Non-words lead nowhere because they don't represent anything that can be found in reality.

What are the differences between realists and imaginitives?

To realists, reality is the standard of truth, not what others think. Realists do not become emotionally attached to group labels. They think for themselves according to principles of logic and reason that keep them grounded to reality. Like every other individual, they realize that they feel like no one else; think like no one else; have unique values; have a unique name; have unique physical features; have a genetic heritage and live within a political boundary. They think as sovereign individuals not bound to conform to what group members do. Conversely, they think of others as unique individuals in a world of sovereign individuals, but pay attention to how others relate to groups.

Realists have faith in what is known. They have no qualms about saying, "I don't know" when they don't know. They are conscious of identifying things as they are and try not to superimpose what they want them to be. Realists are ready to doubt. They are always curious, always willing to learn. When things don't turn out as they expect, they alter their thinking to fit the new circumstances. They feel no personal threat at being wrong because their goal is to refine their understanding of reality as accurately as possible. This is what it means to think objectively.

To imaginists, what others think is the standard of truth, not the absoluteness of reality. Imaginists tend to become attached to group labels. Thinking as an individual is not comfortable for them: it brings feelings of isolation; of being lost in a world they have a hard time understanding. They are not curious; learning that takes them in different directions takes more effort than they are willing to expend. Thinking in terms of groups reduces the number of variables they have to deal with. Leadership is important to imaginists whether they are a leaders or followers. As followers, it is easier to conform to the social conventions of the group and its leaders. As leaders, it brings a feeling of power to have others to believe in them and sacrifice for them. It is the ultimate endorsement they are right.

Imaginists have faith in what is unknown. They have an emotional attachment to non-words. They identify with non-words to such a degree that they perceive an affront to their favorite non-words as a personal attack. When they are confronted by facts that go against their beliefs, their reaction is to deny they are wrong. Rather than correct their logic, they'll look for rationales to justify their beliefs. Imaginists are inclined to attach non-words to unknowns and define non-words so they bring emotional comfort. Imaginists are willing to believe. When the impulse is strong enough to force others to conform to what they believe and because they are not curious, imaginists are not cognizant or sensitive to the harms they create. This is what it means to think subjectively.

This is not to say that any of us are perfectly realist or imaginist. Generally, realists are orientated towards physical reality and the beliefs and actions of individuals as part of the physical landscape. Imaginists perceive in terms of groups and absorb the non-words of the groups to which they attach themselves to. Perhaps it is a genetic legacy from our tribal past.

When one doesn't have expertise in the subject matter

There are non-words lurking in almost every topic, even science. Non-words on topics where we have no education can be hard to recognize. A little bit of skepticism in unfamiliar territory makes for a healthy tripwire. I can recommend some clues which should arouse skepticism.

- But suspicious of authority. People in authoritarian positions are typically attracted to power. The more power you cede to them, the less control they have over your personal affairs. The less control you have over personal affairs, the more likely authority will act against you in ways that might not be perceptible.
- Be suspicious of bogeymen, especially when the parties who promote the bogeymen have a solution - them.
- Watch for shifts in word meaning. Does a word mean the same to you as it does to the speaker?
- Ask who benefits?
- Follow the money.
- Self serving arguments follow a linear path, stopping short where the imaginist wants to focus. Look beyond and follow an argument to its logical conclusion by considering as many unstated effects of proposed remedies as you can think of.
- Do not ignore human psychology. People react differently when confronted with similar problems. Imaginists have a hard time with this, expecting people to act the same way according to their class.
- Hold on to your wallet when you are told more money and more power solves problems that have festered for years and decades.

- Run in the other direction when authorities tell you they need more power and stricter enforcement.
- Be on guard when you confront someone who perceives a challenge to their ideas as a personal attack.
- It is human to err. It is also human to rationalize errors when one can't accept the thought of being wrong.
- When an authority refuses to admit mistakes, they are likely to keep making the same mistakes with different packaging.
- The law of unintended consequences has a cause: the failure to consider the unseen effects of an action.
- Do not be tolerant of authority failures anymore than if an auto company sold you a lemon.
- Words that apply to collectives, like society, nation, community are metaphors for individuals within a particular boundary. They become non-words when a collective is thought of as a single being.
- Reality has no conscience and no sympathy for theology, ideology, fantasy and wishful thinking.
- Unless there is a direct attack on a nation, war justifies a violent means to an imaginary end.
- Be contemptuous of threats of Armageddon and saviors, real or imaginary.

It pays to be just skeptical enough to ask questions when something doesn't make sense to you. If you don't want to think for yourself, others will do your thinking for you. If you don't take responsibility for your life, there are always others who are eager to take responsibility away from you. When authoritarians control your mind, they control you. What they gain is what you lose; there is no compensation. Because religion and politics are at the top of the social pecking order, we'll look there for some examples of non-words. If this section invokes a negative reaction, it is probably because you have an emotional attachment to non-words. There will be none of that here.

Religion

The fact that a majority believes something for thousands of years does not prove a truth. It's a story that predates every religions. The god(s) are mad at humankind for one reason or another. Do what the priests say and the god(s) will be nice to you. Ignore the priests and some horrible punishment awaits you. To the degree you follow their dictates; it is the priest class to whom you are obeying.

Afterlife

The most indisputable medical fact of life is that death is absolute. No warm body; no life. No life; no consciousness.

Bible

The Bible contains a collection of hearsay, superstitions and tribal myths. The case for being the word of God comes from a long tradition of belief because it is what others in the past believed.

God

It is impossible to describe anything without some kind of observation. It is as much an exercise in imagination to say there is one god who takes in interest in personal affairs as to say there are countless gods controlling every aspect of life. Before the advent of science, the belief in god(s) was commonplace as a way of explaining the unseen forces of nature.

Heaven and Hell

No one knows where were they are. If they don't know where they are, how can they know they exist?

Theology

The complete lack of evidence to support the existence of a god requires professional apologists. They have a rationale for every challenge to religious doctrine.

Satan

Satan is Christianity's best friend. Organized religion could not justify itself without an imaginary enemy.

Sin

It means something bad. How does it transfer from generation to generation? How do the priests know? The dogma of sin comes from what psychologists call projection: when a person projects his thoughts as the voice of the unseen being called God.

Politics

The history of human society is replete with wars and persecutions from every form of body politic, from ancient kingdoms to medieval city-states to modern nation-states. The sad fact is that while citizens have faith in their government to protect their person and property, their government is the worst violator and their most dangerous enemy. The widespread application of non-words has much to do with the problem. Certainly, societies need a system of common standards and a means of enforcing them. What that system might be and how it can be tamed is beyond my prescience. The best anyone can do is to be alert to the dangers and take steps to be out of harms way, and maybe find ways to profit.

Because the polity is perceived as a protector, it needs fear and insecurity to create demand for its services. Every day the media contains news of some threatening crises: There are too many people. We're running out of energy. Beware of the coming Ice Age. Beware of climate over-heating. Muslims are out to get us. The Chinese hate us. The Russians hate us. The whole world hates us. Expect the Chicken Flu this winter. We're due for a pandemic. Don't forget to take your shots. An asteroid is going to hit earth, etc. etc. Politics is a business like any other business. Protecting citizens from every imaginable danger is expensive. If you have to know what it costs, you can't afford it. And that is why the costs are kept hidden from you, and why your take home wages buy less and less each week.

The State

The State is the secular equivalent of God. People expect the State to protect them against almost anything as if it was omniscient, omnibenevolent and omnipotent. It is none of those. It has power only in the sense that it has a monopoly on force. Otherwise it is composed of individuals just as capable of making mistakes as anyone else, What makes it dangerous is that officials cannot be held responsible for morally criminal acts, as long as they are legal. When people say government should take care of their needs, they are in effect advocating force against the person and property of others. When the vast majority of citizens think the same way it become a game of neighbor stealing from neighbor through the force of government.

Society, community, nation, state

The people have only one thing in common, they live within the same borders. They probably have a common culture and language, but we go astray when we apply a single set of values to the collective. Such as the commonly heard question: what is best for society? Ask each person within that collective and you'll get a different answer. There is no objective solution.

Citizen

No government can survive for long without popular support and passive acceptance. To do that, the State must inculcate its citizens with myths so they identify with the State. By identifying with the State, citizens are more willing to sacrifice to the demands of the ruling class as if their sacrifices benefited people they care about. The state imposes an unwritten social contract on every citizen: in exchange for protection, every citizen must follow the rules. Unfortunately, the ruling class ignore the contracts when it suits their purpose.

Ideology

What is ideal is not realistic. Because ideologies are problematic, they are the means of justifying the State.

Two worlds

This chart from [People in Quandaries](#) by Wendell Johnson compares the differences between scientific and unscientific orientation.

BASIC FEATURES OF PRESCIENTIFIC ORIENTATION	BASIC FEATURES OF SCIENTIFIC ORIENTATION
1. Fundamental notion of the static character of reality. A static reality involves essential constancy (there is nothing new under the sun). Main attention is given to similarities; differences are minimized or ignored. Consequently, the individual is not especially important except as he represents a type.	1. Fundamental notion of the process character of reality. A process reality gives rise to a never-ending series of differences. As much or more attention is paid, therefore, to differences as to similarities. As one important consequence, the individual is regarded as an individual, not merely as an example of a type.
2. Rigidity, or conservatism, the tendency to maintain established beliefs and habits regardless of changing conditions is fostered by these basic notions of static constancies. Thus, traditions are cherished, and the authority of age and precedence is extolled, seldom challenged; experimentation is discouraged. The Old Man is honored and obeyed. As a result of all this, individual infantilism and social retardation are fostered.	2. Adaptability, a readiness to change as changing conditions require, is fostered by these basic notions of process differences. Thus there is a tendency to challenge authority systematically; to experiment, to test traditional beliefs and costumes against actual observation and experience. The Old Man is respected but evaluated critically. As a result of all this, individual and social maturity is stimulated.
3. The basic method of problem solving, which we call authoritarian, involves mainly the practice of abiding by advice obtained from some vested authority, such as a parent, teacher, priest, or judge. Authority sometimes resides also in a book or code of rules. The pronouncements of such authority are not to be revised. This authoritarian method works in practice to maintain unchanged the traditional beliefs, customs, and rules of conduct. If problems are not solved, they are "explained" in terms of "fate," or "nature," or the "supernatural"; and toward the language used in	3. The basic method of problem solving, which we call scientific, consists of four main steps; (a) the asking of questions that direct one's (b) observations so as to (c) answer the questions clearly in such a way as to test one's beliefs or assumptions, (d) which are revised accordingly. Of these four steps, three (a, c, and d) involve mainly the use of language. This scientific method works in practice toward the continual improvement of specific techniques, refinements of beliefs, and "modernization" of customs and rules of conduct. If problems are not solved, new

<p>such "explanations" there is a dominant attitude that is naïve and unreflective.</p>	<p>theories and methods are not solved, new theories and methods are devised to solve them.</p>
<p>4. The language of a prescientific orientation is designed to control behavior by virtue of the vested authority it represents. If it is not clear, a properly appointed authority will interpret it, and his interpretation is to be believed. The validity of authoritarian pronouncements is not to be questioned. Statements of assumptions and statements of fact tend to be regarded as the same.</p>	<p>The language of a scientific orientation is designed to be factually meaningful, directly or indirectly, and clear and valid. It is intended to satisfy two important tests: "What do you mean?" and "How do you know?" Moreover, assumptions are sharply differentiated from statement of fact.</p>
<p>5. Prescientific language tends to make for questions that are frequently vague and quite often meaningless factually. Attempts to answer such questions give rise to misunderstandings and disagreements, to misinformation and misleading theories, with the result that predictability and foresight are achieved slowly or not at all, and individual and social maladjustments are thereby fostered.</p>	<p>5. Scientific language is orientated around factually clear, answerable questions. Vague or meaningless questions are abandoned as being misdirective of human energy. On the principle that terminology of the question determines the terminology of the answer, only clearly stated questions are tolerated. Because of this, mutual misunderstanding and agreement are facilitated, predictability and foresight are improved steadily, and individual and social adjustment is thereby fostered.</p>
<p>6. In a prescientific orientation, the natural process of projection is carried out unconsciously (relative lack of "to-me-ness"). It is realized only vaguely, or not at all, that every statement conveys information about the speaker as well as information about whatever the speaker may seem to talk about; and the degree of self-reference is largely ignored in evaluating the statement's factual significance.</p>	<p>6. In a scientific orientation, the natural process of projection is carried out with a high degree of awareness (consciousness of projection, or "to-me-ness"). It is realized that every statement conveys information about the speaker as well as information about whatever the speaker may seem to be talking about; and the degree of self-reference is reckoned in evaluating the statement's factual significance.</p>
<p>7. In a prescientific orientation, there is a marked tendency to speak as though with the voice of another (ventriloquizing). For example, the voice of The Law is not recognized as the voice of the Judge himself. The speaker tends to ventriloquize both unconsciously and deliberately (as in the planned use of "ethical proof"). Only the more artful and deliberate ventriloquizers seem to realize that, after all, it is their own evaluations that they are expressing.</p>	<p>7. In a scientific orientation, there is little or no tendency to speak as though with the voice of another (ventriloquizing). For example, the voice of The Law is recognized as the voice of the Judge himself. The speaker tends not to ventriloquize either unconsciously or deliberately; he realized that what he expresses are his own evaluations-even though he may quote another man's words.</p>

8. Accurate prediction, or foresight, is not a particularly well-recognized objective in a prescientific orientation. At least, theories and specific statements are not evaluated primarily in terms of their usefulness in making predictions. In a prescientific orientation there are, strictly speaking, no scientific submicroscopic theories; they are, rather, beliefs regarding the "supernatural." These tend not to be changed, because they are considered not as theories but as statements of fact. Faith in these beliefs and obedience to the authority that represents them-obedience expressed by participation in prescribed rituals, for example-are prized as the means of control over natural and human events.

8. Accurate prediction, or foresight, is a clearly recognized objective in a scientific orientation. Theories and specific statements are evaluated primarily in terms of their usefulness in making predictions. The value of a scientific submicroscopic theory (such as molecular theory of matter) lies in the accuracy of the predictions which it makes possible. Changes in such theories, as also in theories that do not clearly involve submicroscopic constructs, are made in the interests of more adequate prediction. Theories of high predictive value are prized as the means of control over natural and human events.

Last Words

Our time and energy is limited. Why waste it on words with no real meaning. Wouldn't it be better to spend it on what has direct importance to us: our lover, our family, friends, acquaintances, pets, our job and whatever other relationships, objects and activities that add value to life? As a general rule, any organization that has more people than you can know is an abstraction.

Within the span of this page, I've only touched on the topic, leaving details that could be expanded for better understanding. Hopefully, I've stimulated enough interest for you to pursue further study and practice in the art of accurate language. A wealth of resources can be found at [General Semantics](#), the people who deserve the credit for leading the way. There is an excellent introductory text: [Drive Yourself Sane: Using the Uncommon Sense of General Semantics](#).

REALITY AND ITS DISCONTENTS

It is not the strongest of the species that survive, nor the most intelligent,
but the one most responsive to change —Charles Darwin

To live or not to live in Reality? The answers you are going to read from this writer are categorically on the side of Reality. My reasoning is not complicated. I'm defining Reality as whatever exists. It could be an entity, an action, a value, a thought, a form of energy—anything within Nature. Reality is *the* standard of truth and fact. Reality is the only environment which every living being has in common. It's whatever happens, whether we believe it or not. It's the guiding force behind evolution, the mother of all life. Reality controls *us*; we can't control *it*.

As living beings, we can't live without it; in fact, we feed off of it. Contrary to religious hocus-pocus, if we can't live without Reality, we can't feel without Reality. To the degree we try to isolate ourselves from Reality, we shortchange ourselves. As to the question about whether or not to live in Reality? The answer is, we have no choice, for anything that's possible by peaceful means. I emphasize the term "by peaceful means," because Reality also guides us towards moral choices. To be realistic necessitates we be honest with ourselves and with others. That's why, by the standards of reality, there is no such thing as an honest crook, an honest politician, and an honest clergy.

And yet for as self-evidence as the absoluteness of Reality should be, it is not as understood as it needs to be. Symptoms are everywhere. Why do things go wrong? In Reality they don't. They only go wrong for us because our expectations weren't realistic. The great question: Why is there evil? Because the majority of good people either fail to recognize it or are too willing to accept it. Why do bad things sometimes happen to good people? Because Reality has no conscience or consciousness. Why do we feel stress when none directly threatens us? Because too often we imagine threats that don't exist in Reality. War, disease, poverty, taxes, oppression, emotional stress, and every other form of human caused suffering, are symptomatic of humanities' ignorance about the nature of Reality.

Synonymous with Reality, I'm an advocate of applied knowledge and voluntary cooperation as the only possible remedies for human betterment. We'll always have ignorance, no matter how knowledgeable we are for the simple fact of our limitations. Nature is infinitely complex; there are too many things going on at one time. But it's one thing to not know and to know we don't know; that kind of ignorance takes knowledge. And it's another to not know, and to think and act as if we do know. This is the form of ignorance that does all the damage. Our thoughts and our actions cannot change Reality, no matter how hard we try. Or we can retreat from Reality in our minds. But the problem of what to do with our body always remains. We cannot defeat Reality; we can only learn to live with it.

I'll take a shot at explaining why Reality is so poorly understood and ignorance so endemic. To start, we are born ignorant. It's not until about the age of two, when children begin to learn language, do they begin to experience unreality. It comes from our parents and from every other authority figure not wise or opposed to the ways of the real world. Ignorance requires passivity, to accept what passes for knowledge without questioning its fidelity to Reality. Unfortunately, children don't have that capability. We're creatures of habit. Once indoctrinated, we usually carry early beliefs with us for the rest of our lives.

By the standards of Reality, it would seem that religion should have become extinct a long time ago. The sad fact that it hasn't, leads to the observation that the great majority are rarely capable of thinking independently. On most questions they accept popular views at face value. They are equally content if born or coaxed into one set of beliefs or another. The first step for the few who are not content with the status quo is to break free from the restraining influences of the great majority. In Reality, every person is born free. It is only when he wills himself to obey the dictates of religious and political authority that he becomes a sacrificial slave in the eyes of a self-styled elitist minority.

The authoritarians know that they cannot get you to conform by coercion alone; they need your willing cooperation. To do that they have to convince you to deny Reality. From there you are at their mercy. In religion, it's taught that what does not exist in Reality, exists in Reality. In Reality, a thing is what it is; in religion, it's often something else. In Reality, a thing will act according to it's nature; in religion, a thing can act against its nature. In Reality a thing cannot be something else at the same time, while in religion it can. In Reality there are no contradictions, while religion is completely self-contradictory. In Reality it's our nature to strive to improve on our circumstances, while religion teaches to adhere to custom and tradition. And yet for as self-evident as Reality is, the population who can't or who don't want to understand it is of epidemic proportions.

To understand Reality we have to make an effort to be conscious of it; passivity and habit is primarily what holds us back. It's a weeding out process. It can be uncomfortable at times, but in the long run the rewards are overwhelming greater than the drawbacks. I don't want to make this seem like an either-or proposition. One extreme is suicidal, while the other is living life to the fullest; most of us live somewhere in between. I chose religion as a subject to explain Reality because no other area of human thought is more in counter-opposition. Politics is another area of thought devoid of Reality, but that is a whole other topic in itself. They have a great deal in common in that they threaten some form of punishment for disobedience to their particular brand of behavior. What applies to religion, applies equally to politics.

Fortunately there are positive roll models. We can give the development of the discipline of science a good deal of credit for pioneering study of Reality. A scientist doesn't try to change Reality. Instead, he strives to understand it. You don't find scientists trying to force their beliefs on others. Kudos goes to the entrepreneurs who aim to transform scientific knowledge into practical (and entertaining) benefits. Similarly, you don't find entrepreneurs coercing people to buy their wares. Combined, science and capitalism undermine the machinations of religious and political authoritarians. In Reality, we are free to choose according to our own self interests. Coercion is a form of unreality in that it is a means of producing social conformity in too many areas where it is impossible. We need to be mindful of it, so we don't support it or fall victim to it.

In presenting this series, I hope to convince you, the reader, believer, faithful, voter, patriot, taxpayer, or however you define yourself, that religion and politics are social cancers. Do you want to live your life by your lights or do you want to let others fool you, intimidate you and hold you back? The choice is up to you.

RELIGION AND POLITICS

The end of law is not to abolish or restrain, but to preserve and enlarge freedom....
For liberty is to be free from restraint and violence from others, which cannot be where there is no law.
-John Locke

But laws which sanction restraint and violence against peaceful peoples pervert their moral purpose.
-Raymond Hewitt

Government is not reason, it is not eloquence--it is force.
-George Washington

Religion is not reason; it is fear mongering embellished in eloquence.
-Raymond Hewitt

There is a cancer, called evil, that haunts all of human society to this day. It's not caused by some superstitious supernatural power called Satan. It's caused by a perverted class of moralists who desire power and glory by fraudulent and coercive means. Both the Church and State qualify as the epitome of this authoritarian mold. As much as they would like you to believe otherwise, they have no power of their own; it derives from the consent and the surrender of its subjects. They both conduct themselves according to the same political philosophy.

The dominate political theory holds that the interests of the individual and society (or the State and the Church) are fundamentally opposed; and that the individual has to be led to cooperate by Draconian compulsion. The political and the religious class believe that by virtue of their superior level of intelligence, education and wisdom, they have the ability to steer society into the best courses of action. While the individual, when acting according to his personal interests, sometimes acts in ways harmful to society in which he can't see or may not care. To achieve this so-called orderly society, the State typically threatens with physical punishment and the Church with divine punishment.

State law concerns itself with your actions. If it conducted itself as a defensive institution it would be living up to its billing to protect its citizens from street crime and foreign invaders. Unfortunately the State has invaded almost every area of business activity and far too many areas of personal activity. In the U.S., the average wage earner has to work almost six months a year to pay taxes. Roughly half of the arrests and court cases in the U.S. each year involve consensual crimes-actions that are against the law, but directly harm no one's person or property. It's been well documented that citizens suffer more harm from their own government than they do from other citizens and foreign powers combined. The point here is that the State has become a dangerous organization for the simple reason that good people cooperate with the system too readily.

Religious authority plays with your mind. It assumes that social cohesion cannot happen unless everybody thinks alike; it treats heretical thought as a crime. The enforcer in this case is a fictional supreme ruler over all mankind, called God. Now if this idea of an omnipotent God had any merit, everyone would be thinking alike and there would have been no need for the Church. I remind readers, that when the Church was at the height of its temporal power, it punished heretical thought with intense zeal. To go further, when we track religious influence over the centuries, we will notice that it has declined as human conditions have improved. The Church may think it is providing moral leadership, but it's dogma virtually outlaws the human body.

You, dear reader, as an individual are at the bottom of this pecking order. Like the overwhelming majority you are not inclined to lie, threaten, steal or murder to get what you want. Instead you try the best you can to get along with whomever you come in contact with. Yet you are being systematically robbed and plundered by the State, in the name of protecting you from thieves and plunderers. If you do something harmful to yourself, the State will do you one better by harming you even more. The Church attacks you from a different angle. For merely not thinking

their way, you are told you risk eternal torment in hell. We can only guess how many people, on their deathbed, went to their graves in fear of perdition. You don't have to subject yourself to this nonsense.

Ladies and gentlemen, there is no such thing as an all knowing authority, either here on earth or out there in supernatural la-la land. In the real world, such knowledge is impossible to obtain; everybody is different. About the only types of behavior you will find near unanimity as immoral, are acts considered fraudulent, threatening, coercive and murderous. But what we can see, if we will look, are two primary forms of social organization-the Church and the State-acting according to the means they pretend to prevent.

The giveaway to the menace of authoritarian rule lies in its necessity to bring about its particular brand of social conformity by enforcement. In the real world, it can't be done by coercive means or any other means. Every empire in written history, including the Church, has failed. Typically their life cycle runs out when they lose popular support. You can't lie yourself to a higher truth; and you can't beat up on people in the name of making them act morally. It's the cause of their eventual undoing.

If religion offered something of worthwhile value, it would have grown in stature over the years. Instead, it hasn't changed since the Dark ages because it's trapped in a world of words that can't find their way into the real world. It tells us that some all powerful supernatural creature made a perfect world for humankind until the Devil came and screwed it up. As a result, it's the job of the Church to help God fix what he can't fix himself. This is just too ridiculous.

Make no mistake about it. The voices you hear are not from God. They are from mortals like yourself. They are types who either have an overpowering emotional need to dominate others or who are one notch short of insane. You will find them the highest concentration of them in government and in religious organizations. What they all have in common is that they place themselves above all others because they think they know what is best for everybody else. It's the highest form of conceit and the root of social evil.

Religion's bugbear has been science; the State remains threatened by the market economy. The two, acting in unison, have tried to slow them down, control them and discredit them since the days of their inception. There is a point of view that needs to be stressed here. Despite all the propaganda nonsense about the will of God, or the will of society or the will of the majority, there are no such entities in the real world. Authoritarian institutions get their power by popular consent. When they cease to be popular, they lose their authority. History bears this out.

Which brings me to explaining my motives for taking on this project. By far, the most threatening menace to society is the State, with the Church close behind. I believe that a large segment of society who support State authority, do so because they were conditioned at an early age to accept Church authority. Religion has been in decline for the last few hundred years; the State, as it presently functions, has yet to run its course. If I can help to hasten their demise in any way, I consider it time well spent.

The scientific method

Science is built up of facts, as a house is built of stones;
but an accumulation of facts is no more science
than a heap of stones is a house.
-Jules-Henri Poincaré

The term "scientific method" gets paraded about as if the average person untutored in science knows what it is. Even in my engineering college days, I was taught the practice of the scientific method, but was given no philosophical understanding of it. I had to take a philosophy elective in logic to fill in the gap. So it is no surprise that so few understand what the scientific method is. I would describe it as a method of logic designed to keep us tethered to tangible reality. We don't have to be scientists to apply it.

I came across a book that explains the scientific method better than any publication I've seen. It's titled [How to Think Straight About Psychology](#) by Keith E. Stanovich. As the title suggests, the author is out to set the record straight because he thinks Freud and popular psychology has given the profession a bad name. The author's writing is so clear and concise that I've decided to copy selections verbatim. While his focus is psychology, I've sprinkled in some illustrative examples to put the scientific method in a broader perspective with an emphasis on religion.

Empiricism

The word "empiricism" defines the practice of relying on observation. Up to Galileo's time it was thought that knowledge was best obtained through pure thought or appeal to authority. Galileo's accusers refused to look through his telescope.

Scientific observation is termed systematic because it is structured so that the results of the observations reveal something about the underlying nature of the world. This is done by comparing theories with observations. The results of observations will either support or reject said theories.

Scientists avoid theories that are not testable or not solvable. Examples would be "What is the meaning of life" or "When did the universe begin." Even the question of "How did life begin" may not be solvable.

Falsifiability

The criterion says that for a theory to be useful, the predictions drawn from it must be specific. The theory should predict what should and what should not happen. If they don't happen, the theory has to be modified or replaced with an entirely new theory. Either way you wind up with a theory closer to the truth. In contrast, if a theory does not rule out possible observations, then the theory cannot be changed, and we are frozen into our current way of thinking with no possibility of changing.

As one example of un-falsifiability, a shaman might apply some magic potions to heal a sick person. If the person gets well, he takes credit for it. If the person dies, he says it was the will of the gods. He can't be wrong no matter what the outcome. The god hypothesis on any matter cannot be falsified. Today's psychologists consider Freudian theory to be scientifically useless: it explains human behavior after the fact; it can explain everything; it makes no specific predictions.

Theories

There is a misconception that one theory is as good as another, as if they were unverified hypothesis, mere

guesses, hunches. On the contrary, a theory in science explains a body of data and makes predictions about the results of future experiments. What scientists most often mean by a *solvable problem* is a "testable theory." The way scientists make sure they are dealing with testable theories is by ensuring that they are falsifiable.

When embedded into the principle of falsifiability, a successful theory is not one that accounts for every possible happening because such a theory robs itself of its predictive power. Bad theories do not put themselves in jeopardy in this way. They make predictions that are so general that they are almost bound to be true.

The difference between a layperson's and the scientist's use of the term "theory" has often been exploited by some religious fundamentalists who want creationism taught in the public schools. Grand theories that are so global, complicated, and fuzzy can be used to explain everything. Such theories are constructed for emotional support because they are not meant to be changed or discarded.

Hypotheses

Hypotheses are specific predictions derived from theories (which are more general and comprehensive). Current viable theories are those that have many of their hypotheses confirmed. If the hypotheses are confirmed by the experiments, then the theory receives some degree of corroboration. They are called hypotheses because they are incomplete, not because they are wrong in every respect.

The Bible has many errors, omissions and contradictions with established facts. Those determined to defend the Bible as inerrant, content themselves with hypothesize possibilities.

Laws

There are many relationships that have been confirmed so many times that they are termed laws because it is extremely doubtful that they will be overturned by future experimentation.

That scientists gravitate to those problems on the fringes of what is known and ignore things that are well confirmed (so-called laws)-is very confusing to the general public. It seems that scientists are emphasizing what they don't know rather than what is known. This is because to advance knowledge, scientists must work at the outer limits of what is known.

Religionists have taken these debates at the fringes as a weakness when it is a strength. Conversely, religion's weakness is its tradition of clinging to pure thought and authority. It's the same fallacious logic when Galileo's accusers refused to look into his telescope.

Essentialism verses operationism

Essentialism is defined as the idea that the only good scientific theories are those that give ultimate explanations of phenomena in terms of their underlying essences or their essential properties. People who hold this view usually also believe that any theory that gives less than an ultimate explanation of a phenomenon is useless.

Scientists do not claim to produce perfect knowledge; the unique strength of science is not that it is an error-free process, but that it provides a way of eliminating the errors that are part of the knowledge base. Nor does science attempt to answer "ultimate" questions about the universe. Scientists consider questions about "ultimate" to be unanswerable, and claims of perfect or absolute knowledge tend to choke off inquiry. This is why scientists reject essentialism.

Instead, science advances by developing *operational definitions* of concepts -i.e. how things operate. The

operational definition removes the concept from the feelings of a particular individual and allows it to be tested by anyone who can carry out the measurable operations. As such, theories must be grounded in, or linked to, observable events that can be measured.

For examples, scientists can explain how gravity operates, but they cannot explain its underlying essence. They do not engage in word games such as what is the meaning of the word *life*. They cannot define *hunger* by feelings of discomfort; they would use something measurable like blood sugar.

Testimonials

Scientists consider testimonials worthless as evidence of truth. First, there is the placebo effect which is well documented in medical research. Second, there is the vividness problem. When faced with a problem-solving or decision-making situation, people retrieve from memory the information that seems relevant to the situation at hand. Thus, they are more likely to use the facts that are more accessible to solve a problem or make a decision. Testimony is also dependant on honesty.

Testimonials open the door to pseudoscience such as astrology and parapsychology. Christianity, Judaism and Islam's claims to being revealed religions are based on testimonials.

Correlation and causation

The presence of correlation does not necessarily imply causation. The limitations of correlational evidence are not always so easy to recognize. When the casual link seems obvious to us, when we have a strong pre-existing bias, or when our interpretations become dominated by our theoretical orientation, it is tempting to treat correlations as evidence of causation.

Stanovich gives a case example when, based on statistical evidence, Pellagra was believed to be a transmitted disease caused by unsanitary conditions. Joseph Goldberger suspected it was caused by inadequate diet. He thought that the correlation arose because families with sanitary plumbing were likely to be economically advantaged. To prove his point, he tried to infect himself and volunteers with the body fluids of Pellagra victims; nothing happened. For his second test, he fed one group of volunteers on a high-carbohydrate low-protein diet and another group a more balanced diet. Within five months, the low-protein group was ravaged by Pellagra.

The directionality problem

When correlations become apparent, it is a common error to confuse effect for cause. There are such an abundance of these that pass for conventional wisdom that I couldn't scratch the surface. People will cite a list of social ills as if they were root causes, when in reality they are the effects of underlying causes. 1) When the economy is running well, political officials take credit; when it goes sour, they blame consumers for not spending enough. 2) My interest in nutrition, led me to discover that that most metabolic illness are caused by poor diet. Pharmaceutical medicines alleviate the effects of bad diet, but do not address the underlying causes while causing side reactions. 3) Are religious people moral because they believe in (or fear) God? Or are they moral because they had those inclinations in the first place?

Multiple causation

Human behavior often has multiple causes. History, economics and psychology come to mind.

Connectivity and Convergence

The connectivity principle states that a new theory in science must make contact with previously established

empirical facts. To be considered an advance, it must not only explain new facts but account for old ones. The theory may explain old facts in quite a different way from a previous theory, but explain them it must. This requirement ensures the cumulative progress of science.

If a new theory accounts for some new facts but fails to account for a host of old ones, it will not be considered a complete advance over old theories and, thus, will not immediately replace them. Instead, the old and new theories will contend simultaneously in the marketplace of ideas until a new synthesis renders them all obsolete.

The breakthrough model of scientific progress leads us astray by implying that new discoveries violate the principle of connectivity. This implication is dangerous because, when the principle of connectivity is abandoned, the main beneficiaries are purveyors of pseudoscience and bogus theories.

In what Stanovich calls the "Einstein Syndrome," his achievement has made it the dominant model of scientific progress in the public's mind. The tabloids are notorious for headlines that start with "New Breakthrough.." These theories derive part of their appeal and much of their publicity from the fact that they are said to be startling new. The second stratagem is to dismiss previous data by declaring them irrelevant. They say the theory is so new, such data are said not yet to exist. It's a rich environment for the growth of pseudoscience.

Evolutionary theory, the bugbear of creationism, displays connectivity with such disparate areas of science as paleontology, embryology, morphology, biogeography, and others. If the universe and Earth are only about ten thousand years old, then the modern sciences of cosmology, astronomy, physics, chemistry, geology, paleontology, paleoanthropology and early human history are all invalidated. Darwin's theory wasn't perfect. Called pangenesis, he abandoned the principle of connectivity to explain the mechanism of heredity to go along with natural selection. It was abandoned because it did not cohere with the rest of biology. The problem is that creationism shows no connectivity with anything else in science-in biology, geology, ecology, chemistry and genetics. Evolution shows extreme connectivity with all the other sciences.

Probability

Many laws and relationships in some sciences are stated in probabilities rather than certainties. We can see this in such fields as medical science, meteorology and psychology. Human activities generate the most controversies. In debates, it is easy to find exceptions to the general rule. For example, medical science can predict with confidence that the odds of developing lung cancer are greater among smokers, but it does not hold in every case. Therefore, in what is called cognitive illusions: it is a fallacy of reasoning to overweight individual case evidence and underweight statistical information.

The Gambler's Fallacy

The gamblers fallacy is the tendency for people to see links between events in the past and events in the future when the two are really independent. Two outcomes are independent when the occurrence of one does not affect the probability of the other.

Chance and randomness

Our brains have evolved in such a way that they engage in a relentless search for patterns in the world. We seek relationships, explanations, and meaning in the things that happen around us. What confounds our quest for structure and obscures understanding? You guessed it: probability. Or more specifically: chance and randomness.

Chance and randomness are integral parts of our environment. The mechanism of biological evolution and genetic recombination are governed by laws of chance and randomness. Why do bad things sometimes happen to good people? Answer: chance and randomness, being in the wrong place at the wrong time. There is a common

tendency to search for explanations of coincidental events on the mistaken idea that rare events never happen. The laws of probability don't guarantee even distribution.

What is seen and what is not seen

This is not specifically discussed in Stanovich's book, but it improves our skill at thinking scientifically. One should be alert to looking not merely at the immediate but the longer effects and side effects of any act or phenomenon. As discussed above, in nature there may be a chain of causes or multiple causes. With human actions, there can be a chain of consequences that cascade into areas not apparent.

In what he calls the [broken window fallacy](#), Frederic Bastiat, explains this common failure to take into consideration all the consequences of an action.

Final Note

We live in a sea of disinformation on topics for which we have no expertise, and even our own lives are full of uncertainties. The scientific method provides a framework on which to improve our judgment. In addition it requires curiosity, alertness and the willingness to trade better ideas for lesser ones.

Other sources

These sources do a commendable job of explaining science and debunking pseudoscience.

howstuffworks.com

[james randi educational foundation](http://jamesrandi.org)

junkscience.com

[skeptical inquirer](http://skepticalinquirer.org)

[skeptics dictionary](http://skepticsdictionary.com)

Thinking Objectively

When words lose their meaning
people lose their liberty
-Confucius

Thinking subjectively comes naturally; thinking objectively doesn't - it's an acquired skill. David Kelley explains why it is worth the trouble to improve on. I extracted this page from the introduction of his book, [The Art of Reasoning](#). This article is a companion to [The Scientific Method](#).

Thinking

In a broad sense, the word "thinking" refers to anything that goes on in our minds. As long as you are conscious, there is always something going on up there. In this sense, you can't help thinking. In a narrower sense, however, thinking is a particular *kind* of mental activity, the kind involved in solving a problem, planning an action, studying for a test, defending your position on a controversial issue. This is still a pretty broad concept, but we have excluded some things.

In the first place, we can distinguish thinking from feeling. Thinking is a cognitive process we use in the attempt to gain knowledge or to understand something, as distinct from our emotional responses to things. This distinction does not mean, as people too often assume, that someone with strong emotions is necessarily illogical or that a logical person must be unemotional. On the contrary, there is no reason we cannot have both: clear logical minds and passionate feelings. But thinking and feeling do have different roles to play, different jobs to do, in our mental lives.

Secondly, thinking is purposive. It differs from activities such as daydreaming and fantasizing in which we simply let our minds wander where they will. Thinking is something we have to *do*, usually with some degree of effort. And because it aims at a goal, it is something that can be done with varying degrees of success. You may or may not succeed in solving a problem, forming a plan, grasping something you read, proving your case. In this way too, it differs from daydreaming, where the concepts of success and failure don't really apply. Thinking is a skill. It's a skill that everyone has in some degree, but it's also a skill that everyone can improve.

Thinking skills

How can we improve this skill? It's analogous to a game of chess. We need to learn the rules and strategies of the game. And we need to practice the moves that implement those rules and strategies. With thinking, there are certain standards that tell us when we have achieved a clear understanding of some subject or succeeded in proving a case. These standards are the subject matter of logic, and our first task is to learn what they are. Our second task is to practice applying these standards to a variety of examples drawn from everyday life. The more practice we get, the more effectively we can incorporate the standards of logic into our habits of thought.

When we engage in thought, our goal is normally to find out something. We are trying to answer a question, solve a problem, prove a conclusion, learn a body of material. In many cases, we can't acquire knowledge by direct observation. We have to do some reasoning, putting two and two together, making inferences, drawing conclusions from the information we already have.

The core of logic has always been the study of inference. There are different kinds of inferences and rules for evaluating and distinguishing the good from the bad ones. Logic won't give you answers, but it will give you a method to follow for making decisions and backing them up. It will show you how to break an issue down into sub-issues, how to decide what evidence is appropriate to a particular issue. It will give you standards for deciding

what sort of evidence is appropriate to a particular issue. And it will give you standards for determining how much weight to give a piece of evidence.

Logic can also help us develop other, more subtle skills. Most of us have been in discussions that were frustrating because they kept going around in circles. That often happens when people "talk past each other" -when they are not really addressing the same issue. If the disputants could identify their differences, they would at least know where they agree. Another area of logic is concepts and definitions. People often talk past each other when they use words with different meanings.

Logic won't guarantee success, but it can give us a method to follow, and the method will pay immediate dividends in terms of clarity and precision of our thinking.

Objectivity

Objectivity means staying in touch with the facts. It means guiding our thought processes by a concern for truth. To some extent, objectivity is a matter of choice: the choice not to indulge in wishful thinking, not to let bias or prejudice distort our judgment, and so forth. But there's more to it than that. Objectivity also involves a skill. Even with the best will in the world, we can't really be objective unless we know how to follow and evaluate the arguments we hear, how to isolate the relevant issues clearly, how to avoid ambiguity and vagueness in the words we use.

The essence of objectivity is the ability to step back from our train of thought and examine it critically. This is a virtue because it is the only way to avoid jumping to conclusions, the only way to check the results of our thinking, the only way to make sure that we are in touch with the facts.

The results of our thinking cannot be any better than the process by which we arrive at them. There is no Book of Life with answers in the back where we can see whether we got it right. Good thinking is a self-directed, self-correcting process and you are the only one who can take responsibility for steering your own mind in the right direction.

Objectivity also has a social aspect. It means not only presenting your own ideas logically, but also listening to what others have to say. Objectivity does not require that you be neutral, nonpartisan, or indifferent to the issue. It does require that you try to look at the matter from the other person's perspective. Even if your view is right, it is rare that any single perspective reveals the *whole* truth. Objectivity requires that you give a fair hearing to the evidence and arguments for the other side. Even if you reject them in the end, knowing *why* you reject them will give you a better understanding of your own position.

Another aspect of objectivity is especially important in communicating with others. In order to get our ideas across successfully, we have to take account of the other person's context. A point so obvious to me that it hardly seems worth mentioning may not be obvious to someone else, and if I fail to mention it, he may not understand what I am saying. Objectivity is the ability to step back from our own thinking, so that we can see it critically, through the eyes of someone who does not share our outlook, our preferences, our idiosyncrasies. All that we can reasonably ask of our audience is the ability to follow our logical connections. In this respect, logic, language, is a shared framework without which we could not communicate.

When Science Replaced the Bible

Theology doesn't teach what we know about God;
it teaches what we do not know about Nature.

To believers, it is the Bible's antiquity and the prestige of the Church that gives it its power and mystique. The biblical world view went unchallenged until some major scientific discoveries set it in retreat. What follows is a brief sketch of some of the major landmarks in scientific discovery which have discredited beliefs rooted in the Bible.

Archeology

According to the chronology in the Bible, earth was created on 4004 BCE.

In 1798 Napoleon Bonaparte took a team of 150 scientists with him on a military mission to Egypt. Napoleon had to abandon his military ambitions, but his scientists stayed behind. A couple of years later they brought back artifacts from an advanced civilization almost as old as the biblical time of Creation, 4004 BCE. If there was such thing as a Noah's flood, it would have destroyed the Egyptian civilization at the time when they were building their pyramids. This would apply equally as well to all the other ancient civilizations around the world which have since been discovered.

Astronomy

Up until 1492, the biblical view of a flat earth was a commonly accepted belief.

It was on that date when Christopher Columbus sailed west to the Americas and proved that earth is round. The authority and dominance of the Catholic Church was at last fractured. Early scientists began asking questions that challenged long held dogmas about creation and the nature of the universe.

In 1543, the Polish astronomer, Nicolaus Copernicus, overturned the geocentric theory of an earth centered universe with his heliocentric, sun-centered theory. When Galileo Galilei, improved the telescope he saw more detail in the heavens than ever before. Around 1610 he published his first findings for his support for the Copernican theory of a moving earth. In 1633, he was ordered to renounce his discoveries and was kept in house arrest for the rest of his life.

Biology

When God created life, according to the Bible, he created them according to their kind. This was interpreted to mean that life forms were fixed according to the way they were created.

In 1665, with the aid of microscopes, Robert Hooke proposed the cell theory, which states that all living things are composed of cells, the fundamental unit of life, and that all cells arise from previous cells.

1859 brings us to the year when Darwin published his *Origin of Species*. His theory of natural selection argues that it is not so much a matter of survival of the fittest as it is, survivors produce more adaptable offspring. It's based on a simple observation that marginal variations in offspring yield different degrees of survival success. He also introduced the concept of related organisms which are descended from common ancestors. He introduced the idea that earth is not static, but evolving.

Credit for the founding of genetics goes to a Czechoslovakian monk, Gregor Mendel, who in 1865 announced his

findings based on 28,000 experiments with pea plants. There exists "atoms of inheritance" which we now call genes. Each parent contributes half of its offspring's genes. Genes come in different forms and are sorted and distributed randomly.

In 1968, James D. Watson published the *Double Helix*. His research led to the discovery of the double helix structure of DNA molecules. DNA is consistent with both Newton and Darwin. Like Newton's laws of motion showing matter is a form of energy, DNA contains the chemical blueprints for self-replication. Consistent with Darwin, the self-replication process produces marginal variations. It is not fixed the way creationists want to believe.

In the year 2000, J. Craig Venter and his company Celera Genomics, mapped the entire human DNA molecule. They found 30,000 different genes in a molecule, but the search isn't over yet. Apparently, they've found, each gene contains a collection of protein amino acids whose functions are not yet understood. The 30,000 genes can be seen as plans for housing development and amino acids, as the blueprints and building materials for each house.

Chemistry

In the Bible creation stories, God creates earth and then creates life. All matter was composed of some combination of air, water, fire and earth. Up to the nineteenth century, it was believed that living material matter was fundamentally different than dead matter. The notion that four elements controlled the nature of men and matter can be seen in Genesis 1 and has carried into the seventeenth century.

In 1828 German chemist Friedrich Wohler showed that living matter comes from dead matter when he synthesized urea from ammonium nitrate-urea is produced mostly in the liver as the end product of protein metabolism. This means that at the level of atomic structure, living matter cannot be differentiated from nonliving matter.

The first to discredit the idea of four elements was an Englishman, Robert Boyle, who in 1661 published *The Sceptical Chymist*. His contribution was to realize that matter is composed of a range of elements, each of which, in its pure form is a collection of identical corpuscles or atoms. He was responsible for placing the emphasis on careful experiment and for his rejection of occult explanations.

Education

About 1452 Johannes Gutenberg invented the printing press. Up to that time books were hand written. Writing was a slow process, so not many books were produced. It was comparatively easy for Catholic censors to destroy any book not to their liking. With the spread of the printing press, books got produced too fast for the censors to keep up and literacy increased. The Protestant Reformation was one of the outgrowths of the printing press.

1900 was the first year religious works did not outnumber all other publications. It wasn't long after when colleges were graduating more science majors than theology majors.

Geology

In 1795 James Hutton published his theories in *Theories of the Earth* in which suggests that processes such as sedimentation, volcanism and erosion caused changes in the surface of the earth and had been operating in the same manner and at the same rate over a very long period of time. This aroused strong opposition from those who believed in Archbishop James Ussher's biblical chronology published in 1650, which stated that the world was created in 4004 BCE.

Building on the pioneering work of James Hutton, Charles Lyell published his theory of *uniformitarianism* in 1830.

Uniformitarianism contradicted the theory of *catastrophism*. Catastrophism claimed that only major catastrophes could change the basic formation of the earth, and that earth was only about 6,000 years old. Catastrophism supported the belief in Noah's flood. Lyell's theories influenced the work of his friend, Charles Darwin. He eventually became a strong supporter of Darwin's theories.

Law And Economics

In 1789 the U.S. Constitution was ratified. The First Amendment prohibited the federal government from making any laws "respecting an establishment of religion." It was the first time a nation formally divorced itself from religious influence. Paradoxically, the United States remains one of the most religious countries in the world, and the most diverse. The paradox has to do with market economics. Without government protection, freedom gives religious denominations the incentive to compete for their audience. In other words, since no one can agree on God's message, marketing becomes the deciding factor.

Medicine

According to the Gospels, Jesus affected his cures by ridding his subjects of demons. Up until the sixteenth century, Catholic nations reinforced their views on sickness with piety. Prayers to saints and the virgin, pilgrimages to miraculous shrines, votive offerings, use of the sacraments and the anointing of the sick with holy oil remained extremely popular. For their part, soul-searching Christians could regard illness as divine punishment for sin or as a Job-like trial of faith. How a person died was crucial, for it determined whether they went to heaven or hell. For Catholics it was essential to make a last confession and to receive the sacraments and so die in a state of grace.

The year was 1878 when Louis Pasteur presented his germ theory of disease. He proved convincingly that micro-organisms were responsible for disease, putrefaction and fermentation. Particular organisms could produce specific conditions; and that once those organisms were known, prevention would be possible by developing vaccines.

Physics

To religionists, God is the principle mover of all things; without God, there would be chaos and disorder.

In 1687 Isaac Newton published his *Principia*, in which he developed the laws of motion and planetary gravitation. Newton showed that forces lie within the bodies themselves. By this time, Newton's works were widely acclaimed and the Christian Church could pose no personal threat.

Since the 1970's, a new science has emerged called the science of complexity and chaos. Whereas the traditional scientific view saw the natural world as regular and predictable, the chaos theory suggests that nature is in fact, unpredictable and irregular. Now that scientists are looking, they see chaos everywhere. They see it in weather patterns, smoke rising from a fire, turbulent flow of air and fluids, automobile traffic, the market economy, and organic metabolisms.

Conclusion

And now in the early part of the 21st century, there is one class of hold outs who think science can prove the existence of God: Creationists.

At the level of human sense perception, the universe appears orderly. But at the unseen level it is extremely complex and chaotic. Matter contains its own energy. Genes contain their own self-replicating blueprints. Everything in the entire universe is moving and shifting like clouds in the sky, in accordance with the law of causality. The idea that some supernatural deity can intercede is utterly preposterous.

Creationists can continue to nit-pick about missing evolutionary links to no avail. The process of evolutionary change and the law of causality are indigenous to every branch of science without exception: biology, chemistry, human history, geology, physics and astronomy. It's not only science; it is nature itself.

What that leaves is the Bible with all of its religious factions fixated on first century beliefs while human progress moves farther into the twenty first century. Like anything else that can't adapt, religious influence will continue to recede towards evolutionary extinction. For my part, the sooner the western world rids itself of these superstitious beliefs, the better.

Other Sources

For a view of what the world looked like in Bible times, see [What did God Create](#)

[Chronology of Science](#) by Lisa Rezende

[Asimov's Chronology of Science and Discovery](#) by Isaac Asimov

Words With No Real Meaning

In the beginning was the Word, and the Word was with God, and the Word was God.
-John 1:1

John 1:1 is one of the most popular verses among Christians. Christians visualize something like an image out of a Michelangelo painting of a bearded man with raised arms watching an amorphous cloud take the shape of the universe. That verse was authored by a first century priest who wrote what he believed. It was written at a time when words were thought to have magic powers. Though it didn't happen, nothing biological prevents anyone from imagining it happened. Religion stands out as the earliest evidence we have of the confusion between words perceived to have real meaning when they have no real meaning.

There is much to praise about language. Surely one of the great biological differences between humans and other animals is our voice box. Without it, communication would be limited to grunts and groans. Without it we would still be living a primitive existence in tribal colonies, still hunting and gathering for food.

Over time, the utterances from our voice box evolved from roughly 40 sounds into thousands of complex languages with millions of words. The development of verbal and written language enables us to register our thoughts and actions, to communicate between generations, express complex ideas, learn from the past and build on it. Alas, it is easy to get lost in this labyrinth of words without being conscious of it.

The classical Greek myth about Theseus and the Minotaur monster exemplifies the solution. When Theseus entered the Labyrinth to rescue King Mino's daughter, Ariadne, he tied a golden thread to the entrance. After penetrating deep inside the Labyrinth, killing the monster and rescuing the princess, he found his way out by rewinding the ball of golden thread.

The golden thread is to Theseus what word logic is to realists. Perhaps 20% of what we know comes by direct experience; the remaining 80% comes indirectly from human sources through words. Word logic guides us through the labyrinth of language, keeping our mental golden thread connected to reality. Our objective is to apply words with the same reliability as if they came from direct experience.

Let's start with the self-evident premise that anything that can be imagined can be symbolized with words. Some words represent physical objects and places. Some words represent abstractions like values. Some words represent fictional things assuming their creator presents them as fictional. But what about when we use words that we think represent real things when in fact they represent fictional things? This word fallacy is more common than realized.

There are negative consequences to not being conscious of how meaningless words get mistaken for meaningful words. They galvanize our biases and actions towards issues that have no solution. They instill fear, helplessness and insecurity. They motivate us to seek refuge from a power stronger than us. There are other forms of organization that thrive on word confusion, but on the whole, religious and political organizations have risen to the top of social pecking order because of this fallacy. For convenience, let's call them non-words. For this special case, I've coined a word for their practitioners: imaginists.

What distinguishes a word from a non-word?

Our mental calculations are only as good as the information we feed ourselves. The scientific method has earned the reputation as the most efficient means of describing the universe in which we live. The scientific method teaches that precision in thought and action necessitates precision in the way we apply words. We don't have to be scientists to apply the same methodology to everyday life.

- Words are to physics what non-words are to metaphysics.
- Words refer to concrete things, things that exist. Non-words refer to abstractions, things that do not represent anything in reality.
- Words describe things and concepts as they were, or are or will be. Non-words refer to things as they would have been, should have been or should be.
- Words aim for accurate definitions so the logic that follows is accurate. Non-words exist solely in the mind of the speaker and the evaluations that follow.
- Words are necessarily found in science and capitalism. Non-words are common to religion and politics.
- The words of science and capitalism are relatively new in human history, roughly 400 years. The non-words of religion and politics have been with us since prehistory.
- Words differentiate: they aim to distinguish relevant differences. Non-words integrate: they group entities according to similarity.
- Words classify collective entities like state, nationality, race, religion and gender as types. Non-words classify collective entities as if they had a single life form.
- Words communicate a common meaning between speaker and listener. Non-words have different meaning between speaker and listener.
- Words are context sensitive. That is they are understood from the speaker's frame of reference. Non-words are taken literally and redefined subjectively.
- Words are necessarily for problem solving. Non-words lead to problems.
- Words are time sensitive. What is true in one time frame may not be true in another time frame. Non-words don't adjust for time.
- The words "is" and "are" define identities, as in: mice are members of the rodent family. They transform into non-words when the entities don't have identical qualities, as in: men are mice. The confusion is in not recognizing the metaphor.
- Abstractions like "truth" and "justice" are words when they are attributed as a belief of an actual person. They are non-words when they have no real source.
- Lazy speech is common everyday dialogue. As an example, one must be cognizant that "I am an American" means "I am one person who lives in a territory called America." Convenient terms transform into non-words when an imaginitive believes that when saying "I am an American," he feels as bonded to the label as he does to his mother.
- The phrase "I am" can lead to confusion between words and non-words. Case in point: A realistic judge would interpret the law as it was meant to be interpreted by its legislators. An imaginitive judge would think "I am the law" justifies interpreting the law as he sees fit.
- Words demonstrate cognizance of cause and effect. Non-words do not.
- Words have predictive value. Non-words do not.
- Using the idea of a map as a metaphor for words, it is through words by which we map the world around us. We use words to navigate reality. Non-words lead nowhere because they don't represent anything that can be found in reality.

What are the differences between realists and imaginitives?

To realists, reality is the standard of truth, not what others think. Realists do not become emotionally attached to group labels. They think for themselves according to principles of logic and reason that keep them grounded to reality. Like every other individual, they realize that they feel like no one else; think like no one else; have unique values; have a unique name; have unique physical features; have a genetic heritage and live within a political boundary. They think as sovereign individuals not bound to conform to what group members do. Conversely, they think of others as unique individuals in a world of sovereign individuals, but pay attention to how others relate to groups.

Realists have faith in what is known. They have no qualms about saying, "I don't know" when they don't know. They are conscious of identifying things as they are and try not to superimpose what they want them to be. Realists are ready to doubt. They are always curious, always willing to learn. When things don't turn out as they expect, they alter their thinking to fit the new circumstances. They feel no personal threat at being wrong because their goal is to refine their understanding of reality as accurately as possible. This is what it means to think objectively.

To imaginists, what others think is the standard of truth, not the absoluteness of reality. Imaginists tend to become attached to group labels. Thinking as an individual is not comfortable for them: it brings feelings of isolation; of being lost in a world they have a hard time understanding. They are not curious; learning that takes them in different directions takes more effort than they are willing to expend. Thinking in terms of groups reduces the number of variables they have to deal with. Leadership is important to imaginists whether they are a leaders or followers. As followers, it is easier to conform to the social conventions of the group and its leaders. As leaders, it brings a feeling of power to have others to believe in them and sacrifice for them. It is the ultimate endorsement they are right.

Imaginists have faith in what is unknown. They have an emotional attachment to non-words. They identify with non-words to such a degree that they perceive an affront to their favorite non-words as a personal attack. When they are confronted by facts that go against their beliefs, their reaction is to deny they are wrong. Rather than correct their logic, they'll look for rationales to justify their beliefs. Imaginists are inclined to attach non-words to unknowns and define non-words so they bring emotional comfort. Imaginists are willing to believe. When the impulse is strong enough to force others to conform to what they believe and because they are not curious, imaginists are not cognizant or sensitive to the harms they create. This is what it means to think subjectively.

This is not to say that any of us are perfectly realist or imaginist. Generally, realists are orientated towards physical reality and the beliefs and actions of individuals as part of the physical landscape. Imaginists perceive in terms of groups and absorb the non-words of the groups to which they attach themselves to. Perhaps it is a genetic legacy from our tribal past.

When one doesn't have expertise in the subject matter

There are non-words lurking in almost every topic, even science. Non-words on topics where we have no education can be hard to recognize. A little bit of skepticism in unfamiliar territory makes for a healthy tripwire. I can recommend some clues which should arouse skepticism.

- But suspicious of authority. People in authoritarian positions are typically attracted to power. The more power you cede to them, the less control they have over your personal affairs. The less control you have over personal affairs, the more likely authority will act against you in ways that might not be perceptible.
- Be suspicious of bogeymen, especially when the parties who promote the bogeymen have a solution - them.
- Watch for shifts in word meaning. Does a word mean the same to you as it does to the speaker?
- Ask who benefits?
- Follow the money.
- Self serving arguments follow a linear path, stopping short where the imaginist wants to focus. Look beyond and follow an argument to its logical conclusion by considering as many unstated effects of proposed remedies as you can think of.
- Do not ignore human psychology. People react differently when confronted with similar problems. Imaginists have a hard time with this, expecting people to act the same way according to their class.
- Hold on to your wallet when you are told more money and more power solves problems that have festered for years and decades.

- Run in the other direction when authorities tell you they need more power and stricter enforcement.
- Be on guard when you confront someone who perceives a challenge to their ideas as a personal attack.
- It is human to err. It is also human to rationalize errors when one can't accept the thought of being wrong.
- When an authority refuses to admit mistakes, they are likely to keep making the same mistakes with different packaging.
- The law of unintended consequences has a cause: the failure to consider the unseen effects of an action.
- Do not be tolerant of authority failures anymore than if an auto company sold you a lemon.
- Words that apply to collectives, like society, nation, community are metaphors for individuals within a particular boundary. They become non-words when a collective is thought of as a single being.
- Reality has no conscience and no sympathy for theology, ideology, fantasy and wishful thinking.
- Unless there is a direct attack on a nation, war justifies a violent means to an imaginary end.
- Be contemptuous of threats of Armageddon and saviors, real or imaginary.

It pays to be just skeptical enough to ask questions when something doesn't make sense to you. If you don't want to think for yourself, others will do your thinking for you. If you don't take responsibility for your life, there are always others who are eager to take responsibility away from you. When authoritarians control your mind, they control you. What they gain is what you lose; there is no compensation. Because religion and politics are at the top of the social pecking order, we'll look there for some examples of non-words. If this section invokes a negative reaction, it is probably because you have an emotional attachment to non-words. There will be none of that here.

Religion

The fact that a majority believes something for thousands of years does not prove a truth. It's a story that predates every religions. The god(s) are mad at humankind for one reason or another. Do what the priests say and the god(s) will be nice to you. Ignore the priests and some horrible punishment awaits you. To the degree you follow their dictates; it is the priest class to whom you are obeying.

Afterlife

The most indisputable medical fact of life is that death is absolute. No warm body; no life. No life; no consciousness.

Bible

The Bible contains a collection of hearsay, superstitions and tribal myths. The case for being the word of God comes from a long tradition of belief because it is what others in the past believed.

God

It is impossible to describe anything without some kind of observation. It is as much an exercise in imagination to say there is one god who takes in interest in personal affairs as to say there are countless gods controlling every aspect of life. Before the advent of science, the belief in god(s) was commonplace as a way of explaining the unseen forces of nature.

Heaven and Hell

No one knows where were they are. If they don't know where they are, how can they know they exist?

Theology

The complete lack of evidence to support the existence of a god requires professional apologists. They have a rationale for every challenge to religious doctrine.

Satan

Satan is Christianity's best friend. Organized religion could not justify itself without an imaginary enemy.

Sin

It means something bad. How does it transfer from generation to generation? How do the priests know? The dogma of sin comes from what psychologists call projection: when a person projects his thoughts as the voice of the unseen being called God.

Politics

The history of human society is replete with wars and persecutions from every form of body politic, from ancient kingdoms to medieval city-states to modern nation-states. The sad fact is that while citizens have faith in their government to protect their person and property, their government is the worst violator and their most dangerous enemy. The widespread application of non-words has much to do with the problem. Certainly, societies need a system of common standards and a means of enforcing them. What that system might be and how it can be tamed is beyond my prescience. The best anyone can do is to be alert to the dangers and take steps to be out of harms way, and maybe find ways to profit.

Because the polity is perceived as a protector, it needs fear and insecurity to create demand for its services. Every day the media contains news of some threatening crises: There are too many people. We're running out of energy. Beware of the coming Ice Age. Beware of climate over-heating. Muslims are out to get us. The Chinese hate us. The Russians hate us. The whole world hates us. Expect the Chicken Flu this winter. We're due for a pandemic. Don't forget to take your shots. An asteroid is going to hit earth, etc. etc. Politics is a business like any other business. Protecting citizens from every imaginable danger is expensive. If you have to know what it costs, you can't afford it. And that is why the costs are kept hidden from you, and why your take home wages buy less and less each week.

The State

The State is the secular equivalent of God. People expect the State to protect them against almost anything as if it was omniscient, omnibenevolent and omnipotent. It is none of those. It has power only in the sense that it has a monopoly on force. Otherwise it is composed of individuals just as capable of making mistakes as anyone else, What makes it dangerous is that officials cannot be held responsible for morally criminal acts, as long as they are legal. When people say government should take care of their needs, they are in effect advocating force against the person and property of others. When the vast majority of citizens think the same way it become a game of neighbor stealing from neighbor through the force of government.

Society, community, nation, state

The people have only one thing in common, they live within the same borders. They probably have a common culture and language, but we go astray when we apply a single set of values to the collective. Such as the commonly heard question: what is best for society? Ask each person within that collective and you'll get a different answer. There is no objective solution.

Citizen

No government can survive for long without popular support and passive acceptance. To do that, the State must inculcate its citizens with myths so they identify with the State. By identifying with the State, citizens are more willing to sacrifice to the demands of the ruling class as if their sacrifices benefited people they care about. The state imposes an unwritten social contract on every citizen: in exchange for protection, every citizen must follow the rules. Unfortunately, the ruling class ignore the contracts when it suits their purpose.

Ideology

What is ideal is not realistic. Because ideologies are problematic, they are the means of justifying the State.

Two worlds

This chart from [People in Quandaries](#) by Wendell Johnson compares the differences between scientific and unscientific orientation.

BASIC FEATURES OF PRESCIENTIFIC ORIENTATION	BASIC FEATURES OF SCIENTIFIC ORIENTATION
1. Fundamental notion of the static character of reality. A static reality involves essential constancy (there is nothing new under the sun). Main attention is given to similarities; differences are minimized or ignored. Consequently, the individual is not especially important except as he represents a type.	1. Fundamental notion of the process character of reality. A process reality gives rise to a never-ending series of differences. As much or more attention is paid, therefore, to differences as to similarities. As one important consequence, the individual is regarded as an individual, not merely as an example of a type.
2. Rigidity, or conservatism, the tendency to maintain established beliefs and habits regardless of changing conditions is fostered by these basic notions of static constancies. Thus, traditions are cherished, and the authority of age and precedence is extolled, seldom challenged; experimentation is discouraged. The Old Man is honored and obeyed. As a result of all this, individual infantilism and social retardation are fostered.	2. Adaptability, a readiness to change as changing conditions require, is fostered by these basic notions of process differences. Thus there is a tendency to challenge authority systematically; to experiment, to test traditional beliefs and costumes against actual observation and experience. The Old Man is respected but evaluated critically. As a result of all this, individual and social maturity is stimulated.
3. The basic method of problem solving, which we call authoritarian, involves mainly the practice of abiding by advice obtained from some vested authority, such as a parent, teacher, priest, or judge. Authority sometimes resides also in a book or code of rules. The pronouncements of such authority are not to be revised. This authoritarian method works in practice to maintain unchanged the traditional beliefs, customs, and rules of conduct. If problems are not solved, they are "explained" in terms of "fate," or "nature," or the "supernatural"; and toward the language used in	3. The basic method of problem solving, which we call scientific, consists of four main steps; (a) the asking of questions that direct one's (b) observations so as to (c) answer the questions clearly in such a way as to test one's beliefs or assumptions, (d) which are revised accordingly. Of these four steps, three (a, c, and d) involve mainly the use of language. This scientific method works in practice toward the continual improvement of specific techniques, refinements of beliefs, and "modernization" of customs and rules of conduct. If problems are not solved, new

<p>such "explanations" there is a dominant attitude that is naïve and unreflective.</p>	<p>theories and methods are not solved, new theories and methods are devised to solve them.</p>
<p>4. The language of a prescientific orientation is designed to control behavior by virtue of the vested authority it represents. If it is not clear, a properly appointed authority will interpret it, and his interpretation is to be believed. The validity of authoritarian pronouncements is not to be questioned. Statements of assumptions and statements of fact tend to be regarded as the same.</p>	<p>The language of a scientific orientation is designed to be factually meaningful, directly or indirectly, and clear and valid. It is intended to satisfy two important tests: "What do you mean?" and "How do you know?" Moreover, assumptions are sharply differentiated from statement of fact.</p>
<p>5. Prescientific language tends to make for questions that are frequently vague and quite often meaningless factually. Attempts to answer such questions give rise to misunderstandings and disagreements, to misinformation and misleading theories, with the result that predictability and foresight are achieved slowly or not at all, and individual and social maladjustments are thereby fostered.</p>	<p>5. Scientific language is orientated around factually clear, answerable questions. Vague or meaningless questions are abandoned as being misdirective of human energy. On the principle that terminology of the question determines the terminology of the answer, only clearly stated questions are tolerated. Because of this, mutual misunderstanding and agreement are facilitated, predictability and foresight are improved steadily, and individual and social adjustment is thereby fostered.</p>
<p>6. In a prescientific orientation, the natural process of projection is carried out unconsciously (relative lack of "to-me-ness"). It is realized only vaguely, or not at all, that every statement conveys information about the speaker as well as information about whatever the speaker may seem to talk about; and the degree of self-reference is largely ignored in evaluating the statement's factual significance.</p>	<p>6. In a scientific orientation, the natural process of projection is carried out with a high degree of awareness (consciousness of projection, or "to-me-ness"). It is realized that every statement conveys information about the speaker as well as information about whatever the speaker may seem to be talking about; and the degree of self-reference is reckoned in evaluating the statement's factual significance.</p>
<p>7. In a prescientific orientation, there is a marked tendency to speak as though with the voice of another (ventriloquizing). For example, the voice of The Law is not recognized as the voice of the Judge himself. The speaker tends to ventriloquize both unconsciously and deliberately (as in the planned use of "ethical proof"). Only the more artful and deliberate ventriloquizers seem to realize that, after all, it is their own evaluations that they are expressing.</p>	<p>7. In a scientific orientation, there is little or no tendency to speak as though with the voice of another (ventriloquizing). For example, the voice of The Law is recognized as the voice of the Judge himself. The speaker tends not to ventriloquize either unconsciously or deliberately; he realized that what he expresses are his own evaluations-even though he may quote another man's words.</p>

8. Accurate prediction, or foresight, is not a particularly well-recognized objective in a prescientific orientation. At least, theories and specific statements are not evaluated primarily in terms of their usefulness in making predictions. In a prescientific orientation there are, strictly speaking, no scientific submicroscopic theories; they are, rather, beliefs regarding the "supernatural." These tend not to be changed, because they are considered not as theories but as statements of fact. Faith in these beliefs and obedience to the authority that represents them-obedience expressed by participation in prescribed rituals, for example-are prized as the means of control over natural and human events.

8. Accurate prediction, or foresight, is a clearly recognized objective in a scientific orientation. Theories and specific statements are evaluated primarily in terms of their usefulness in making predictions. The value of a scientific submicroscopic theory (such as molecular theory of matter) lies in the accuracy of the predictions which it makes possible. Changes in such theories, as also in theories that do not clearly involve submicroscopic constructs, are made in the interests of more adequate prediction. Theories of high predictive value are prized as the means of control over natural and human events.

Last Words

Our time and energy is limited. Why waste it on words with no real meaning. Wouldn't it be better to spend it on what has direct importance to us: our lover, our family, friends, acquaintances, pets, our job and whatever other relationships, objects and activities that add value to life? As a general rule, any organization that has more people than you can know is an abstraction.

Within the span of this page, I've only touched on the topic, leaving details that could be expanded for better understanding. Hopefully, I've stimulated enough interest for you to pursue further study and practice in the art of accurate language. A wealth of resources can be found at [General Semantics](#), the people who deserve the credit for leading the way. There is an excellent introductory text: [Drive Yourself Sane: Using the Uncommon Sense of General Semantics](#).