

B E L I E F A N D S U N B U R N
I N T H E W E I G H T R O O M



B R U C E F L E M I N G

Not long ago I had a conversation with a former student of mine from the U.S. Naval Academy, where I have taught for three decades, a captain in the U.S. Marine Corps. I had some credibility with him, both as his professor of several years earlier and as a fellow weight-room user. Indeed, our conversation took place in the weight room we both use, which meant it didn't last very long because serious conversation in the weight room is impossible. So that left me mulling over what we might have said and its implications long after the brief interaction was over.

We had shaken hands and exchanged grunts, which is about the extent of weight-room conversation (there are places where words do not rule, and the weight room is one of them), and so I felt I could make a brief comment about the brick-red color, obviously the result of too much sun that weekend, of his normally beige face. "Slather on that sunblock," I encouraged him, I hope in an avuncular tone. To avoid any appearance of telling him what to do – after all, I'm not in his chain of command now – I immediately added, "My mother has to go to the dermatologist every year or so to get stuff cut off her face. And she never really even went in the sun."

The captain's response was interesting. "I believe," he said, "that heredity has as much to do with whether you get that stuff as going out in the sun."

The captain was telling me what he believed. I immediately had a thousand questions, reasons why what he was suggesting might well be false – was heredity an equal player with sun exposure in producing skin problems? – or in any case could not be asserted without substantiation. He was offering me belief; my impulse was to respond with analysis.

The distinction between belief and analysis is a distinction between two fundamental manners of doing things. It's the dichotomy played out in the ongoing public discussion between matters of faith and matters of science. Currently in the United States, this is couched in terms of a conflict between teaching what the Hebrew Bible is held to say about the creation of the world and teaching what science, building on Darwin, says on the same subject.

As one example of how timely this conflict is, the Creation Museum that opened in 2007 in Petersburg, Kentucky, makes clear that it is founded on belief. Its website opens with the words "Prepare to Believe." It tells us, "The state-of-the-art 75,000-square-foot Creation Museum brings the Bible to life, casting its characters and animals in dynamic form."

The site, to be sure, suggests that there is no conflict between belief and science – but only if you accept a different sort of "science," one based, in fact, on belief:

Creationists love science! In fact, the word *science* means "knowledge." We invite you to dive into the Bible and the scientific evidence with us to gather as much knowledge about God's creation as you can. You'll learn about the different types of science and discover facts and logical arguments you might have never considered. When you start with the Bible as your ultimate authority, your mind is unlocked and ready to discover creation science.

By "different types of science," the museum means types that scientists would not consider science: they are not based on scientific inquiry. The museum suggests that there is at least one other kind: "creation science." It speaks of "the Bible and the scientific

evidence,” suggesting that the two are different – but the Bible is the ultimate authority. “The Creation Museum shows why God’s infallible Word, rather than man’s faulty assumptions, is the place to begin if we want to make sense of our world.” The faulty assumptions are apparently that any discovery can show God’s Word to be other than infallible. So this sets up the conflict of belief and what people at, say, MIT or Caltech would call science.

The founder of the group behind the Creation Museum, Ken Ham from AIG, Answers in Genesis, debated the “Young Earth” beliefs of creationism (the earth is only six thousand years old, was created by God in a week, and Adam and Eve dwelt in the Garden until they ate the forbidden fruit) with Bill Nye, the “Science Guy” in February 2014. Later the same year, a Gallup Poll found that “More than four in ten Americans continue to believe that God created humans in their present form ten thousand years ago, a view that has changed little over the past three decades.” This isn’t an isolated conflict. A number of state school systems in the South require evolution to be taught with a disclaimer, or have only recently abandoned warning labels on high school science textbooks. Anecdotal evidence suggests that many science teachers simply skip the topic of evolution to avoid controversy, or teach belief-based creationism instead.

So the conflict continues, especially in the rural South, where the 1925 Scopes “Monkey Trial,” dramatized in the 1955 play (and 1960 movie) *Inherit the Wind*, played out. (Science teacher John Thomas Scopes was convicted of teaching evolution against Tennessee law.) Some parents today demand that “creation science” be given equal billing with evolution in science classes, or that “intelligent design” be taught as an explanation for the nature of the universe; judges disagree, and the cycle starts again. It’s a conflict that has been going on since the Victorian age, when the Church of England opposed Darwin. And the broader conflict of faith versus science is much older than that. Centuries ago, the Catholic Church demanded that Galileo recant his statement that the earth moved around the sun. Much of medieval Christian philosophy, perhaps most notably that of Thomas Aquinas, was devoted to the effort to make Aristotelian science (as wrong-headed as many of its assertions appear to the modern world) serviceable with the

givens of Christian dogma. Theologians have been trying to figure out the relationship between faith and reason for millennia.

Indeed, political developments in the U.S. this year and last have brought to the forefront the idea that for every set of facts there are equally valid “alternative facts.” This is a right-wing political position, associated with the notion that news articles with unwelcome views are “fake news.” However, the political left, deriving its theory from Nietzsche, Foucault, Said, and others, has also potentially questioned the idea of immutable truths or of truly “objective” facts of science. At the extremes of both political positions there seems to be a broad agreement that if I believe something, it’s true – or perhaps, that truth isn’t even any longer an issue, irrelevant given the fact of my belief.

Not that analysis is even always an option: here in the weight room it wasn’t. As I opened my mouth to object, I knew that the subject required far more talk than circumstances would allow me to devote to it. After all, we had to get back to our next weight sets. Besides, by running his casual remark to earth I was attempting to reestablish the professorial power position, something I had no chance of pulling off with an almost thirty-year-old marine, especially if it was being reasserted out of the blue, in an “off time” place like the weight room. It could be reestablished if he willingly signed up for my class, just as, if you ask to be in a boxing class, you expect that somebody will be taking a swing at you. You don’t like it if somebody takes a swing at you out of nowhere, and you’re as outraged that it happened when you didn’t expect it as by the swing itself. More fundamental still, the natural medium of male-male verbal interaction, especially when something physical is involved, is grunts, not extensive talk, such as this required.

All conditions thus were against my being able to discuss the question. When analysis isn’t possible, we can never challenge belief with it. This fact is the practical form of the Heisenberg Uncertainty Principle. In many cases, the act of looking to analyze (in Heisenberg’s example, the fact that an electron microscope bombards an atom with electrons that blow them away; the act of looking destroys the thing looked at so you can’t look at it) is itself impossible.

Yet though the words tasted dry in my brain as I geared up to

utter them, and were even drier as they came out of my mouth, I did try to object to my marine's assertion of belief.

"You mean, equal amount of influence?" I asked. "Why equal?"

He saw he had to explain his response. "My father worked all his life in the sun and never had problems," he said.

I began to object, then gave up. I'd been too pedantic already. The situation made this kind of analysis impossible. "Here I am turning into a professor again," I said. "Well, we gotta get back to lifting."

My marine was citing a single case as the basis for his conclusion — namely, his father. What can be concluded from a single case? Is it typical? Is it statistically significant? Even given the fact that his father didn't get skin cancer despite years in the sun, why would he assume that the reason for this was heredity, rather than something else? Is "heredity" here functioning as a general label for "all other factors"? If so, why call it heredity? Surely the term "heredity" implies not only protection for the father but also for the son, so it was suspiciously convenient for the captain to argue, as he apparently was doing, that he needn't bother with sunblock, or even to stay out of the sun. "It's all heredity" and apparently Dad was protected. Even if heredity did play a role, how could my marine say that it played an "equal" role with sunblock? Why 50 percent influence? Why not 20 percent? Why not say we don't know the exact percentage?

What of his more basic assumption still, that the "I believe" button was there to be pushed at all, so close to the point where his personal knowledge ran out? That if he didn't know something, it was something he could legitimately fill in with "belief" rather than simply saying he didn't know? Clearly he thought he could. For me, leaving a blank of "I don't know; maybe others do" is a legitimate way to proceed. Is this in turn merely my own "belief" that counters his "belief"? Or is it something of a higher order? Does it matter that he went back to lifting unfazed? I didn't convince him; in fact I couldn't even try. What are the implications of practical defeat on theoretical victory? In the narrow terms of the current creationism debate, these questions take forms like the following: Is evolution merely a "theory"? If a scientific conclusion contradicts what a religion teaches, how can it be true? If two

people have two points of view, how can one point of view trump the other? Or it is merely one person trumping the other?

What is the role of belief in the world? Does it have to be justified by analysis or does it transcend analysis? Are we allowed to press the “I believe” button whenever we want – here on the issue of the reasons for which one can develop skin cancer, elsewhere on the creation of the world? Is there any objective criterion for saying what is the appropriate point at which belief puts an end to analysis?

Here’s the answer to the last question: No. Asking for justification, or being willing to listen to it, is to presuppose that the game of interaction with another person isn’t over. It’s the quintessential scientific response. The nature of “belief,” by contrast, is to declare the game over. There’s no way to negotiate with someone who doesn’t want to continue the game. Negotiating is precisely the game the person is no longer willing to play.

The person who wanted to continue to discuss something after I had pressed the “I believe” button would probably say he or she did not wish just to “discuss” but to “discuss rationally,” as if achieving belief were not a rational act. So let’s ask: Is it irrational to turn off the machinery of what we call “rationality,” the apparatus of evidence and proof that is the mainstay of the scientific enterprise? There’s no way to get both sides to agree on the answer to this. Moving outside a specific way of doing things is always something adherents of that way will resist, and something an external viewpoint can do easily. That, after all, is what it means to be outside. “You can’t do that!” the one interested in continuing the conversation rationally will insist. “Watch me,” says the believer, as s/he walks away.

In fact, we can live with our finger pressed down all the time on the “I believe” button. We can “believe” that our breakfast cereal turns to Kryptonite when we eat it, that if we walk in front of cars we will not be killed, and that God cares if our team wins the Big Game. The arguments against beginning belief at any given point are always offered from the point of view of those opposing belief, or, more usually, opposed to pressing the “I believe” button *at that point*. They’ll try to (as they’d say) warn us: you’ll get run over; cereal is cereal, and Kryptonite is a comic book substance; God doesn’t care whether your team wins: what would you say when

you lose – that Satan had his way? (This last is the question behind Voltaire’s mordant satire on belief, *Candide*.) Negative experiences (say, being run over) can cause us to revise the point at which we push the “I believe” button. But they need not cause us to call into question the act of pressing it.

Most conflicts arise not over whether it’s *ever* legitimate to press the “I believe” button, but over whether it should be done right here, right now. Even scientists agree people may press the “I believe” button when they reach beyond the boundary of the most current available explanation. Yet typically the same scientists are firmly opposed to people pushing the button at earlier points, such as the point of “we will win this football game because God is on our side” or “I believe that Adam and Eve were the first people.” They want the space cleared for what they do; those who press the “I believe” button earlier aren’t interested in clearing that space.

To me, it seemed that my marine had pushed the “I believe” button too soon, and that his doing so was something that needed to be justified. And so I raised objections.

The most startling quality of what I heard was that apparently, for the captain, the boundary of belief began at the edge of the immediately known. This is the earliest possible place that belief can begin, but the decision to let it begin here is not one that belief itself can legislate. Deciding when to cross the line into the territory of belief is like walking a narrow path on the edge of a cliff: we can step off at any point. What’s up for grabs is whether we do so earlier or later, or at all. But at whatever point we do it, assuming we do, the step off feels the same.

It’s clear why people are drawn to belief. It stops the game of interaction with others, those others asking you to justify, generalize, distance yourself, test. And that means you cease interaction with other people – you don’t have to be open to their objections. Instead, you can merely believe and carry on. Others cease to matter; you believe what you believe. The defining quality of “belief” is that it’s something completely within the power of the single person.

Religion isn’t the only complex of ideas to invoke belief, but it’s one of the most developed. Other people don’t enter into the equation, except tangentially. Religion is typically all about the believer’s purity or salvation, not that of others. Thus religion

would be foolish to allow too much of the scientific viewpoint to enter into it, which insists that people can't ever simply stick to their beliefs: they have to constantly subject them to questions.

People operating on the basis of beliefs can, of course, interact with others regarding their beliefs. We can explain why we push the "I believe" button, and when. But pushing the button itself is not something that need be, or can be, justified: justification comes before the pushing, not after. The person who steps off the edge can only be reasoned with before, not after. Reason is the language of the solid land, which is to say, of other people.

Sometimes we confuse the scientific viewpoint with a demand for proof, as if no one but scientific types understood the notion of proof. But what's scientific about this is not the way of thinking, it's the space allowed for possible disproof, and the number of people allowed to operate within that space. In scientific thinking, the space is much larger, possibly infinite. This makes certainty difficult, and qualified.

Still, my marine wasn't being irrational: he was reasoning by the same rules as I was in saying that his father's situation contradicted what he'd heard about the effects of exposure to the sun. The problem, for me, wasn't the way he was reasoning, but the fact that he stopped his reasoning with what he knew, without throwing open the question to others who might know different things. The captain could change his views based on what he experienced personally, but he had not moved on to the notion of a public court of appeals that decided such things. For him, belief started on the other side of personal experience. For me, it starts a long way beyond that, if at all.

Everyone understands disproof, but people who frequently invoke "belief" tend to understand disproof as being based on things they're already aware of. What's in the corral is what's in the corral; that's what you deal with. In science, people are always scouting for new things in the corral. This makes it difficult to wrap things up. Scientific thinking asks us to go out of our way to subject what we say to the withering fire not only of other people, but of other situations. We put off belief for as long as possible.

Asserting a belief that frogs are the highest life form is not, for example, intrinsically illogical. Asserting a belief that "life begins at conception" is not illogical. Indeed, as Wittgenstein suggested

in the *Tractatus*, it's unclear what it means to call something illogical. If we've postulated things so fundamental they underlie all thought, like logic, then we never contravene these patterns; our mistakes, if such they be, must lie elsewhere. What scientific thought does is say, I know you want to conclude x or y , but don't. Not just yet. Not until you've taken all humanly possible steps not to conclude it. Science isn't reason itself, something underlying the world; it's a specific way of proceeding.

Belief gives us immense personal power: no one can contradict us. We feel secure. This is precisely the assumption that the scientific viewpoint makes impossible. The scientific point of view demands that we say, once our personal knowledge has been exhausted, "I don't know. What does the rest of the world know about this?" What it's aiming at is the establishment of something outside all people by taking into account the data produced by all. Relative security isn't impossible in science, of course, and it's sometimes this that scientific types emphasize. But it comes at the end of a laborious process of public proof and disproof. And even then, as the philosopher Karl Popper pointed out, you're never 100 percent sure it won't be disproved at some point.

Many scientists have yelped over this point of Popper's. Perhaps Popper, by saying that scientific theses simply hadn't yet been disproved, appeared to say it was likely they would be, that there was no difference between a thesis that had proved itself by being subjected to public scrutiny (where disproof, while not impossible, is at any rate unlikely) and one that was newly proposed. The probability narrows to close to zero that a thesis that many people have taken swats at for a long time will one day be shown to have been wrong. But it's never zero. That's Popper's point.

The person who pushes the "I believe" button does achieve certainty: it's 100 percent certainty because that's the goal, the point of pushing the button. It's not true, as scientists usually say, that we need to subject ourselves to this laborious and theoretically eternal agon with other people to achieve something like certainty. We can get it without others, far more simply, and have it be more absolute. By saying that only science produces "objective truth," all science does is to state the obvious: what science produces is what science produces. This doesn't determine whether others might not rather have something else, such as what belief

produces. When a believer talks with a scientist, it is always a dialogue of the deaf.

To make things more complex still, science involves other subjectivities (people) in a process that establishes what it calls objective, apersonal, truth. How can many subjectivities produce an objectivity? For the scientist, the fact that something started as somebody's view is irrelevant: it's been shown to be objective truth. For someone who accepts the jump to an objective world, denying that this jump is a jump to a new thing seems ludicrous. It's not that the subjectivity of these reporters' viewpoints counts for anything intrinsically, they say. This is simply the means to establishing what's true.

But you either accept that this jump is made, or you don't. Someone who insists that "everything is subjective" can't be convinced that this is untrue. It's not necessary to move to this next step; we can be left with a plethora of competing subjective viewpoints, something many humanities and social scientists in recent decades have insisted on. The alternative is the view, by and large, of scientists. According to those who do science, you solicit the input of other subjectivities in order to establish an objectivity. Accepting the scientific point of view means accepting the connection of these two things, the subjective world of people presenting data, and the objective world that can be deduced by comparing them. For the scientific point of view, what unifies the subjective with the objective is that both reliance on other people and the postulate of an external manifold present alternatives to pushing the "I believe" button, whose presupposition is the self-sufficiency of the individual.

Scientific thought tells the individual that his or her way of seeing things is irrelevant. It's understandable that this is not what people want to hear. We want to hear that our own way of seeing things is important. For an individual, say the marine, what happened to his own father should be very important. Scientific thought says: This may be important at a personal level, but it's irrelevant at a scientific level. From the point of view of science, your father is just an x like any other — a skin, probably, in this example. The fact that he's your father doesn't count.

For this reason, the scientific viewpoint is profoundly antipathetic to most people. It's not a natural thing. Scientific thinking

is a learned skill, something that has to be practiced continually if it's to be kept alive – assuming we want it to be. It goes against the way we as individuals see the world, because it denies us the ability to be sure about things, given that certainty in science is always a goal put off for as long as possible and hesitantly accepted.

The alternative is to see certainty as a postulate, something that can be attained as easily as asserting it, by reaching out hands for it. This is what most people want to do. Indeed, it's what all of us do to a certain extent, regardless of whether we're people of faith or people of science: nobody is completely one or the other.

Scientific types have by and large failed to acknowledge properly the disadvantages of their enterprise, and so make themselves sitting ducks for believers, who point out that belief has advantages that science lacks. Typically scientists are caught within the loop of insisting that only science produces objective truth: this is circular because it implies that there is no viable alternative to objective truth. And there is. It's belief.

Science needs to argue for the advantages of adopting the scientific viewpoint, and show that these outweigh the disadvantages, not carry on as if it should be clear to all that science is superior to belief. The two are simply two different ways of cutting a cake that cannot, by definition, be further defined: we make a decision to use either a scientific or a belief definition if we go further.

The chief disadvantage of science is that this is not the way most of us conduct our lives. Indeed, if we are ever to stride purposefully forward without being afraid of our own shadows, we must simply believe: that the floor won't give way, that our legs will function the way that they did yesterday, that we won't cause a bomb to go off by walking, and so on. Even "scientific" people are only so for small portions of their lives. For the rest, to the extent that we manage to be self-sufficient, belief is the filler that takes over fairly quickly after we list the things we know.

Belief is the inescapable membrane that shrink-wraps our lives: it's what happens around every moment and all our actions taken as a cumulative whole. We can put off postulating the membrane for a long while in any specific case, while we insist on doing things the scientific way, but for any given individual, an infinitely greater proportion of his or her life is run on the basis of belief.

Belief is what's waiting for us when we stop questioning. This is the gist of what Descartes concluded, after many more steps, in the *Meditations*, and it's the center of Hume's realization that we believe the sun will rise tomorrow because we see no reason why it shouldn't.

Science is a process that's invoked when we question belief. Apparent conflicts of science and belief always work in this order: first Belief A is posed; then comes a scientific challenge, followed by the defensiveness of the belief reasserting itself, which we can call Belief A'. Belief A might be something like: the earth was created six thousand years ago with just the animals it now has. The scientific challenge is: the earth seems much older and there are traces of many animals that no longer exist. Belief A' would therefore be: it is *too* six thousand years old and has always been the way it is.

This is the case where belief is foregrounded enough to take center stage. Belief A', the self-conscious version of Belief A, is always at a disadvantage. But all of life is permeated with versions of Belief A that are never challenged: even those who adopt the scientific explanation of this particular case can never do without things of the type of Belief A.

We might call Belief A passive belief – it's so ingrained we aren't even aware of it. Hume's genius was to see that things of the sort of Belief A are always waiting in the wings to take over at the end of all scientific explanation. But this doesn't mean that they're things of the sort of Belief A'. They don't substitute for science, they retreat until science is finished. When we focus on the conflict between belief and science, it's always by definition things of the sort of Belief A' we're talking about. It's science that turns Belief A into Belief A' by challenging it. Maybe (Hume's example) the sun won't rise tomorrow – but if not, the reason will be that the earth has stopped spinning, or the sun has gone cold.

The crux of the conflict between belief and science is the role played for each by other people. Whether we include others or not at the most basic level of our worldview, we're always revising what we believe. Let's say that Martha, whom we'd thought a nice girl, does something that's not nice. So we decide Martha isn't a nice girl, or that she is but that this one time when she seemed not nice, she was provoked. This doesn't launch us into a conflict of

science and belief; we simply revise what we say and go on. If there's no disproof, it's not called into question. You can believe it. And disproof means disproof that you're aware of or are willing to accept. You get to decide what you're willing to accept.

Other people's views matter to a scientific viewpoint; they don't to one that insists on the primacy of belief. You can push the "I believe" button immediately, but if you do so, you limit severely the number of people you'll have in your corner. If this doesn't matter to you, there's no reason not to do it.

Most of us, at some point, think other people matter. At this point we accept the scientific viewpoint. Religion is right to say that science is secular: it makes us think of the here and now. Someone who insists on living in his or her own world of belief can, in theory, never be pulled from that world. Science tries by providing a forum for the points of view of other people. It's an edgy, uncertain world. Much better in some ways merely to say what is and stick to it.

All of us live our lives based on passive belief: the net of things we hold to be true because they seem to be and we have no reason to question them. This is not a bad thing. The problems arise with active belief, when we reassert a passive belief in the face of counterevidence.

We want to do this because it gives us power: nothing can shake my worldview! But this denies others. And those who use active belief to create a world they can control are always liable to being blind-sided. Their worlds can be more utterly destroyed than the world of someone who asks for continuous outside information and deals with it as it comes across the transom.

Active belief to buttress a passive one allows us to eliminate change in our worldview. But it doesn't eliminate change to the world outside. So if we reject the world by claiming active belief, we quickly find ourselves like an ice floe drifting farther and farther out into the water. Our world may remain coherent, but it's only ours.