

## Chapter One

### Why Leave Life's Persistent Questions to Guy Noir?

“A dark night in a city that knows how to keep its secrets...but on the twelfth floor of the Acme Building, one man is still trying to find the answers to life's persistent questions...Guy Noir, Private Eye”

If you are not an American, you won't get the reference to Guy Noir. Even if you are, you may not ever have heard the words spoken on the radio. They are the opening line from a segment of a long running program on NPR, National Public Radio, the US listener-supported (and slightly government supported—in spite of Republican “misgivings”) radio network for serious people. The program is called *A Prairie Home Companion*, and it's one of the few entertainment offerings on that otherwise news-oriented network. The odd thing about this program is not that it is popular, but that anyone listens to it at all. After all, *A Prairie Home Companion* is designed to sound like Midwestern radio from the 1930s. It originates in the super-sophisticated mid-western state capital, St. Paul, Minnesota. But NPR is a bi-coastal institution if ever there was one. Listeners are the sort of Americans—academics, professionals, the educated urban elite—for whom everything between the Rockies and the Appalachian Mountains is “fly-over country.”

So, why would any urban sophisticate bother listening to a radio show from the heart of fly-over country? It's because *A Prairie Home Companion*'s writer/host Garrison Keller allows them to feel good while making them feel guilty. Guilty that they no longer read serious novelists, still less Soren Kierkegaard, guilty that they don't go to church any more. Americans who listen to *Prairie Home Companion* like to feel just a little guilty. It's cathartic.

Each week Keillor narrates a story about a private detective from St. Paul, Minnesota, Guy Noir, who is supposed to conger up visions of film actors like Sterling Hayden, or John Garfield, the tough-guy actors whose hearts of gold got them blacklisted as Hollywood fellow-travelers who would not name names—that's essential). Guy Noir,

like any late 1940s detective played by a socially conscious actor, is going to have lots of persistent questions—questions about God, immortality, and immorality (not the same things). And of course in Keillor's radio stories the detective is almost immediately distracted from the persistent questions by a beautiful client in a tight black cocktail dress.

Keillor isn't really interested in answering these questions. He knows that raising them is just enough to provoke a pang of guilt, just strong enough to get his listeners to do two things: contribute to NPR and turn on his show the next week.

But it's probably a good thing he doesn't devote Guy Noir's attention to the persistent questions for very long. After all, why should we expect the right answers to life's persistent questions from a detective caught in a 1940s time-warp who can't break into the NY or LA big time.

This book will do the work Guy Noir isn't equipped to deliver! It will answer the persistent questions for the educated American sophisticates who get their weekly supply of guilt from *A Prairie Home Companion*. It turns out that the answers are pretty rough! The reader who sticks with it will learn that there is no god, no soul, no afterlife, no purpose to the universe, no meaning to life, no right and no wrong, and no reason to take our conscious life very seriously at all. This may be just what some NPR listeners always suspected (the suspicion is unavoidable if all you listen to is the news!), but were afraid even to reveal to each other. The answers to life's persistent questions look scary. But they offer two consolations to those who can stomach the truth. First, to a clear eyed person reality would be even harder to look in the eye if it were governed by the God of the western religions—all three of them, or for that matter Hinduism's 300 or so gods. Any thinking person who lived through even a part of the short 20th century—1914-1989—should certainly be relieved to know that no deity was in charge. Second, if you can really get yourself to accept all these answers, you may be slightly happier than you would have been otherwise. You'll have answers the next time you look up at the ceiling on sleepless night, and it will be a lot harder for anyone to guilt-you out. You'll have something both provocative and true to say every time some one wants to sound erudite by raising one of the persistent questions when you just want to have a good time. You

may even have a comeback to Jehovah's Witnesses, Mormon Missionaries, Scientologists, or even Unitarians who find themselves on your doorstep (if you can remember anything at all at that fantastically inconvenient moment they pick to ring your doorbell).

If you are an American who never listens to NPR, still less one of its entertainment offerings," this book is probably not for you. Either your version of reality is impenetrably sugar coated, and you've already had all your persistent questions answered by your pastor, boy-scout leader or local Republican politician (could be that all three have been rolled into one convenient package). If you are not an American, you may not need this book for quite a different reason. You may already have seen reality for what it really is. Lucky for me, either way, you probably won't return the book to the store where you purchased it. If you are a European or Asian, you know what Americans don't know: how hard it is anywhere else in the world to return something to the store if it wasn't obviously broken before purchase. "Customer service" is an American label for an American concept. So, although you are less troubled by life's persistent questions than most Americans, I hope to be able to convince you to keep the book and "read at it" when your American friends' questions become too persistent

Most everyone seems to know what life's persistent questions are, and almost everyone seems interested in answering them at one time or another, starting back sometime in our childhood, when the lights were turned out, and we found ourselves staring at the ceiling unable to sleep.

At moments like these almost every kid turns to the question, "Is there a God?" and, "If there is one, how can He come in three different distinct flavors?" The only exceptions are the dyslexic amnesiacs who stay up nights wondering whether a dog exists.

Then there is the question, "Why am I here?" And if it was a Sunday night after church there is the question, "How can the father, son and holy ghost be one?" There are lots of others we'll get to. As time goes on, thinking about sex increasingly pushes these thoughts out of adolescent minds. This is fortunate. Otherwise there would be an even greater oversupply of philosophy and divinity students than there is of English majors.

But the questions keep coming back, all too often right after sex.

The persistent questions that bothered me as I stared at the ceiling after the lights were turned off may be the same ones you have been entertaining in periods of insomnia. Besides “Is there is a God,” everyone’s favorite, there are lots of other persistent questions. What is the nature of reality? What is the purpose of the universe? Does life, human or otherwise, have any meaning? Why are we here—each of us, or the whole species for that matter? Does history really teach us any lessons? Is there a soul? Is it immortal? What happens when we die? What about free will? Is there a will at all? Does it have to go through probate? That last one may keep you up nights but doesn’t really count as persistent unless an apartment in Manhattan is at stake.

Some people are troubled by immorality almost as much as they are by immortality. (Did you have to read that sentence twice?) Not as many are troubled by it as we might like, perhaps, but almost everyone wants to know the nature of right and wrong, good and evil, why we should be moral, and whether abortion, euthanasia, cloning, or having fun, is wrong, permissible, or sometimes obligatory.

This book aims to provide the true answers to most of these questions, and to explain enough about reality so that, as the old textbooks used to say, answers to all the rest of the questions “can be left as an exercise to the reader.” If my aims were more ambitious I would try to answer really hard questions like Why does the toast always fall butter-side down?

Here is a list of some of the “short-answer” questions that the rest of this book provides the right answers to, along with the short answers. Given what we know from the sciences, the answers are all pretty obvious. The interesting thing is to recognize how totally unavoidable they are, provided you repose any confidence in science to provide the full answers to them.

What is the nature of reality? What physics says it is.

Does God exist? No.

What is the purpose of the universe? There is none.

What is the meaning of life? Ditto.

Why am I here? Just dumb luck.

Does prayer work? Of course not.

Is there a soul? Is it immortal? Are you kidding?

Is there free will? Not a chance!

What happens when we die? Everything pretty much goes on as before, except us.

What is the difference between right and wrong, good and bad? There is no moral difference between them.

Why should I be moral? Because it makes you feel better than being immoral.

Is abortion, euthanasia, suicide, paying taxes, foreign aid, or anything else you don't like forbidden, permissible, or sometimes obligatory? Anything goes.

What is love, and how can I find it? Love is the solution to a strategic interaction problem. Don't look for it, it will find you when you need it.

In the rest of this book we'll see that if you really buy into that part of science which is pretty well fixed and not likely to be revised by even the most radical new discoveries in physics or biology, the short answers to the short-answer questions are all quite simple and quite simply right. The hard part is understanding the science that makes the answers so simple and so irrefutable.

The one issue not addressed directly here is the very first one: Is there a God? This is a book for those who already know the correct answer to that one. We will take the best reasons for atheism and show what else they commit the atheist to believing. There are compelling reasons to deny God's existence. Those reasons don't just support a negative conclusion: no God, end of story. They also provide everything we need to answer all other questions that inevitably come along with the God-question. So, this book answers all the persistent questions that seem to be still left open once we have reasons to conclude that there is no God. Why not aim for completeness, and answer the God-question too?

There are many reasons for not actually taking up the question, does God exist? Here are three good ones. First of all, lots of people have been there and done that, so many that most professional atheists long ago began to repeat their own and other people's arguments. There is no need for another atheist tract, especially after *The God*

*Delusion, Letter to a Christian Nation, and God is not Great.* In fact, we really haven't needed one since Hume's *Dialogues Concerning Natural Religion* was first published, 3 years after his death in 1779.

Second reason: atheists' tracts don't work! Everyone knows what's wrong with the standard arguments for God's existence. Everyone knows the decisive negative arguments against God's existence by heart. We also know that the failure of their positive arguments and the force of the negative arguments just don't move the theist. Their motives for believing in God trump the reasons they have (along with the rest of us) for disbelieving in God. They know the arguments as well as we do, and still they believe. Theists abound in spite of the evidence plain as the noses on all of our faces. (Some noses are by themselves good arguments against God's existence.) We are not going to convince them. Let's not bother.

The third reason we won't bother to refute theism is that we have better and more interesting things to do! Like figuring out exactly what we ought to believe about reality. Exactly what should our answers to the rest of the persistent questions be, once we give up God's existence? (Another persistent question for atheists: Why do we capitalize 'God'?) Once a person has become an atheist a lot of the questions become even more persistent than they were for the theist. After all, theists can just trust in God. But "what, me worry?" is not a stopping point for us atheists.

Warning: there will now be a brief digression about labels. If you have never been comfortable with 'atheist' as a name for your "world view" read on. You are not alone. If the label does not trouble you, skip the next nine paragraphs which introduce two new names—serviceable but still not exactly right—for what we believe.

The real problem for atheists is not really a matter of what to believe. The real problem is finding the right label for what we believe, a label that conveys something positive and attractive, instead of a term that just expresses the negation of those beliefs most sacred to the credulous. Atheists have always faced a public relations problem, especially in the United States. Most unsophisticated Americans won't trust them. That's one reason why no elected official higher than Pete Stark, the US congressional representative from San Francisco—hotbed of Christian fundamentalism—has ever

admitted to atheism. (He did it because an atheist group offered a \$1000 reward to the highest-ranking elected office in the country willing to own up to atheism. How much of a bribe would you have needed to go public?).

In recent years a movement of atheists has begun to try to come to grips with the public relations problem—by finding a new label for atheists. Atheists, they argue, should call themselves “Brights.” The strategy is to adopt the labeling model so successfully employed by homosexuals who sought a positive image and obviously found the right label for themselves by stealing the word ‘gay’ from all the straight people. Just as cleverly, they co-opted ‘straight’ for us non-gay people, so we could adopt their label without admitting to being depressed, discouraged, sad, unhappy, upset, or worried. Likewise, it’s been argued, atheists should appropriate the word ‘bright’ with its connotations of intelligence and, even more important, enlightenment—after the 18th century period also known as the Age of Reason in which the natural sciences and scientific philosophy flourished in Europe before being eclipsed by Romanticism. Many of the most important thinkers of that period were atheists, and some even out of the closet disbelievers. The contrast of course can’t be ‘dim,’ still less ‘dumb’ or ‘dark.’ So, some Brights advocate ‘Super’ as a label for people who reject their views—Super for ‘supernaturalist’, though one might equally suspect that Brights had superstition in mind when they coined the label for believers.

Of course there is now a Brights movement web site and a *Wikipedia* article too. The movement seeks to be inclusive and certainly has no litmus test for membership. You don’t even have to pledge atheism. Brights are willing to accept people who prefer labels like naturalist, humanist, objectivist (presumably not of the Ayn Rand variety), rationalist (a 20th century British self-label for atheists), and even agnostics! All they really have to accept is a scientific “epistemology”—a way of learning about the world that relies on experiment and observation.

But the label ‘Bright’ has some obvious limitations. It’s precious and just too self-congratulatory. In that respect it may be like ‘gay’, a label some homosexuals refused to adopt at first because they thought it a campy or frivolous term for a movement, a sexual orientation, a minority group, that had been subject to at least a hundred years of open repression, injustice and hatred that reached its high point in the Nazi holocaust, and

didn't recede for two generations after that. The militants' reaction to 'gay' was to begin calling themselves 'queer.' To make their point even more strongly they began calling the related field of serious academic study 'queer-theory' just because that term had originally been coined as a term of abuse.

Atheists unhappy with "Bright" either because they are down on the Enlightenment or worried that the label will be used against them (us), may want to take a page out of the queer's book. Here's a word long used by Supers, theists, and other mystery-mongers against us: "Scientism"—noun, "scientific"—adjective. "Scientistic" has two related meanings, both of them pejorative. According to one of these meanings, "scientism" names the improper or mistaken application of scientific methods or findings outside their proper domain, especially to questions treated by humanities and social studies. The second meaning is more common: "scientism" is the exaggerated confidence in the methods and findings of science as either the most reliable tools of inquiry and the most well-founded results of inquiry, or the only reliable methods and the only objective conclusions. These are definitely terms of abuse. They are not to be confused with 'scientology' of course—the nitwit religion invented for fun and profit by L. Ron Hubbard and sold by him for several million dollars. Equally, 'scientific' shouldn't be confused with 'scientific' since the latter is hardly a term of abuse (except in Evangelical churches).

If we are unhappy with "atheist," because it defines us by what we do not believe, and uncomfortable with 'Bright' because it's too cute or too clever by half, we can follow the queer-theorists and try to take 'scientism' away from our opponents. We have at least one good reason for trying.

"Scientism" is pejorative label given to our positive view by those who really want to have their theistic cake and dine at the table of science's bounties too. Basically, being scientific is applying science's methods to anything that they—the Supers—want to protect from serious scrutiny employing empirical methods proved reliable in science. Scientism names any conclusion that favors a scientific conclusion when it is incompatible with a nonscientific one. Opponents of scientism would never charge their cardiologists or auto mechanics or software engineers with "scientism" when their health, travel plans or web-surfing are in danger. But subject their mores and emotions, their

music or metaphysics, their literary theories or politics to scientific scrutiny, and the immediate response is “scientism.” This charge is unburdened by any real scientific understanding except in the case of a few scientists eager to subordinate their disciplines to religion and so prepared to misrepresent it. In a few pages we’ll see why a few scientists are prepared to accuse atheists with scientism and why even more are prepared to remain silent while they do so. The one really important difference that divides those who accept science’s methods and findings as the right ones and those who accuse them of puerile “scientism” is this: all of those guilty of scientism are scientifically literate and they understand what science tells us about reality. Only a few of the opponents of scientism can make this claim, and their defense of religion or history or ethics or the arts from the depredations of science is either unnecessary or special pleading or a double standard.

The only drawback to taking the word “scientistic” away from these people with no right to claim the authority of science against “scientism” is that “scientism” does not lend itself to a good noun: if we are going to be scientistic, we can hardly call ourselves “scientists.” “Scientistic-ists” and “scientism-ists” are barbarisms! The only thing we can do is use the adjective “scientistic” as the abbreviation for the noun phrase “scientistic” person, or people, or more informally folks.

So, in the pages to follow we won't use the word “Bright” as a variant on atheist. But we’ll call the world view all us Brights and atheists and even some agnostics share “scientism”—the conviction that the methods of science are the only reliable ways to secure knowledge of anything, and that science’s description of the world is both correct in its fundamentals and when complete will not be surprising. We’ll often use the adjective ‘scientistic’ to name the approaches, theories, epistemologies, and accounts of the nature or reality that the sciences share. No one needs to hide their unhappiness or discomfort with the pejorative connotations of ‘scientism.’ Maybe the quickest way to deprive these two terms of their negative associations is to use them.

Back to the persistent questions. It’s pretty obvious that everyone is at least sometimes really troubled by these questions. Most Americans place these questions in the hands of their pastors, and try not to trouble themselves much further. Before the mid

20th century this was also true almost everywhere else in the world.

Depositing the persistent questions with your priest, vicar, imam or rabbi never works. The questions persist. In America every year you can always find a new best selling book devoted to answering these questions, usually in the Christian book stores. They are published by people eager to make a buck on the combination of gullibility and anxiety that Americans seem to have to so much greater a degree than others. A good example of the sort of book I mean is *The Purpose Driven Life*, by a now very rich preacher who provides the pat Christian answer to the persistent questions. These answers, and their packaging, have made organized religion the most successful long-term growth industry in America since before the republic was founded. The fact that there is a market for a new Christian “self-help” book every year shows that the pat answers don’t really scratch the itch of the persistent questions.

There are two differences between the real answers to the persistent questions and the ones religion keeps trying to get people to buy into. First the right answers that science provides are not particularly warm and fuzzy. Second, once you understand them, they stick. You are unlikely to give them up, so long as you insist on governing your beliefs by evidence.

There is one persistent question I admit science doesn’t have the answer to yet: why is it that Americans go to church at about ten times the frequency of other western people, who share their languages, religious histories, and culture? Americans must be far more interested in their pastors’ answers to the persistent questions than British, Irish, French, Germans, Spanish, or Italians, even though these people get pretty much the same answers from their vicars and priests, reverends and divines in all these other countries. Why is that? It’s one of my most difficult problems. Compared to this one, the question, “Is there a God” is practically a “no-brainer.” Why do Americans go to church with three times the frequency of the French, four times the frequency of the Brits, and at least seven times that of the Australians (who are really more like Americans than even Canadians are!). The answer can’t be anything simple like lack of education, affluence, or ethnicity. Americans are richer on average. Far more Americans go to university than citizens of these other countries. And the ethnicities of American church-goers are

heavily European. The best guess about why Americans are more religious than Europeans has to do with the other big difference between the US and Europe: economic inequality. Data shows that between countries and within countries, the more income inequality there is, the weaker the social safety net, the greater the concentrations of wealth and power, the stronger is the religious observance of the less well off. This seems to be true in Christian, Muslim, and Hindu communities within countries and to be true between countries around the world. Since the US is a country with considerably greater inequalities of wealth and income than European countries and a considerably weaker social safety net, the US has a lot more religious people. We can leave it to the reader to figure out why being poor and powerless leads people to pray.

There is however, one large swath of Americans who are pretty much like Europeans, Canadians, Australians and New Zealanders. One set of Americans are not at all likely to think that religion has the answers to life's persistent questions. This slice of American life is not regional, ethnic, cultural, or linguistic. It's American scientists, who are pretty much like scientists and other educated people everywhere else. Along with being scientific, they are also mostly scientistic (we'll probably need practice to recognize the subtle difference there. It's like the difference between immortal and immoral.) The trouble is they have huge incentives not to say so.

Scientism insists that the right answers to life's persistent questions are given by science and grounded in evidence. They are not given by religion and they are not grounded in wishful thinking. But the right answers are rarely given by *scientists*. There are a lot of reasons scientists are not going to admit to the answers to the persistent questions that their sciences actually provide.

Most scientists have a vested interest in not giving the answers that their science provides to these questions.

If they know what's good for them, and scientists usually do, they won't touch the persistent questions with a ten-meter pole. Science's answers to the persistent questions are so distressing, not to say scary, to most people, that scientists risk loss of public support by actually giving the answers to these questions that their science provides. Even the scientists so distinguished that they have been elected to the US National

Academy of Sciences are unwilling to say out loud what science really teaches about the right answers to the persistent questions.

About a hundred years ago people began surveying the religious beliefs of the most distinguished American scientists. Even in the first survey back in 1914, a majority were atheists. A second survey in the thirties showed that the number had increased. Today, the proportion of members of the National Academy of Sciences who admit to being atheists is about 75%. Almost all the rest say they are agnostics. [“Leading scientists still reject God,” *Nature*, Vol. 394, No. 6691, p. 313 (1998)]. Is it a sheer coincidence that the best scientists—the ones chosen by other scientists to be members of the National Academy owing to their distinction in science—are almost entirely without religious belief? There are about 400 members of the National Academy. The proportion of atheists and agnostics in the general population of the US is below 5%. What are the chances a random sample of 400 people will find 99% of them to be atheists or agnostics? No chance! This difference can’t be an accident. There has got to be a causal connection between understanding science best and believing science’s answers to the persistent questions, instead of, say, religion’s. And yet what does the National Academy of Sciences do? They publish books and pamphlets stressing the compatibility of science and religion. They tell us there is no need to choose between them, science and religion just don’t compete, either in the questions they address or the answers they provide [[http://www.nap.edu/catalog.php?record\\_id=11876#](http://www.nap.edu/catalog.php?record_id=11876#)]. You could certainly be pardoned for thinking that the NAS is just being “politic” (that’s polite for ‘hypocritical’), protecting science from Evangelical congressional budget cutters. Actually, it’s a wonder that any scientist owns up to the answers science gives to the persistent questions, given how much it is against their interests to do so. None really want to bite the hand of the American taxpayer, since it’s the one that feeds their science.

Of course there are a few scientists, even among the National Academy members, who sincerely believe that science either doesn’t answer any of life’s persistent questions, or that if it ever could, scientists don’t yet know enough yet to say what the answers are. There are even a few scientists (the 1% in the *Nature* study) who think that the answers science gives or will ultimately give to these questions really don’t compete with the answers religion gives to them. One of them, Francis Collins, even got selected to replace

a well-known militant atheist as director of the US National Human Genome Research Institute. He later wrote a best seller that sought to reconcile science and Christianity that didn't hurt him with the US Senate when Obama chose him to be director of the National Institutes of Health. Hardly any of the scientists who chose him agreed with Collins about science and religion. But they knew enough about what was good for them and their science to do so.

There is another reason most scientists are unwilling to give voice to the answers science provides for the persistent questions. As it is, scientists have to stick their necks out all the time. That is the nature of science—answer a question and right away other scientists will try to prove you wrong. When they don't need to take sides on an issue, especially one outside their very narrow area of great expertise, scientists don't. It's because they are specialists that scientists recognize how complex their own sciences are, how little outsiders really know about them, and so how little they themselves must know about other sciences! Now, when you think about it, all of the persistent questions are beyond the specific expertise of almost every individual scientist. That's because in most cases science's answers to life's persistent questions span more than one subdiscipline and sometimes span even whole scientific disciplines—like physics or biology. So there is no single scientist, or even working group of them, whose research agenda includes the persistent questions. Why take sides if advancing their own narrow body of knowledge doesn't require them to? You will never get into the US National Academy of Sciences that way! “It's not my department, ” or “That's above my pay-grade” is often a wise policy in science.

Here's still a third reason for scientists' reticence about the persistent questions: science is both fallible and self-correcting; that's its strength. The very idea of science settling matters *once and for all* may seem troubling to scientists, because of the healthy skepticism about theorizing that is bred into good scientists, and because of the acceptance of fallibility so essential to scientific advance. Defenders of religion delight in exploiting the admirable modesty of science to mislead the credulous about what scientists can be absolutely confident about.

But the fact is, for all the fallibility of theorizing at the current frontiers of science, and for all the healthy skepticism about what the latest as yet unreplicated

experiment shows, most of the fundamentals of all the natural sciences are pretty well fixed. Just compare any two textbooks in any branch of physics, chemistry or biology. They will all be interchangeable, and studying any one of the textbooks will enable you to solve the problems at the back of chapter of the others. That's because the broad outlines of the nature of reality are really very well understood, and nothing is likely to shake science's confidence in its textbook theories at all. In the next chapter we'll see that for all the controversies about Superstring theory and the difficulty of unifying quantum mechanics and general relativity, there is really perfect agreement among all physical theories about the matters that are relevant to life's persistent questions. And the same goes for chemistry and biology. Of course it's that last one, biology, that is most relevant to the persistent questions. But here too, the jury is in on everything that we need to answer the questions that keep us up nights. This is why all those members of the US National Academy of Sciences really agree that science leaves no room for religion, even though they won't say so.

The scientific arguments scientists get into are real and important; sometimes established solutions to problems get unraveled by new research, more rarely some questions raised by science are put aside as premature or even politically dangerous to explore. But among scientists—or at least the ones who lead their disciplines, there is really no dispute about the facts that are relevant to our questions. So there is nothing unscientific, or dogmatic, or dangerous to science's need for skepticism in making these facts and their implications known to us atheists. We are not going to feel threatened by them and turn on science as an enemy of illusion. Of course, some Supers are going to want to “shoot the messenger who brings the bad news,” so for science's sake, be careful whom you lend this book to.

There is one discipline which has traditionally had the hubris, the nerve, the chutzpah to address the persistent questions: philosophy. And it has had a fraught relationship with all the sciences since philosophy first started spinning them off in the time of Plato and Euclid—in Athens about 2350 years ago. The relationship between each of the sciences and philosophy is just about as tense that the family relationships most people experience, first as children whose parents refuse to understand them, and then as parents whose children give them no consideration. Just look at the history: in 300

BC geometry left home when Euclid wrote *The Elements*, About 1900 years later it was the turn of physics: Newton and his followers prided themselves on their refusal to speculate when experiment was impossible. Then in the 1700's it was chemistry's turn to give up searching for the philosopher's stone. Finally in 1859 biology left home and started to earn its own living. In the last century or so psychology has been trying to cut the apron strings, and lately it has been making a lot of noise about moving in with biology. Meanwhile the other social and behavioral sciences are still hanging around the house, monopolizing the phone, playing their music too loud, occasionally slamming doors, pretending that they have moved out and set up house-keeping independent of philosophy.

To take the metaphor one last step, it's time for the older children—physics, chemistry and biology—to come home and settle matters once and for all. That's what the scientific among us believe. Letting *science* settle these questions, however, doesn't mean letting *scientists* do so. They will very politely refuse to take sides.

To answer the persistent questions we have to be *scientific*. Just a reminder, that's 'scientific,' not 'scientific' and certainly not 'scientologic.' Being scientific doesn't mean giving up anything we like to do—reading history or literature or even literary criticism—and becoming scientists. We don't even have to be scientific, if that means being dispassionate, objective, unemotional, calculating number-crunchers. Being 'scientific' just means treating science as our guide to reality, to nature—both our own nature and everything else's.

Recall, "scientism" is a term of abuse. It names a slavish, unquestioning confidence in the current fashions, methods, and theories of natural science. The abusive definition of scientism goes on to accuse it of applying physics, chemistry and biology *outside* of their strict domains, to answer all those important questions that can only be answered by religion, or perhaps philosophy, or history, the social studies or the humanities. Opponents say that scientism wrongly disparages all the questions it can't answer as pseudo-questions—ones that make no sense and so require no answer.

The idea of a pseudo-question is pretty clear. Suppose I ask a six year old girl, "Have you stopped beating your wife, answer yes or no?" The right response to this

question is that it has no yes or no answer. It's based on several false presuppositions: that the little girl is married, to a woman, whom she has been beating. Pointing out the false presuppositions shows why the question is unreal and deserves no answer. Scientism holds that when all is said and done, and the sciences are complete, any questions left unanswered will be like this one, a pseudo-question reflecting false assumptions. But there won't be very many of them, and besides all the persistent questions will get answers. None of them are pseudo-questions, though it will turn out lots of them are simple questions, with obvious answers. Moreover, scientism insists that we don't need to wait till science is finished to answer these questions. This is a good thing, since science won't be complete any time soon!

As we said 10 pages back, we should plead guilty as charged to the indictment of scientism. And then we should go on to take the word away and use it for the claim that the natural sciences are fully worthy of the confidence we repose in them. Those who refuse to accept the sciences' answers to the persistent questions raised by philosophy or religion, history or cultural anthropology, or the humanities, either don't understand the answers science gives, or refuse to hear them out, owing to a fear that the sciences' answers might be right.

Opponents of scientism may think that treating some problems as pseudo-questions is just a scientific dodge. It would be a scientific dodge if scientists didn't sooner or later take these questions apart and show what is wrong with them. In fact, science has made a great deal of progress at several points in its history, when scientists realized that one question or another that people thought was real, turned out to be a pseudo-question.

A famous example still taught in physics is the pseudo-question of when two spatially distant events are exactly simultaneous. It was by thinking through this pseudo-question and realizing it had no answer that Einstein came up with the special theory of relativity. Nowadays, psychology is home to a large number of pseudo-questions about the mind, many of them advanced by philosophers as puzzles obstructing the advancement of neuroscience. We will explore some of them in chapters 11 and 12. Like their predecessors in mathematics, physics, chemistry and biology, these pseudo-questions have an important role in focusing the minds of scientists to break through

them in order to advance their disciplines. But they should not be misconstrued as obstacles or objections to scientism. The successes of physics or chemistry alone outweigh all the still-unsolved puzzles about the mind that philosophers or others have ever raised as objections to scientism.

It's also worth remembering that we don't need to unravel all the pseudo-questions at this point. Remember, we are not out to convince Supers and others that scientism is right and they are wrong. Our aim is to make clear for ourselves exactly what positive beliefs we are committed to.

We just need to see for ourselves how science answers life's persistent questions.

There is one really big obstacle to accepting science's answers to life's persistent questions. It's subtle, insidious and purely psychological. It's one that even the most scientific among us have a huge difficulty with. It's not a problem about what the answers are, or what the evidence for them is. It's not even the problem that some people will find the answers scary or threatening. The problem doesn't even look like a problem! It has to do with the way we—educated or uneducated, atheist or theists, agnostics, deists, even most scientists, in fact all human beings—like answers to our questions to be “packaged.”

We are just suckers for a good story. We *Homo sapiens* prefer our information to come in a *narrative* that has a natural starting place, an exciting and, if possible, tension-filled middle, topped off by a satisfying finish. We prefer stories with *plots* that *make sense* of the order of events in the story by revealing their *meanings*—showing how they resulted from the wants and beliefs of the heroes and heroines, villains and by-standers that strut across the story's stage, and showing how the players are rewarded and punished by the outcomes. It's not just that we find stories easy to remember, or that they excite our emotions, or even that they satisfy the psychological itch of curiosity better than anything else. Our attachment to stories is much stronger and more mischievous! When information comes to us any other way, we have trouble understanding it, remembering it, or believing it. When we have a choice between buying into a story versus believing anything that can be expressed as a lab report or a computer program or a mathematical model, we'll take the story every time. Think about humanity's greatest

hits (they also used to be among the Humanities greatest hits, before “the canon” took a hit): *The Odyssey*, *Hamlet*, *War and Peace*, *The Magic Mountain*, great stories, sources of meaning and wisdom because they are stories that move us emotionally.

As we’ll see shortly, there are compelling reasons why this psychological foible of ours—the love of a good story—is unshakeable. But it puts science and therefore scientism beyond the grasp of most people, and even makes it difficult for scientists themselves not to backslide.

Since science is much more like a good argument, more like geometry, than it is a story, like history, we have a hard time following it, understanding it, accepting it, applying it, or even remembering it. It’s mainly because science just can’t be packaged into stories that most people give up on it sometime in secondary school, despite the fact that they have already realized that with a scientific or technical education they will find work more easily, earn a higher income, and be more able to deal with ever-increasing technological demands. Even those who stick with science most frequently prefer biology because it allows at least some scope for stories—natural histories. What is more, the biggest advantage that religion has over science is that its answers to the persistent questions are almost all stories! The Bible is, as the movie title expressed it so well, “The Greatest Story Ever Told,” certainly in terms of copies sold. The human penchant for stories is the greatest barrier to understanding what science actually tells us about reality. It is at the same time the slippery slope down which people slide into religious superstition.

So, to make scientism stick we need to understand and get over this psychological foible of ours that religion exploits. We need to see why, despite their appeal, stories—even true ones—never really convey any deep understanding of anything. They just scratch a psychological itch. If we can ever see why the true stories of history and biography for example, don’t really deliver understanding, it will be apparent why the false stories religion offers can’t do so either. Unfortunately, most people can’t ever get over their hankering for stories. That is what makes scientism such a hard sell. The rest of this chapter starts the process of shaking us free from delusion of stories. But the full cure will call for all the resources of the many of the chapters to come, including

the very last.

Scientism's problem is simple. We are particularly fond of plots: narratives about people and how their motives lead to their actions. That's why "whodunits" were popular long before there were mystery novels. We find the unraveling of human mysteries really satisfying. Nothing else piques most people's curiosity so completely. Nothing else really scratches the itch of nosy inquiry. Tabloid journalism is a tribute to this human universal. And so are most of history, all biography and much of the humanities. In history and the humanities, understanding is the thing that narratives, and only narratives, produce. And narratives are stories that stitch their episodes into plots by tracing people's motives—what they want and what they think is the way to get it.

But real science doesn't come in plotted stories, and especially not narratives about people's plans, stratagems, and how their purposes are accomplished or foiled. So, science is hard for most people, including scientists, to understand, and it doesn't really satisfy the curiosity-itch even when it is accepted.

Not only does science not come packaged in stories; what's worse, real science shows us that the basic processes governing the universe and everything in it have nothing to do with motives, stratagems, and purposes. In science, putting events together, even in the right order, by itself doesn't provide understanding. Nor will science allow us to add motives to these events that turns them into a plot *making sense*. So, science and the human love for stories can't be combined. That makes science hard to understand and scientism hard to accept. But things are even tougher for the scientific world-view. Science is rarely a matter of stories because scientists have discovered that the real processes governing everything that happens in the world are not historical ones at all.

It will take chapter 2 to explain why fundamental physical processes don't have any role for a temporal direction from natural start through exciting middle to satisfying finish. And it will take chapters 6 and 7 and 8 and 12 to explain why stories—especially ones about human history—are scientifically without much value. We won't have the full explanation for the mistake we make when we seek understanding through stories till the very end of this book. However, the obstacle to scientism that our attachment to stories erects is so great, we have to start taking it apart in this chapter. If we can't, scientism

will never really be able to reveal its charms even to those who already accept it. But if we can free ourselves from the lure of stories, that will open the floodgates to scientism.

The first thing to do is to understand why we love stories with plots. It's worth noticing right away that everyone loves and understands narratives across all cultures and times, and without needing to learn anything beyond learning language—any language humans speak. That's why east and west, north and south, we still read Homer's epics, or *Beowulf*, the *Tale of the Genji*, *the Arabian Nights*, or Gibbon's *Decline and Fall of the Roman Empire*, for pleasure! Apparently, along with folk physics and folk biology, our heads were “pre-stuffed” with theories about how other people operate, more precisely a theory about how their minds operate, what most people want and what they think is going on around them, and about how their wants and beliefs work together to determine people's choices and actions. This folk psychology also seems to operate inside our own heads. That's why it's easy to learn and hard not to apply to everyone else.

When I say the theory is “pre-stuffed” I don't mean it is written in our genes, or hard-wired. “Pre-stuffed” in our heads just means the theory is transmitted to us long before we are sapient enough to recognize it and subject it to any kind of critical scrutiny. It may be that the theory is hard wired in our genes via biological heredity, or it may just be invariably and uniformly transmitted at granny's knee in every culture as far back as we can trace humanity. Either way, human folk psychology is our basic, default theory for explaining and predicting human action, and alas, for explaining and predicting everything else, as we'll now see.

Since our Hominim ancestors began to find themselves operating in groups there has been very strong natural selection for minds that are pretty good at spotting motives and seeing the plot in other humans' acts. Figuring out the plot, catching on to what other people around you are doing reduces the itch of curiosity, provides a feeling of satisfaction.

How did Mother Nature manage to match up guessing people's intentions and having that satisfying ah hah experience when we have done so? By natural selection, the same way it got us to think about sex all the time. Among our distant ancestors, some felt nothing when they had sex, some felt a little pleasure, some felt a lot, some may have

even felt pain. Such variation, as we'll see in chapter 4 is the way of the world. No prize for guessing which of these creatures had more offspring, and which went extinct. After long enough the only mammals left were the ones hard wired the way most of us are—to have orgasms during intercourse.

Same story with guessing the plot and getting the feeling of curiosity satisfied. Many primates are solitary, living alone in small family groups. It's likely that we evolved from such primates. So, once it became advantageous for our ancestors to live in large enough groups, it became very advantageous to figure out what other people were going to do, especially when there was any chance of conflict or cooperation. Predicting other individual peoples' actions is no easy matter. We are probably no better at it than the cave men! The easiest way to do it seems to be: identify other people's motives, their intentions and goals and their beliefs about how to achieve their goals. We know what our wants and beliefs about how to satisfy them, just from introspection, from thinking about it: we chose to do whatever we think will get us what we want; so, other people must do that too. The hard part is figuring out exactly what other people want and what they think is the best way for them to get it. Figuring out these two things is so hard in fact that most of the time we can't predict exactly what anyone is going to do next.

But it was overwhelmingly important that early humans get at least some predictions of people's actions right. Which ones? The ones that meant the difference between life and death, between feast and famine, the ones that will enable us to protect ourselves against threats and take advantage of kindnesses! In the evolutionary past if other people could pose a threat, we needed to know what they wanted to do to us so we could stop them doing it. If other people could do something nice for us, we needed to figure out how to motivate them to do it. Long ago these facts about the benefits and threats people pose to each other put strong selective pressure on evolving an ability and a desire to *plot* out other people's actions, to figure out their motives, intentions and goals, and their beliefs about how to realize their goals. There was pressure on our primate ancestors to become "whodunits" fans even before they even had languages in which to tell stories with plots.

Natural selection almost always finds quick and dirty solutions to pressing adaptational problems. It doesn't have time to wander through all the variations that can

randomly emerge looking for the perfect solution to a survival problem. In the time it would take to find one, our ancestors would have all died out. In this case, as it does so often, to ensure survival Mother Nature *overshoots*. Instead of building the optimal solution to the problem of figuring out other people's motives, Mother Nature selects for *conspiracy theorists*. The simplest way to create someone who is good at reading motives from other people's behavior, especially threatening motives, is to endow them with a penchant for seeing motives everywhere—in human behavior and animal behavior, but also in the seasons, the weather, the sun rise, lightning storms, earthquakes, beavers coming out of their lodges in the spring, everything. So, humans tend to see everything as organized by some agent with motives, who aims to reach some goal, often malevolent. We are natural conspiracy theorists. That's why we don't need to be taught how to suss out other people's motives. That's why pretty much the same conspiracy theory operates in all cultures, and why we can appreciate their stories as much as our own. That's we love stories with plots so much. That's why we remember narratives and think of them as naturally easy to understand, without any special knowledge or information. We all have a strong incentive to force anything we need to remember into a story with a plot. Once we make sense of a chain of events—by finding motives of one or more agents behind the links in the chain, we get that feeling of relief from curiosity and/or anxiety about how the events might impact our interests.

People have been making a sport of our insistence on seeing everything this way for a long time now. There is the famous joke about Talleyrand, the sinister foreign minister who managed to serve Louis the XIV, Napoleon, and the restored French Kings who followed him. Talleyrand was so slick he made Kissinger seem transparent. When he died in 1838, the story goes, the Austrian foreign minister, Metternich, asked himself, "I wonder what he meant by that?"

Alas, science just isn't a set of stories, not even true ones, and it can't be packaged into stories either. And that's why most people just don't understand science and don't much like it either. Science writers have long recognized the problem science faces in getting its messages out: the important messages are never plotted stories, Science can't be packaged into histories with an intriguing beginning, a high-tension

middle, and a satisfying end that makes them satisfying to hear and easy to remember. Editors and agents have offered science writers two solutions to this problem, neither of which has ever been very effective. One is to find some story somewhere about the scientists on which to hang the science, and then hope it—the science—sticks. The second is to give non-scientific readers a personal reason to care about the science.

Have you ever noticed that science writers almost always end their stories by saying how the research they report, no matter what it is on—cosmology, high energy physics, the markings of snail shells, or the production of bird songs—may hold the key to a cure for cancer or some other dreaded disease? The funniest recent case I came across of this sort of mandatory coda was a terrific article in the *New York Times* about the evolution of sightless fish in cave ponds. In the dark of a cave, fish can't use their eyes, and since using the eye takes a huge amount of energy there was strong selective pressure to evolve blindness as an adaptation, a good thing that increases the fish's chances of survival in lightless caves. Recent work in Mexican caves shows that when you interbreed fish from ponds in caves that are far apart, the offspring often gain sight! But if you breed blind fish from caves close together, the offspring are still blind. The explanation is genetic. Fish in widely separated caves are not as closely related genetically as fish in closer caves. So blindness evolved separately in the distant populations and it took advantage of different mutations to different parts of the same vision gene or even to different vision genes in the two separated populations. When bred together, the working genes in each fish lineage made up for the nonworking one in the other. Whence vision restored. Populations closer together probably are related, and their blindness will be due to sharing the same mutation at the same spot in the same vision gene. Breed them together and the offspring will have the same defective gene. A beautiful bit of evolutionary biology, the sort of research that is vindicating Darwin every day in biology.

But how did the article in the *Times* end? Quote: "... the next step [is] to try to identify the actual genes responsible for blindness in the fish — all with the eventual goal of fighting human eye problems like myopia and macular degeneration." ["Sightless Parent Fish Don't Produce Just Sightless Hybrids," by Henry Fountain, *NY Times*, January 15, 2008] Give us a break! Were the researchers really interested in human

health? The science here is fascinating, important, and illuminating no matter what its serendipitous long-term payoff for human health. But the presumption is that unless the story ends with some up-beat message for practical pay-offs in human health, people just won't continue to support theoretical science.

But even when it could make a near-term difference for human life, people still can't be bothered to stay tuned in. The problem of communicating science to most people is that they are bored to tears when it is given to them in the way scientists communicate their discoveries. There is no way to explain Newton's inverse square law of gravitation as a story. If there is any such thing as gravitation, it's always "there", always the same, from the beginning of the universe to its end. History, the passage of time, just has nothing to do with Newton's laws (or their 20<sup>th</sup> century replacements). In fact, there is no story to tell about how Newton's law of gravity works because there is no room in it for time or its direction at all, nor is there in any other of the most basic laws of physics, including their latest versions in quantum theory, general relativity, quantum loop gravity or superstring theory.

Physics' freedom from history is easy to illustrate. We can use Newton's laws to predict all the future orbits of the planets around the sun, given their location today. But we could just as easily use those laws and the position of the planets today to "predict" backwards in time, all the planet's locations in the past. So far as all the basic laws of physics go, the future "fixes" the past just as completely as the past "fixes" the future. Given the way things are now, there is only one way they could have been in the past, just as there is only one way they can be in the future. And this remains true even in the quantum physics and relativity theory that replaced Newton! But if time really doesn't matter to the process, then there is just no way to tell a story here, nothing that would mark out a beginning, a middle or an end. This is one of the things that makes physics hard to keep in your head. It's not that science denies that there are stories, still less does it deny the passage of time or the difference between the past and the future. It's rather that the fundamental facts about reality that science has uncovered don't give the things that happen earlier any special privilege in explaining what came later. And without that privilege there is really is no room for history, stories, plots, at the basement level of reality.

The timelessness of physics presents us with a big problem when we want to explain science to people who won't sit still for it unless it's packaged as a story. What story could be told about gravity, about why it works so well, about why in spite of the fact that the law of gravity works so well, it turns out there is no such thing as gravity? Would telling the history of physics since 1600 do the trick? One fable starts with young Isaac Newton being hit on the head by a falling apple. Another slightly less silly story starts with the bubonic plague sending him home from Cambridge to sit under the apple tree, where he is supposed to have discovered the law. A longer story might go back earlier in time to the mistaken ideas of other scientists like Descartes. It could tell us what dissatisfied Newton about Descartes' theory, and why his theory of gravitation was accepted by every one. It may go on to tell us that later scientists—especially Einstein—were led to give Newton's theory up. Not a very compelling storyline, is it?

To tell a really compelling story that people will enjoy and remember, science writers have to find a plot. They have to get into individual scientists' motivations, locate coincidences with major consequences, and best of all uncover the conflicts between them, or between scientists and their noble patrons—like the Medici or the Pope.

One problem with the gravity story is that, except for the plague business, it just doesn't have any dramatic possibilities. Now, there is some serious drama in Newton's life: he probably died from lead poisoning resulting from his experiments in alchemy, and alchemy is always good for stirring up interest. Even better, Newton had to hide his heretical disbelief that the trinity—father, son and holy ghost—made no sense. Keeping his job and his head required complete secrecy about this in 17<sup>th</sup> century England. Then there was the story of how the philosopher Leibniz managed to plagiarize Newton's discovery of calculus on a visit to the Royal Society just when Newton happened to be out of town. Of course, none of these stories will stand up to Darwin's story: a five year voyage around the world in a cramped ship, commanded by a religion-fanatic of a captain, finding strange fossils and stranger animals, followed by 20 years of secret scribbling and then a race not to be scooped by some upstart from the East Indies. No surprise that there has been at least a new biography of Darwin every five years or so over the last 50 years, including a novelistic one by Irving Stone. The newest one has just been announced: *Charles Darwin: Yet Another Biography*.

Even worse, none of the Newton stories can teach us anything about Newtonian mechanics. There is nothing about how Newton discovered gravity or the visible spectrum that can convey his theories of motion or optics. Actually the same is true about Darwin. Darwin's life doesn't convey his theory. Otherwise, creationists would try to ban the biographies along with the theory.

Notwithstanding the impossibility of telling stories that convey the real subject, science writers still try to fight their way into the marketplace of entertaining ideas. Almost always, they employ the formula of packaging science into mystery stories or "exposés" with villains and heroes, or else search for hitherto unrecognized precursors, or make it into a race between one solitary scientist against a well-funded team "to get there first." But a story like this, even if it's not hoked-up fiction, won't help people remember what they really need to know.

This is a serious problem for science education, and there is not much that can be about it. What makes the problem worse for scientism is that religion has good stories, ones that take advantage of a human foible that has been honed by natural selection over millennia. It's a foible that haunts the minds of people everywhere, making them conspiracy theorists even about nature, where in fact conspiracies are impossible. Seeing the natural world as a "whodunit" crowds out real explanations that the critical, skeptical, and practical approach of science provides. So science starts with a real handicap in the contest for most people's minds.

Notice that the scientific explanation Darwinian theory gives to why we like stories is itself a story—bit of natural history about how selection shaped our psychology! Does this contradict the claim that fundamentally science is not a matter of stories with plots? No. Science does not deny that there are stories, and even some truthful ones—histories and biographies that get the facts right about what actually happened in peoples' lives. Then there is natural history and geology and cosmology which also give us the sequence of events that actually happened since the big bang, the formation of the planet, and the emergence of life. These three kinds of history show us that in stories the real work of picking out the important links, and showing that they are the causes and effects that make sense of the stories, is not done by the stories themselves. It's done by the laws

of nature. Until we know the laws—the regularities that work forward and backward in time—we cannot even identify the significant events in the story, let alone see why they are significant for what comes after them.

Think about the story of how the dinosaurs went extinct. The true story of what happened—from the asteroid's impact on the Yucatan 65 million years ago through atmospheric change that blocked the sunlight, to the disappearance of most of their plant-food to the starvation of the herbivores and the death of their carnivorous predators—all these links have to be forged by laws of nature. It's the laws of mechanics which tell us that the speed and size of the asteroid was large enough to kick up enough debris to reduce the amount of sun light for a couple of years. It was the laws of electron transport which tell us that without the photons of light from the sun photosynthesis couldn't occur, and the laws of chemistry that explain why the lack of starch shut down dinosaur metabolism. Without them, there is just a collision, a dust cloud and a mass extinction. What makes those events into a story, let alone the right story? The laws do the really important work and these laws are just not stories. This is true in natural history; it must also be true in human ones too.

You might think that when it comes to history and biography, the reason the laws are unmentioned because they involved at too many points in every narrative, and every one knows them so well that no one needs to be reminded. The laws that govern human events are the ones we know by looking into our own minds and seeing how and why we do things—we know from our own case that we take actions because we want to achieve certain goals and think that the way to reach them is to take these actions—what could be more obvious? So, we think everyone else operates with the same theory of human action, one social psychologists and others call “folk psychology.” And it looks like folk psychology must be near enough to right, at least about people, if there has been natural selection for us to be conspiracy theorists, seeing plots everywhere. That's why no one ever bothered much about uncovering the laws that govern human affairs. Most research, in history and biography, journalism and psychoanalysis, has been devoted to figuring out exactly what people want and just what people believe, so we can combine that information with folk psychology to figure out what they did in the past or why they did it, and what they will do in the future. In history everyone since Thucydides was satisfied

with good old folk psychology and without any predictions, until science started really making huge strides in detailed explanation and precise prediction. That's when students of human affairs decided that maybe they could do better too. By the 1700's, dissatisfied historians were already searching for deeper patterns in human affairs—laws—that would do better than folk psychology. No one has found them yet. We'll see exactly why in chapter 6, 7 and 8. By the time we get to those chapters, we'll know why no laws of history have been found-- and why none will be, either.

That doesn't mean human affairs can't be scientifically explained. It means that the real explanations won't be stories with plots. After all, scientism teaches that human affairs and human life is just another natural process, to be explained by the resources of science. If science doesn't trade in stories, then stories won't provide the explanations for human affairs that we seek. History will turn out to be bunk—vastly entertaining and enjoyable, but bunk for all that.

We have two good reasons to suspect that the persistent questions can't be answered by good stories that make sense of things in terms of histories with plots. The first reason is that science doesn't and can't come packaged in such stories. The second is that our hankering for stories is the result of over-extending folk psychology. This is a theory that doesn't work very well at its home base—the explanation and prediction of human affairs. Latter day historians are no better at unraveling real causes than was Thucydides. Otherwise, they'd be better at predicting the future than that great Greek historian was!

There is a second reason advocates of scientism shouldn't fall into the trap of trying to answer the persistent questions by packaging scientific answers into stories that satisfy curiosity. Making science into stories is a horse race science cannot win. The stories about science are mostly boring, and the greatest achievements of science are themselves almost never stories. Even when the stories are true, they don't really teach us what we really need to know. By contrast, most of the stories the religions tell about themselves are fascinating, easy to understand and deeply satisfying to creatures like us. Even when their stories are false and known to be, religions have ways of convincing us that the falsity of their parables doesn't matter anyway. When it comes to the competition

with religion, trying to tell the best story is a mug's game.

The questions addressed in the next chapter are not the ones most important to most people. They are the dull-as-dishwater questions about what the nature of reality is, in general. These questions are pretty much answered by physics. The interesting questions are of course about the one particular bit of physical reality than happens to make up a human being! And physics does not have much to say about that particular organization of matter. That will require the science that interests people a lot more, biology. So, if you really are not interested in the fundamental nature of reality, or willing to take physics' word for it, you may be tempted to skip the next couple of chapters all together. Better not skip chapter 2. It is going to be important for everything that comes after it. Chapter 3 is another story, and is indispensable only if you think quantum mechanics might undermine scientism. From that point things get more interesting for the persistent questions about us, our past and future. Chapter 4 and 5 show how biology and the process of natural selection that produces it all, are foreordained by the physics of the beginning of the universe. For scientism, Darwin's theory of how the tiger got its spots and the human got its mind, is the only game in town. The facts Darwin discovered, firmly fixed by physics, goes for human history too! It's not that our history is written in our genes. Scientism has no commitment to genetic determinism. It's just that, like all adaptational processes in nature, our own adaptations to nature and to one another are themselves the on-going results of natural selection. And that is what, as we shall see in chapter 6 through 8 makes history bunk. But that is not the end of scientism's corrusting progress through our unscientific worldviews. The factors that make history bunk have the same consequences for our morality in chapters 9 and 10, and for our psychology in 11 and 12. In the end, scientism leaves us with no illusions.

But, what if the illusions science unmasks are good for us? And what if giving the right answers to the persistent questions doesn't stop even those who accept them from continuing to be troubled, emotionally dissatisfied with the answers? It's easy to reply that knowing the rather bleak truth about everything will enable us to cultivate a detachment that has been extolled by Epicureans since Lucretius in *De rerum natura* [On

the Nature of Things] 2000 years ago. But what if it doesn't? Will it be all right if we postpone that question?

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**Chapter 4**  
**The Purpose of the Universe**  
**And Other Easy Questions**

The Templeton Foundation was created by John Templeton, a billionaire who managed international mutual funds. The foundation supports mainly academics and especially scientists who seek to reconcile religion with physics and biology. So the Templeton gives a single prize of \$2,000,000 (about twice as much as a Nobel Prize) every year to some worthy for “affirming life's spiritual dimension... through insight, discovery, or practical works,” more often than not scientific work. That worthy usually turns out to be a physicist (rarely a biologist, for reasons that will become obvious), who has aided and abetted the reconciliation of science and God, sometimes by trading on the present incomplete state of physics, other times by invoking its indeterminism, and in a few cases, by appealing to the unintelligible mystery of superpositions. There's no chance that candidates for the prize will ever be in short supply.

In late 2007 there was still some money left over to spend after giving the \$2,000,000 prize, because the Templeton took out a double page ad in the *New York Times*. At the top in bold was the question, “Does the universe have a purpose?” and there followed the beginnings of 12 answers (all continued on a web site) to the question raging from ‘no’ to ‘unlikely’, and ‘not sure,’ to ‘perhaps,’ ‘yes,’ ‘indeed,’ and ‘certainly,’ by 9 scientists, 2 theologians and a novelist.

But the issue is not in doubt, not if you have any confidence in science. The reason is obvious, at least to the scientific among us and 95% of the members of the US and other countries' National Academies of Sciences. If there is one fixed point in physics ever since Newton, one thing even more well-established than the 2d law, a thing that won't change no matter how the science develops, it's the fact that there are no purposes in the universe, no future *ends* to which anything is a past or present *means*, no goal that is organizing processes somehow aimed at its attainment, no hidden meanings of natural processes only to be revealed at the end of time, but vouched safe to the initiates through the second sight of the truly far-seeing. Nor is there a prior design that ordered or organized the clockwork, unless that it was a design for complete destruction

of all order. The 2d law makes it plain that for the universe as a whole the only end state is its heat-death, a flat, energy-less jumble of patternlessness. So much for the purpose of the universe as a whole.

The banishment of purpose for the universe as a whole also provides for the banishment of purposes that are supposed to make sense of human and other biological activities. Rightly understood, when physics disposed of purposes, it did so for biology, (and psychology too, as we shall see). All we really need to see this is the physics which we adopt as our metaphysics. For it is physics alone which pretty much requires the process that Darwin's theory discovered and which purged purpose from living things and their lives. It's because all biologists embrace Darwin's theory and understand its implications that the Templeton Foundation has such a hard time finding a winner for its annual prize among biologists. When it comes to the biological realm, all scientism needs confidently to banish purpose is the recognition that the process of natural selection Darwin discovered excludes it from biology and does so because natural selection just is physics at work among the organic molecules. In fact Darwin's discovery shows more. It actually shows that such a God can't exist at all, not compatibly with what science tells us about the biological realm, including its most sapient members—presumably us. You can't have your Darwinian cake and eat theism too, no matter how sophisticated you are about each, even if you have a \$2,000,000 check from the Templeton foundation and a bronze plaque saying that you have reconciled them.

In this chapter and the next we'll work through the details that dictate these conclusion for the physical realm and, more important, for the biological one. Then, in chapters 6 through 10 we'll explore the consequences of this nihilism about the intelligibility or meaning of things for human history, our social institutions, ethics and morality. In the last two chapters, we'll take up its consequences for the human mind. At that point we'll have our answers to all the persistent questions (though not all the scientific ones, of course).

Science makes these apparently nihilistic conclusions so obvious that it is worth recalling why so many scientists are unwilling to give the unequivocal answers that science prescribes. Remember all the reasons recorded in chapter one for why scientists are reluctant publicly to state what is obvious from the results of science as a whole over

the last 350 years. When it comes to our present question of the purpose of the universe or of life, or intelligent life, etc. individual scientists can always excuse themselves: “That’s not my department,” or, “It’s above my pay-grade” is a becomingly modest answer, and one often strictly correct. The persistent question of “the meaning or purpose of it all” is not one their narrow specialty requires them to take sides on. Besides some of them are uncomfortable with the answer they know is right, and the smartest of them recognize it’s impolitic to disabuse people of their illusions. They could lose their government grants. And a few scientists may even want to remain viable candidates for a prize worth twice as much as the one that comes with a call from Stockholm.

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