

# **SKEPTOID**

**CRITICAL ANALYSIS OF POP PHENOMENA**

**BY BRIAN DUNNING**

**FOREWORD BY JAMES RANDI**

*Skeptoid: Critical Analysis of Pop Phenomena*  
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*Ignorance is preferable to error; and he is less remote from the truth who believes nothing, than he who believes what is wrong.*

Thomas Jefferson

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## FOREWORD

*by James Randi*

If you don't already have a skeptic's view of the world, this book will perhaps shock and dismay you. In fact, I think there will even be some skeptics who pick up this book and find it perhaps too challenging – though I hope not.

I've always said that there are two kinds of faith: blind faith requires no evidence to support it, and it is the basis of all religious conviction and what I refer to as “woo-woo” matters. Then there's faith based on evidence that provides a framework and a foundation of support. That's the kind – the only kind – that I choose to accept. The author of this book would, I'm sure, agree with me.

I also share with author Brian Dunning a profound atheism and a fearless approach to examining, criticizing, and – if need be – condemning ill-founded support for the inane, juvenile, and baseless acceptance of nonsense that we find around us in spite of the obvious fact that the scientific method has brought us what should be a welcome new understanding of so many of the former mysteries upon which our ancestors gave up so long ago. This understanding is our strength and our future, if we will accept it for what it is: an admittedly imperfect picture of the universe around us, but one which is improving every day simply because we continue to wonder about it and to improve our knowledge of it.

I have repeatedly found that persons who become relieved of their superstitions and misconceptions of the world react in a matter which is quite different from what might be expected, once they have opened the door and stepped through into a rational, thinking, world. Most of these folks have expressed to me a profound sense of relief and renewed strength, rather than a disappointment and/or a sudden fear of the new and uncaring universe they have come upon or been led to confront. Such an

epiphany, in my opinion, is a gift that a rational thinker such as Brian can confer upon his readers.

I don't think he missed many subjects. Everything is here, from homeopathy to chiropractic, the Amityville Horror to the Bible Code, and "orbs" to the Marfa lights. He obviously has many well-thumbed volumes of claptrap at his disposal – and disposal might be a good way of dealing with such nonsense. The library at the James Randi Educational Foundation consists – presently – of 2,089 books of which only about 5% are rational. Those are by such authors as Sagan, Feynman, Shermer, Asimov, Gardner, and a handful of others, and I assure you that they hold their own against the others – as Mr. Dunning has obviously discovered.

Yes, you will see in this book the ill-concealed dismay and anger of the author and that is exactly what we might expect. Rationalists can easily become impatient with the sloppy approach that the public has when confronted with the plethora of nonsense that arrives daily via television, bookstores, and every conceivable media outlet that can profit from its distribution. Well, let us hope that this book receives the recognition and the distribution that it so well deserves. To recommend this book to a friend, to a school, or to a local library, is a distinct service that you – the reader – may choose to perform.

I hope so, and I encourage you to follow that suggestion.

James Randi.

## INTRODUCTION: DRAGONS

In ancient times, unexplored regions on maps would often be given fearsome legends like “Here Be Dragons”. Unknowns were frightening, and it gave some comfort to at least be able to label the unknown. Hypothesized dragons were a good enough explanation for what would otherwise be ungraspable. With a made-up concept and a few words, the unknowable suddenly became simple and satisfying.

Those ancient cartographers would have felt quite at home today. De facto practice among most people is still to give satisfying labels to quantify and conveniently package the unknown. When faced with a phenomenon for which one does not personally know a rational explanation, like dreaming of your uncle the night before he dies, it’s much easier to accept a simple explanation like “psychic connection” than to grasp the complexities of cognitive phenomena, confirmation bias, and law of large numbers. “Here Be Dragons” is so much easier. The vast majority of the population accepts dragons – or their logical equivalents – as natural components of our world that should be taken for granted.

For the most part, any given instance of this is not especially harmful. Your friend takes a homeopathic remedy for chronic headaches, and this doesn’t hurt anything (except your friend’s wallet). Your grandmother asks for a blessing on her poodle that he might overcome his mange, and this does no harm. But consider it from a new perspective: multiply these by a million or a billion. Imagine widespread faith that non-evidence based modalities such as homeopathy or blessings are good enough substitutes for modern medicine. Imagine how much of the world’s finite resources of time, money, funding, and attention are diverted from scientifically developed and clinically tested methods. Imagine what happens when a population, faced with some new crisis, believes that untestable alternatives that lack empirical foundation are the best foot forward. If we discovered



a planet killing meteor that would strike Earth, should we use scientific methods to redirect it, or should we use that time and funding instead to all join hands and concentrate our psychic energy? This may seem like an extreme example, but it accurately represents diversions of human ingenuity that happen daily, all over the globe.

In 2006, I began the Skeptoid podcast (<http://skeptoid.com>) in the hope of helping people to re-examine pseudoscientific beliefs in favor of scientific reality. The less people are willing to accept pseudoscience at face value, and the more willing they are to learn the realities of our world, the better for everyone. This book is based upon the first fifty Skeptoid podcast episodes. As its name suggests, Skeptoid consists of short skeptical factoids.

You will not find these chapters to be footnoted or otherwise supplemented with authoritative references, something for which I'm often criticized. There are two main reasons I omit footnotes. First, if you are truly interested in a subject, I want you to research it for yourself. I don't want to tell you what sources I personally found compelling. You need to do your own work; you shouldn't be believing me anyway. Second, many "authoritative" sources, especially those found on the Internet, come from someone with a particular agenda. It's easy to find a reference to support any point you want to make, and this renders every footnote in the world suspect at face value. Never simply trust that a little number following a statement<sup>42</sup> means that it's true.

There may indeed be undiscovered dragons in our world. But there is also something we know for a fact: We haven't found any dragons yet. We've looked in a lot of places, and seen some extraordinary things; but never yet has science been forced to throw in the towel and admit the reality of magic.

## 1. NEW AGE ENERGY

I'm feeling a little low today, so let's tap into a source of energy from a neighboring dimension as a quick upper.

Faith in pseudoscience is rampant. Everywhere you turn, intelligent people fully accept the existence of anything from psychic phenomena, to angels, to new age healing techniques, to ancient health schemes based on mysterious energy fields not understood by science. Most of these paranormal phenomena rely on "energy," and when the performers are asked to explain, they'll gladly lecture about the body's energy fields, the universe's energy fields, Chi, Prana, Orgone, negative energy, positive energy, and just about anything else that needs a familiar sounding word to explain and justify it. Clearly, there are too many loose interpretations of the word energy, to the point where most people probably have no idea exactly what energy really is.

I believe that if more people had a clear understanding of energy — and it's not complicated — there would be less susceptibility to pseudoscience, and more attention paid to actual technologies and methods that are truly constructive and useful.

A friend told me of her ability to perform minor healings, and her best explanation was that she drew energy from another dimension. She had recently rented *What the Bleep Do We Know*, so she was well prepared to explain that alternate dimensions and realities should be taken for granted, since science doesn't really know anything, and thus those things cannot be disproven. That's fine, I'll concede that she can make contact with another dimension: after all, the latest M theories posit that there are probably ten or eleven of them floating around, and I'll just hope that my friend's is not one of those that are collapsed into impossibly small spaces. What I was really interested in was the nature of this vaguely defined energy that she could contact.

I asked what type of energy is it, and how is it stored? Is it heat? Is it a spinning flywheel? Is it an explosive compound? Is it food? These are examples of actual ways that energy can be stored.

In popular New Age culture, “energy” has somehow become a noun unto itself. “Energy” is considered to be literally like a glowing, hovering, shimmering cloud, from which adepts can draw power, and feel rejuvenated. Imagine a vaporous creature from the original *Star Trek* series, and you’ll have a good idea of what New Agers think energy is.

In fact, energy is not really a noun at all. Energy is a measurement of something’s ability to perform work. Given this context, when spiritualists talk about your body’s energy fields, they’re really saying nothing that’s even remotely meaningful. Yet this kind of talk has become so pervasive in our society that the vast majority of Americans accept that energy exists as a self-contained force, floating around in glowing clouds, and can be commanded by spiritualist adepts to do just about anything.

There is well known authority for the simple, concrete, scientific definition of energy. Take Einstein’s equation,  $E=mc^2$ , that every schoolchild knows but so few spend the 30 seconds it takes to understand. Energy equals mass times the speed of light squared. Simplify it. Mass can be expressed in grams, and speed can be expressed in meters per second. Thus, an object’s energy equals the amount of work it takes to move a few grams a few meters in a few seconds. Energy is a measurement of work. If I lift a rock, I’m inputting enough potential energy to dent the surface of the table one centimeter when I drop it. The calories of chemical potential energy that my bloodstream absorbs when I eat a Power Bar charge up my muscles enough to dig two hundred pounds of dirt in my garden. Nowhere did Einstein discuss hovering glowing clouds, or fields of mystical power generated by human spirits.

When spiritualists discuss energy, don’t blindly accept what they’re saying simply because energy is a word you’re familiar with, and that sounds scientific. In many cases, their usage of the word is meaningless. When you hear the word “energy”

casually used to explain a mystical force or capability, require clarification. Require that the energy be defined. Is it heat? Is it a spinning flywheel?

Here's a good test. When you hear the word "energy" used in a spiritual or paranormal sense, substitute the phrase "measurable work capability." Does the usage still make sense? Are you actually being given any information that supports the claim being made? Remember, energy itself is not the thing being measured: energy is the measurement of work performed or of potential.

Take the following claim of Kundalini Yoga as an example: *"The release and ascent of the dormant spiritual energy enables the aspirant to transcend the effects of the elements and achieve consciousness."* This would be a great thing if energy was indeed that shimmering cloud that can go wherever it's needed and perform miracles. But it's not, so in this case, we substitute the phrase "measurable work capability" and find that the sentence is not attempting to measure or quantify anything other than the word "energy" itself. We have a "dormant spiritual measurable work capability," and no further information. That's pretty vague, isn't it? For this claim to have any merit, they must at least describe how this energy is being stored or manifested. Is it potential energy stored in the chemistry of fat cells? Is it heat that can spread through the body? Is it a measurable amount of electromagnetism, and if so, where's the magnet? In any event, it must be measurable and precisely quantifiable, or it can't be called energy, by definition.

There's a good reason why you don't hear medical doctors or pharmacists talking about energy fields: it's meaningless. I think it's generally good policy to remain open minded and be ready to hear claims that involve energy, but approach them skeptically, and scientifically. The next time you hear such a claim, substitute the phrase "measurable work capability" and you'll be well equipped to separate the silly from the solid.

## 2. RELIGION AS A MORAL CENTER

In this chapter we pull open the drawer in the motel bureau and face the need to have a Moral Center, that core set of behaviors and ethics that governs the way we conduct ourselves and live our lives.

It may shock you to learn this, but I have no religious convictions. I do not believe that supernatural deities exist. There's nothing evil or wrong about that. I view the Christian God in the same way that the average Christian views Shiva, Athena, or Thetans. There's nothing evil or wrong about doubting the actual divinity of those characters either. Yet a common generalization made by some religious people is that atheists lack a moral center. More than once, in late night bull sessions with religious friends, I've been told that faith is a necessary component for developing a sound moral center. The implication is that religious beliefs play an important role in the development of a normal, healthy system of ethics and personal conduct. Without religious faith, one is less likely to become a "moral" person. Thus, one of many reasons that people of religious conviction want to reach out to atheists is to help them to find a Moral Center, so we don't have a bunch of naked godless pagans running around wreaking havoc and mayhem.

My response to the religious people — after thanking them for the assumption that I am an unethical person — is to compare our Moral Centers and see where these supposed differences lie. If you knew me personally, you would probably find me to be a generally upstanding person, like yourself, who stays out of trouble, brushes his teeth, walks his kids to school, and tries not to shout too much in the library.

Like you, I am generally an honest person. I don't cheat people in business. I don't steal or commit crimes any worse than speeding on the freeway. I lie all the time, but only when the lie is a helpful one: "Yes, you look great in those parachute pants."

Like you, I play fair in sports, even against unfair opponents. I try to be a gracious loser, and occasionally even a gracious winner.

Like you, my family is the most important thing in my life. Preserving the love, trust, and happiness in my family absolutely outweighs all other priorities in my life.

Like you, I have a clear sense of right and wrong. Generally, behavior that injures someone else is wrong, and most of us avoid doing that whenever possible.

Like you, if I see a complete stranger drop their wallet — even if they're a different race and speak a different language — I'll spring into action like Batman to return it to them. It would never occur to either you or I to keep it or expect a reward for returning it.

If I see an elderly woman, I don't run over, punch her in the face and steal her purse; and neither does a religious person. But note that no religious person ever says "I would love to punch out that old woman, but I can't because God told me not to." Nobody is going to do something like that, because it's so obviously wrong. Rarely or never does a basically good person — and that's most of us — need religious commandments to stop them from doing something wrong.

In summary, my Moral Center is essentially the same as yours. It comes from the basic goodness of human nature, and my own sense of right and wrong that is universally shared among all people. It does not stem from having read any particular set of religious commandments, or from fear of punishment from a deity. Since I formed this ethical system in the lack of a religious context, how could my Moral Center be so similar to that of the average Christian or Buddhist? I argue that everyone's basic Moral Center comes from human nature, the nurture of societal interaction, and the sense of right and wrong. Since everyone already has these things, the need to credit religion as an additional source is redundant and thus wholly unnecessary.

A common retort from religious people is that God gave me those things: common sense, and the ability to tell right from wrong. If that's so, and everyone (atheists included) has been

gifted with all the fundamentals needed to develop a Moral Center, then we're still left at the same place. A religious upbringing is still superfluous.

Religion is an important and favored part of life for most people. Its practice brings them satisfaction in many ways. But religion is absolutely not necessary to become a good person, or to have a sound Moral Center. Philanthropists, educators, doctors, emergency workers, and Nobel laureates have the same general breakdown of religious affiliation (including atheism) as the population at large, because they are the population at large.

### 3. RODS: FLYING ABSURDITIES

From the cryptozoology files, we're going to look now at rods, those magical, mystical living UFO's that inhabit the invisible shadowlands of Earth.

Rods are said to be flying creatures, from a few inches to a few feet in length, that are invisible to humans, but visible to cameras, both film and digital, both still and video. Their bodies are shaped like long thin rods, and their only appendages are wavy wings, one on each side, stretching the full length of their bodies. They move through the air by undulating these wings, like eels swimming through water.

A gentleman named Jose Escamilla claims to be the discoverer of rods. On his web site, Roswellrods.com, he says that he first captured rods on video in 1994. He says he was taping UFO's when he accidentally filmed the rods as well. Since Mr. Escamilla did not recall seeing any such thing in person while he was taping, he decided the most likely explanation for his video is that he'd discovered a new species of flying creature that is invisible to humans, and only shows up on film or video.

Since then, innumerable photographs and videos have surfaced that purport to show rods. Search the Internet, and you'll find hundreds of them.

If rods are as ubiquitous as it would seem they are, why is their existence not generally accepted? Justification for the existence of rods requires that four basic claims be proven or at least shown to be reasonable:

- ❖ There should be zoological precedences for the existence of undiscovered insects up to a meter in length. New species are being discovered all the time, so I think we should grant this one. It's certainly possible that there are undiscovered flying creatures a meter in length.



- ❖ We must accept the existence of creatures that are invisible, although they're up to a meter in length and perhaps up to several inches wide. Discounting microscopic organisms, the natural world offers no better than transparency, such as that found in some species of jellyfish. Transparency is not invisibility. Supporters of rods have not proven that invisibility in the animal kingdom is possible, and they will need to do so by presenting an invisible animal.
- ❖ Certain images must be visible only in the output of all types of visible wavelength cameras, but not visible to the naked eye. When cameras output their images to the final medium, be it film, paper, or a video screen, we see their output because our eyes see the same visible wavelengths that were recorded and output. We're not talking about thermographic or other non-visible-wavelength camera technologies here, so rod supporters will need to prove that all standard cameras can convert certain invisible wavelengths into visible ones, without affecting the visible wavelengths; which is something those cameras were not designed to do. Only with this proof can it be reasonably accepted that it's possible for a camera to see something that was invisible to the photographer.
- ❖ Even if all of the above can be substantiated, there needs to be a lack of a more likely explanation. If a simple procedure can be shown to easily reproduce the appearance of rods on camera, then we haven't even established that there is a phenomenon to be investigated.

As you might expect, there is indeed an alternate explanation, and a simple procedure to take a picture showing rods. Picture yourself standing with the sun at your back, facing a large shaded area, such as the shaded entrance to a cave. Dragonflies (or other insects) are flying everywhere, darting back and forth at around 20mph, which is about 29 feet per second (dragonflies can hit 60mph). Take a photograph, with a

common shutter speed of 1/30th of a second. In that time, the dragonfly will travel about 12 inches. Because your exposure is set for the dark background, the path traced by the dragonfly's transit will be overexposed and will appear solid white. The dragonfly will make one full wingbeat in that time (some insects would beat their wings twenty times in 1/30th of a second), so the path described by its wingtip on your film image would be one full sine wave period, twelve inches long. There would be one of these sine waves down each side of the twelve-inch-long rod shaped track traced by the dragonfly's moving body.

This phenomenon is so common that most any professional photographer can tell you about being plagued by it while trying to take outdoor photographs or video in similar lighting conditions. Nevertheless, the resulting image is strange enough that someone not familiar with photography basics might conclude that the subject in the photograph was in fact twelve inches long with undulating wings, and the photographer would be absolutely correct in stating that he did not see any twelve inch long flying creatures with his naked eye.

The conclusion from all this is that rods are a well known, well established, and well understood byproduct of photography. The proposed alternate explanation, that they are an unknown and invisible lifeform only seen by cameras, requires that some pretty outrageous claims about invisibility and photography be proven. Until they are, or until a rod is captured and can be studied, I see no reason to suspect that such things might exist.

#### 4. ETHICS OF PEDDLING THE PARANORMAL

This is where I break ranks with the majority of the skeptical community, and come out, surprisingly, generally in favor of those who peddle the paranormal, in cases where no harm is done.

In our society, people have the right to purchase things they want that are of no benefit, or even harmful. Cigarettes, alcohol, expensive cosmetic products containing questionable ingredients like “extract of oleander” — these are just a few examples. It’s a free country, and most people want these things. We’ve decided, as a nation, that the preferences of a few should not curtail the freedoms of the many. And I believe most skeptics would agree: paranormal services from palm readers to homeopathy stores have every right to exist. I hope my kids don’t become customers, but I feel education is a better way to address it than government intervention.

Since we agree that these services have the right to exist, and that people must be free to make their own choices about using them, I personally would have no problem stepping up and selling my own psychic predictions. I would love to be able to perform a good cold reading. My dream is to start a church and become fabulously wealthy, with the world’s happiest customers. These customers are people who are already believers, whose minds are not about to be changed by a few skeptics. They are going to buy these services: and if they don’t buy them from me, they’re going to buy them from the psychic next door. I could do a good job. I could be perfectly convincing and tell them exactly what they hope to hear for their money. In fact, the customer’s experience will be identical to that they’d receive from the “real” psychic next door. We agree that customers have the right to spend their money on whatever they want. We agree that a customer is being deceived whenever he buys any supernatural product, no matter who sells

it. We agree that no power on earth could convince that customer that he's being deceived. Add it all up, and we have a customer who insists on being deceived, and who has the right to purchase that deception. I believe that it's perfectly acceptable — and perfectly ethical — for me, even as a skeptic, to take advantage and sell the same product.

If you're like most people, you're disagreeing with me. You're probably saying that I'm being dishonest and lying to the customer, while the real psychic (though his powers are no more real than mine) is at least being honest. He's wrong, but he's honest. We're selling the same thing, and both giving the customer a satisfying experience. I see it just like a supermarket manager who allows cigarettes to be sold in his store. He knows they're a bad product, but people want them, and that's the way it is. Yet I never hear my detractors criticize the supermarket manager.

The best argument I've heard against my position is that I'm taking away the customer's dignity, in removing his right to make a choice. I'm being disingenuous, telling him that I'm someone I'm not, when my psychic competitor next door is being honest in claiming psychic powers. The customer chooses to go to a psychic. I'm lying to him, while the psychic next door is not. I understand this argument, and I agree that it's true. But the reason this argument doesn't convince me is that it's irrelevant — the net result is exactly the same. My personal beliefs have no bearing on the transaction (just like the supermarket manager), and focusing on this question is ignoring the elephant in the room: the person wants to buy nonsense. The personal feelings or opinions of the person selling it are simply not part of the equation.

Now, it's time to address the point that's probably foremost on your mind. What about the cases where the pseudoscience being purchased is either harmful, or takes the place of essential medical or psychiatric care? I said at the very beginning: I'm generally in favor of those who peddle the paranormal, in cases where no harm is done. And this is the vast majority of cases. What about the exceptions?

Here's a hypothetical case where the customer really needs medical care: they have treatable cancer, but prefer to pay me for New Age healing by the laying on of hands. I assure you that I am neither completely stupid, nor irresponsible, nor in any particular need of blood money. In this case, I would put on my best New Age hat, and explain to this person in New Age terms that I hope they would understand and accept, that New Age healing can only help when applied alongside conventional cancer treatment. I'm smart enough to realize that if I tell him New Age healing is bunk and he should go to the doctor, he'll write me off as a debunker and not listen, and go instead to the psychic next door. Here is where my New Age services are better — infinitely better — than those of the “real” psychic, who genuinely believes that laying on of hands should be used to the exclusion of real medicine. And people tell me that I'm the one being unethical. The “real” psychic in this case should be imprisoned.

It's the same in cases where the customer needs psychiatric care. Let's say his mother died, and for some reason he has developed real psychological problems, and wants me to contact his dead mother. This is not someone who wants me to predict tomorrow's horse race, this is someone who probably needs help beyond my pretended abilities. In this case, I'd dim the lights, hold as convincing a seance as I could, and tell him that his mother is worried about him and begs him to seek some professional help. If you tell him in this manner, he's likely to actually listen, and the doctor can handle it from there. If you take the usual skeptical path, and explain to him that talking to the dead is bunk and only a real doctor can help him, he won't listen, he'll go to the “real” psychic next door, and his problems will continue. Again, my services are good because they'll actually lead to a professional solution; the “real” psychic's services are bad, because they perpetuate the harm.

I argue that paranormal services are better provided by people who understand their limitations, rather than by those who believe they can do something they can't. In fact, if paranormal services were regulated, this would be the law. Think how much better off believers would be if the paranormal

services they received always led them to trained professionals in cases where such is needed.

However, these cases are in the minority. Most of the time, people who buy paranormal products or services — be it goddess worshipping seminars, homeopathy, acupuncture, or psychic readings — are buying completely harmless services that P.T. Barnum would have been happy to sell. If money is changing hands, and responsible adults are going into it with their eyes open, they receive exactly what they want, and they are completely satisfied with the results, then I would have no problem participating in such a transaction and profiting from it. The customer is happy, the peddler is happy, nobody is hurt, everybody involved is enriched by the transaction. This is their choice. They don't have a problem with it, why should you? It's none of your business.

## 5. SUSTAINABLE SUSTAINABILITY

I bet you didn't know that this is a sustainable book, delivered on sustainable paper, using sustainable printers, and read by your sustainable eyes. Now you know. But really you should have known that already, because this year's winner of the meaningless, overused buzzword award has to be the word "sustainable".

To label your product as "sustainable" is to imply that competing products are not sustainable. What this is intended to mean is often pretty vague. Presumably it means that competing products are manufactured from materials that we'll run out of, should current methods and usage continue.

The environmentalists, usually portrayed in the media as the good guys, first coined the phrase to describe products or methods that are generally better for the environment than the competition. Soon the marketing gurus got ahold of the word, and now everything from toothpaste to music to real estate is being sold as "sustainable".

It's so effective, and thus popular, because it's an alarmist term. Calling your product sustainable is not really saying anything about your product; it's clanging the warning bell about the alternative being unsustainable: Can't be sustained! The world is ending! It's like calling your product "hate free" or "cruelty free". In no way is it descriptive of your product, it's simply an underhanded way to insult your competition. As any marketing expert will tell you, people respond much better to a negative than to a positive.

One gross overusage of the term is "sustainable agriculture", used almost exclusively by those selling organic crops. Organic agriculture is certainly sustainable, so long as a third of the world's population is willing to die off so the rest of us can eat. As with many people who use the word sustainable, proponents of organic foods aren't really saying anything particular about their product, they're trying to frighten you into thinking that

modern advanced farming methods will somehow destroy or deplete the environment, and are thus “unsustainable”. Ironically, the reverse is closer to the truth. Among other benefits, modern hybridized crops are designed for specific soil types, and to leave those soils less depleted so that they can be replanted for more seasons before being rotated. So-called sustainable agriculture is, in fact, far less sustainable than the planting of crops that have been optimized to thrive in the available conditions.

The word “organic” is itself the same kind of deceptive marketing: intended to trick you into thinking the alternative is somehow not organic. Strictly speaking, all plants and animals are organic, according to the word’s true definition. When you hear any product defined only by a vague buzzword, be skeptical.

You also hear a lot about sustainable fuels for cars. This usually refers to biodiesel and ethanol, since they come from renewable resources instead of a limited resource, natural petroleum. In this sense, the production of biodiesel and ethanol is certainly more sustainable than gasoline, since we’ll always be able to grow them. However, they have a show-stopping drawback. Burning biodiesel or ethanol in our cars exhausts the most significant greenhouse gas, carbon dioxide, into the air — just like gasoline does. So even if we switched all of our cars over to biodiesel and ethanol tomorrow, down the road we’ll be no better off. The production of biodiesel and ethanol might be sustainable, but their usage is absolutely not. This is a great example of why you need to bring a skeptical attitude when you hear the word “sustainable”. Are the environmentalists promoting biodiesel really looking out for what’s healthiest for the earth, or do they have some other motivation, possibly political, possibly economic, possibly philosophic?

The word sustainable has become so pervasive that its usage is often just plain silly. Colgate recently purchased a company that makes sustainable toothpaste. It contains bone powder. Does an intelligent person really think that it’s unsustainable to make toothpaste any other way?