# The *UNFINISHABLE* Book

Uncensored Talks
about Truth, Culture and Nonsense
from the Desk of a Pirate Philosopher

*2nd Version*

by Mark F. Sharlow, Ph.D.

**The Unfinishable Book:**

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# Contents

# Read This First!
# (or, Why This Book Sounds Funny)

This is not a normal book. It is a collection of transcripts of talks that I gave between the year 2003 and now. I gave most of these talks on the spur of the moment, without making notes ahead of time. ("Impromptu" is the usual term for that dangerous way of speaking.) One of the "talks" is not a transcript, but a set of notes for a talk I never gave. Any organization or order in the talks is purely coincidental—or at least it's not all my fault.

The transcripts in this book are only lightly edited. I made no effort to rewrite them into nice articles or essays, or to improve the style or grammar by much. Instead, I just took out some of the major knots that happen when one tries to speak without notes, and corrected some omissions. This is why the book does not sound like a regular book. It certainly doesn't sound like a scholarly paper. Instead, the book sounds more like a set of unplanned magazine interviews. Call them self-interviews if you wish.

Although this book does not pretend to be scholarly, I do publish scholarly works also. There is a list of my peer reviewed journal publications near the end of the book. To learn more about my work, you can visit my website, which (as of the date this book was released) is at the following web address: http://www.eskimo.com/~msharlow .

Some of the subjects discussed in this book (in no particular order):

How philosophy differs from science. Whether cultural relativism is right or is baloney. Why the disagreements among philosophers aren't as bad as they seem. Why reason is a good thing—and whether it ever can be a bad thing. Whether the "great tradition" in philosophy is as dead as it seems. Why logic works—and what logic can't do. What kinds of knowledge exist besides science. The place of consciousness in the physical world. Why science's greatest strength is also its greatest limitation. What abstract objects are, and why they are very important. The difference between abstract objects and ordinary physical objects. Why science can't disprove free will. Art and poetry as possible ways of knowing reality. What religion is, and a few things that might be right about it. The rise of the belief that the universe is meaningless—and the possible fall of this belief.

*A note on source citations:* After editing the transcripts, I identified and cited all sources of information and ideas I had used in the talks, except for ideas that are common knowledge in the field of philosophy. I placed these citations in footnotes and in a "Works Cited" section. The footnotes do not cover all the previous literature on each topic; this informal book makes no pretense of being a bibliography, or (as I already said) even a scholarly work. However, I took great pains to mention all sources from which I borrowed. If anyone else has published similar opinions that are *not* commonly known in the philosophy world, and I did not mention their work, this is because I was not aware of their work. If this has happened, I hereby fully acknowledge the other author's priority.

Some of the positions I take in this book have standard names of the sort that one finds in philosophy textbooks: "aesthetic objectivism," "compatibilism," and so forth. I mentioned only some of these names in the talks. To borrow a phrase used in many other books, I leave the others as an exercise for the reader.

# Talk #1. What Is Philosophy?

**Questions:**

**What is philosophy?**

**What makes philosophy different from other kinds of supposed knowledge, like science or theology?**

**What is philosophy for? What is it supposed to accomplish?**

**Answers:**

The first question about philosophy is, What is philosophy?

Philosophy is a subject that aims to find things out. In this respect, it's like science; it aims to find out what's going on in the real world. Philosophy is different from science because philosophy depends primarily on reason. Philosophy is the attempt to find things out about the real world, through reason. And this distinguishes philosophy from science, and also from other fields like religion. Philosophy is different from science because philosophy depends on reason and critical thinking primarily, whereas science (which also uses reason) depends much more on the study of facts disclosed by the senses, and the testing of hypotheses through the use of such facts.

There are certain methods of investigation regarded as scientific. Science depends on those methods — whereas philosophy depends on logic and reason.

Philosophy relies more heavily on critical thinking and logic than on facts as such, although of course philosophy is an attempt to uncover facts about the real world. So philosophy is different from science because it isn't an experimental, observational thing like science. It depends on logic and reason primarily.

Philosophy is different from religion because philosophy doesn't depend on faith or on religious experience. Religion and mysticism address some of the same questions that philosophy addresses, but philosophy is different because it addresses those questions by means of reason and critical thinking. In a typical religious approach to finding out about the world, people adopt assumptions on faith, like the assumption that God exists, or that the Bible contains information about God, or something of that sort. And then they interpret and try to understand reality in terms of those assumptions. The assumptions are a matter of faith — maybe the believers sometimes question them rationally too, but they're basically a matter of faith. With philosophy, nothing is a matter of faith. Certain assumptions may sometimes be made as working hypotheses, but they are subject to criticism and nothing is accepted on faith. Even things that we temporarily accept as a basis for some type of thinking that we're doing, like the assumptions of a particular system of thought, or something of that sort — even those are subject to criticism and review, and we don't just believe them as an article of faith that's not within the realm of rational criticism and attempted proof.

So these are some of the things that differentiate philosophy from science, on the one hand, and from religion, on the other. Some forms of religion, of course, are not based entirely on faith, but are mystical too, which means that they're based on intuitive experiences that supposedly reveal truths about God, the nature of the soul, and other such topics. Systems of thought based on experiences like that are not philosophy either, because they don't depend on logic and reason — they're taking a type of experience, and taking that as the basis for their system of

thought. So in that respect, mystical religions are like science. They're different from science, but they're like science in the respect that they rest on experiences of a certain kind. And philosophy, although it concerns itself all the time with experience and with the things that are experienced — philosophy does not take experience as an authority. It takes reason and logic as the main criteria for finding things out.

Traditionally, philosophy is divided into a number of areas. Philosophy textbooks will tell you that there's epistemology and metaphysics, there's logic, ethics and aesthetics, and so forth. I won't go into these divisions here, because these are commonly discussed in philosophy textbooks. But, as an alternative definition of philosophy, you could define philosophy as the collection of all of those subjects. That's not as good a definition, because it leaves an unanswered question: Why do those subjects get grouped together? Why are they considered to be one discipline, or one field? And the answer is: Because they're all things that cannot be fully investigated through scientific methods, and cannot be investigated critically enough through experience. They're things where you have to put logic and reason first in your investigations. You can't use some other standard of investigation to get these questions resolved properly.

So philosophy is the subject that tries to find out about the real world primarily through the use of reasoning. I guess that's as good a definition of philosophy as any, although like many definitions, this definition is a little vague around the edges. Philosophy differs from science, religion, and mysticism — I have mentioned those differences already. Philosophy differs from mathematics because, although mathematics is about something (it's about mathematical things like numbers and shapes and so forth), mathematics itself doesn't go back and ask fundamental questions like, What is a number? and that sort of thing. It can ask questions like that up to a point (like showing that numbers can be modeled by

sets), but mathematics *as such*, as opposed to the philosophical study of mathematics, doesn't go back all the way and thoroughly investigate its own foundations. Logic and foundational mathematics do this part way, but to do it thoroughly you need philosophy. Also, mathematics doesn't study everything. Mathematics isn't about snails, it isn't about the solar system, it isn't about the human mind — it's about shapes and numbers and so forth, even if it has applications to all these other things. So mathematics is different from philosophy, even though both are based on reason.

Mathematics, like philosophy, is based on reason. In the old days, there used to be a term "formal sciences." They used to distinguish the formal sciences, which were philosophy and math, from the natural sciences, which were physics and chemistry and the rest of what we call sciences today. You could classify philosophy with mathematics as a formal science, if you wanted to. But there are strong differences: philosophy investigates anything, not just mathematical things, and philosophy critically goes back and evaluates its own assumptions all the time. Mathematicians prove that pi equals 3.14... and leave it at that. If you were a philosopher, you could go back and question any conclusion or assumption, and try to shed doubt on the proof at any stage, which is something a mathematician wouldn't do as often.

One thing that differentiates philosophy from mathematics, and from other subjects too, is that philosophy keeps going back and evaluating its own assumptions all the time. It doesn't take anything as given, or as established once and for all; it doesn't take that the world is round, like astronomy does; it doesn't take two plus two is four as given, as arithmetic does. Philosophers believe these facts as much as anybody, but they're "allowed" to go back and criticize the foundations of knowledge. Most philosophers would not question those two facts, but they can go back and question things that are even more fundamental,

like how we know anything at all. How do we know anything about the Earth, or about numbers, or about anything else?

Thus, another characteristic that distinguishes philosophy from other branches of knowledge is that philosophy is very critical — it can go back and examine its own foundations critically, instead of taking certain things as known and assumed, and almost unquestionable.

So those are some of the differences between philosophy and other disciplines. Philosophy is a field that uses logic and reason and critical thinking to try to answer questions about reality.

The objective of philosophy is knowledge. Those who say that it isn't are not really talking about philosophy. There are people today who say that the objective of philosophy is just to create myths, or stories, or narratives that are "useful," in social reforms or whatever — useful in some way. That's not the purpose of philosophy. That might be the purpose of political ideology, or of rhetoric, but that's not the purpose of philosophy. Philosophy aims at knowledge. And if a particular doctrine or story is just a useful fiction or a useful narrative, then the philosopher should be concerned with finding out that that's all the doctrine or story really is. A philosopher can be concerned with finding out whether doctrines are only narratives or whether they're true. But philosophy isn't about constructing narratives that aren't meant to be true. Philosophy aims at truth and knowledge. If you don't believe that it's possible to attain knowledge, or if you don't believe that truth exists (as some postmodernists don't), then you really can't do philosophy. At least you can't be intellectually honest and still do philosophy — because philosophy isn't just the making up of stories, it's the quest for knowledge. And if you don't believe that philosophy can achieve knowledge, or at least has a fighting change of achieving more

understanding of what's true, then you're really not able to do philosophy. If you do philosophy while believing that there's no knowledge or no truth, then you're really fooling yourself.

# Talk #2. Philosophy and Culture

**Questions:**

**How does philosophy depend on culture?**

**Does philosophical truth vary from one culture to another? Or is philosophical truth the same for everyone?**

**Answers:**

One of the ideas about philosophy that goes around today is the idea that philosophical knowledge is culturally dependent — that it's dependent on what culture the philosopher belongs to, or is part of, or has allegiance to. This idea is deceptive. It seems at first glance to be true, because different cultures have been interested in very different philosophical topics. We speak of things like German idealism, and French rationalism — these are stereotypes to some extent. But there is a difference between Anglo-American philosophy and Continental philosophy. There certainly are differences between Indian philosophy and European philosophy. There's African philosophy, and Chinese philosophy and so forth. These different ethnic or geographic divisions of philosophy have a tendency to be concerned with different topics and to use different methods and approaches. But perhaps they have more in common than they have different, because they are all attempts at a quest for truth.

Philosophy, like all human activities, is influenced by and embedded in culture — by other aspects of culture besides philosophy. But the quest itself is transcultural. Everyone in the world who thinks enough is capable of formulating a desire for

truth. A culture totally devoid of this desire could not survive. The fact that different cultures may sometimes tend to be interested in different problems and issues, and may tend sometimes to gravitate toward different solutions, doesn't mean that philosophy is completely culturally relative. There are ultimate questions that have been raised by most or all cultures, by most or all peoples, by almost any of the peoples of earth. These are not just the questions that one particular culture is interested in. If we take all the big questions that people have been concerned about from everywhere, and bring those together, and recognize those as *the* big questions — then these questions can be asked by anyone in any culture. And these questions are such that if they are answerable in any single culture, then they could in principle be answered in any culture that happens to ask the same question. Take a philosophical thesis, for example the German idealist idea that physical reality is somehow dependent on an ultimate mental reality — an ultimate reality of a mental character, of a conscious or spiritual character. This idea — some people might argue that it doesn't make sense, the logical positivist school of philosophy (for example) might argue that it doesn't make sense. But if it makes sense, if it's something that can be true or false, then it's true or false regardless of culture. It isn't the case that for the Chinese, reality is not based on an ultimate spiritual principle, and for the Germans it is — or vice versa. That can't happen. If it makes any sense to say that reality is (or is not) based on an ultimate single spiritual principle, if it makes any sense to assert this at all, then it's either true or false for everybody. (I'm not necessarily endorsing this idealistic doctrine. I'm only using that doctrine as an example.)

What *is* culturally relative is that a given culture may become aware of some truths earlier or more compellingly than other truths, because of cultural influences. So we end up with different kinds of philosophies in different cultures. However, two philosophies that seem very different might both be correct, and might be reconcilable in some way. It sometimes happens that

different cultures come up with different pieces of the truth. They're concerned with different problems, and by using somewhat different methods they run into different aspects of problems, and come up with answers that seem different. So different cultures may come up with different fragments of the truth. But insofar as they're right, and insofar as they're getting at the truth at all, they're all correct! An answer that is right and true if discovered in China is also true if discovered in India, if discovered in America, or anywhere else. If that isn't the case, then the answer isn't really true. I'm not speaking of answers to routine practical problems — these certainly can vary. I'm speaking of answers to ultimate questions about reality and values — the "big" questions.

So there's this whole debate going on today about objectivity and cultural relativism in philosophy. And what's valid in that debate is the fact that other aspects of culture besides philosophy do influence philosophy, and tend to push it toward studying certain things and toward studying things by certain methods. What's wrong in that debate is the idea that something can be true for one culture, and false for another, or that some truths can be eternally inaccessible to people in one culture simply because they belong to that culture. If there are answers, then there are answers. And if you say that truth is culturally relative, you're really not talking about truth at all. You're really talking about something else — perhaps the meetness or propriety of a belief within a particular culture, or the usefulness of a belief within a particular culture, or something of that sort. Truth itself can't be culturally relative, for the simple reason that if it is culturally relative, then it isn't really truth. I've spoken and written elsewhere[1] about the nature of truth, and about theories of truth. At bottom, truth is something that has to do with reality. And if truth were relative, then what? What if something could be said to be true in one culture but not true in another culture (and I'm not speaking of facts *about* cultures)? If a fact about the universe or the ultimate nature of reality were

[1] Especially in my book *From Brain to Cosmos.*

true for one culture, but not for another, then it wouldn't really be true or all. It would be better to say that it is appropriate for one culture, or useful for one culture and not for another. But that isn't the same as truth. Truth has to do with what's really there.

Frequently it's been pointed out that the idea of the cultural relativity of truth is inconsistent and self-contradictory. This is right. If you say that X is true for the Chinese but not for the French, then you're asserting something about reality. You're asserting that something is true. The supposed fact that X is true for the Chinese but not for the French is, according to what you're saying, a fact. So if you make statements about relative truth, then you're tacitly making statements about truth — about "objective" truth. The postmodernists have raised the possibility that there is no such thing as objective truth at all — that all statements about the truth are relative. If that's the case, then it would be more accurate just to say that there's no truth. The only intellectually honest thing to do would be to stop doing philosophy, and just stop worrying about what's true! The idea of truth involves, in a way, the idea of objectivity. I don't want to get into the whole objectivity and subjectivity issue here, at this moment. But I'll say this much: if it's "true" only for one group and not for another, then it isn't true, in the full sense of the word, at all. If what the postmodernists (some of them) are proposing were right, and statements were only true for one group or another and perhaps not for other groups, then there would, strictly speaking, be no truth at all. So the postmodernists could be more honest than they presently are.

Campus postmodernists often try to force their views down other people's throats, and to censor speech they don't like. Sometimes they do these things more vigorously than any so-called "absolutist." (These last two statements are based on personal experience!) In doing this, they are violating their own views. Instead of trying to force their views down people's throats, they should just say,

"Hey, we believe that there's no such thing as truth — so we have no grounds for forcing anything down your throat. We don't know the truth, and neither do you." But, of course, that's not the way it plays out in practice. People who believe in cultural relativism sadly tend to be somewhat aggressive in their attempts to suppress other views. That's been my experience, from what I've seen. But if they were honest, they wouldn't be that way. The denial of all truth wouldn't leave them any grounds for forcing anything on anybody. They'd just have to live and let live. (And, of course, you can believe in the reality of truth, and also live and let live.)

What I'm trying to say is that philosophy has a transcultural character, even though philosophy manifests itself differently in different cultures. Truth is transcultural, even though different cultures may end up with different fragments of it. And also, different cultures may make different mistakes. They may tend to make different mistakes because of their cultural biases. So we may get philosophies that seem to contradict each other, but that are all partly right and partly wrong.

Philosophy is an attempt to attain a truth that is a transcultural truth, in the sense that it is actually true — not just true for somebody, but actually true. If you're trying to find out what's true *for* some particular group, rather than what's true — then you *think* you're trying to figure out what's true for that group. But what you're *really* trying to figure out is what's psychologically fitting for that group, or what's commonly believed by that group, or something like that. You're not really trying to find out what's true.

Philosophy is a quest for truth. It's a certain part of the quest for truth, with science and religion perhaps being other parts. So philosophy itself is

transcultural, even though culture does have a heavy effect upon the forms that philosophy takes.

# Talk #3. Reviving the Philosophical Tradition

**Questions:**

**What are some of the weaknesses of present-day philosophy?**

**Did the "great" philosophers of the past all disagree with each other, as some people claim?**

**Some people claim that philosophy is dead, or that the "great tradition" of philosophy is dead. Is this true?**

**What is speculative philosophy? And why should we care?**

**Answers:**

Earlier, when I said that philosophy is based on critical thinking, logic and reason — that this distinguishes it from science and from religion — I didn't mean that science and religion don't use critical thinking, logic and reason too. It's obvious that science is based largely on those things. And religion uses them too, especially nowadays, in liberal religious thought. What I meant to say is that philosophy relies primarily on reason as a method of finding truth, whereas the other disciplines mainly rely on other things. For science, sense experience governs. For religion, faith or religious experience govern. For philosophy, reason governs. And that's the primary thing that distinguishes philosophy from those other disciplines.

There are several styles of philosophy in the world. In the Western world, we

have the analytic style of philosophy, which depends heavily on methods that resemble those of mathematical logic. Analytic philosophy depends on linguistic analysis, and on tight logical reasoning, and tends to solve problems in a slow, progressive, little-bit-at-a-time sort of way, rather than trying to get a sweeping overview of things. Then there's the phenomenological movement, which grew out of the work of early phenomenologists, and today has become quite diverse. Phenomenology is supposed to rest on a direct description of, or encounter with, experience. To be honest, it seems to me that much of today's phenomenological thought relies at least partly on verbiage. It tends to become something where the use of words that seem to fit one's experiences, or that seem to fit the human condition, becomes primary, in place of an actual critical look at experience. This isn't true of all phenomenological thought, but sadly it is true of much.

The analytic movement also has its own weaknesses, some of them well known. Analytic philosophy tends to get into a position where it's afraid to take on any of the big issues. Philosophers sometimes seem to think that there's something crazy or suspicious about taking on the big philosophical questions that really trouble humanity. Analytic philosophers tend to restrict themselves to an arena of limited technical questions. The modern movements in philosophy tend to develop jargons and techniques of operating that place them outside of the general intellectual life of humanity. And it's humanity at large that needs the answers to its philosophical questions! So these movements have certain limitations, although the analytic movement has done a lot of great things in spite of any weaknesses.

Before analysis and phenomenology came to the fore in the western world, there was a long tradition of *speculative* philosophy. All, or at least most, of what we think of as the great philosophers of the past, especially before the twentieth century, were speculative philosophers. Speculative, in this instance, does not

mean based on guesswork. It doesn't mean uncertain or conjectural. The word "speculative" comes from the Latin word for mirror. Speculative philosophy is the attempt to gain an accurate overview of reality, almost as though you were seeing reality in the mirror. That's the metaphor behind the word "speculative." The word doesn't come from what we think of as "speculation" — it comes from this metaphor of a mirror.

For example, there is the philosophical system of Plato, in which Plato taught that reality consists of a number of different levels. These levels ranged from the realm of Platonic ideas, which was an eternal, unchanging realm of reality, to the everyday physical world. And then there also were things like dream images, that were less real than the physical world. People sometimes think of Plato's world picture as consisting of the physical world, plus an abstract realm higher than the physical world. But actually there weren't just two levels — there were several.

Plato's world picture also had other features. There was the "receptacle", which is what the Platonic forms or ideas were impressed upon to give rise to observable, physical things. But the important point, for our present purposes, is that Plato had an overview of the general structure of the world. He tried to get an overall grasp of the nature of reality. And this is what speculative philosophy aims to do. It's synthetic rather than analytic. And "synthetic," in this case, doesn't mean artificial. Synthetic, in this case, means that it attempts to synthesize, or bring together, different aspects of reality, and different aspects of our knowledge, and different questions about reality, and sort of bring them under one big umbrella.

In the past we had the great systems of speculative philosophy. The system of Plato was only one. There was the system of Aristotle. There was the system of Spinoza, who thought of all things as manifestations of one underlying substance

obeying invariable laws. And there were many others. All these overall views of reality were parts of speculative philosophy. Some other theories in speculative philosophy were not as venturesome as these; speculative philosophy doesn't automatically imply proposing having a theory of the general structure of the entire world and of all reality. But often it does involve that.

There's a rather common belief today, among professional philosophers, that speculative philosophy is over. It is said that the great philosophical tradition, as it's sometimes called, of the great speculative philosophers, is over. In other words, speculative philosophy failed.

Did speculative philosophy really fail?

I don't think so. I just think we misunderstood speculative philosophy in modern times.

The main argument against speculative philosophy — the main argument for the belief that speculative philosophy has failed — is the contention that speculative philosophers couldn't agree with each other. According to this argument, the speculative philosophers came up with different, incompatible systems of the world, which they sort of wove out of whole cloth, and they couldn't agree on anything, and therefore they didn't come up with anything useful. That's the main modern line of argument against speculative philosophy. It's an argument that rests on the disagreement of speculative philosophers, and of speculative philosophical systems, with each other.

I don't think this argument is right. It's true that speculative philosophers disagreed with each other. Sometimes they disagreed mightily. But I don't think the disagreement goes as deep as it seems. In fact, I doubt that there is much real,

final, irreducible disagreement at all! Different speculative philosophers simply *unveiled different aspects of reality*.[2] They discovered or noticed different things about reality, and they built different views of reality as a whole around their discoveries. Their mistake was not in coming up with the systems that they did, but in ignoring the truths present in other systems.

Let me give you an example of what I mean by that.

Plato championed the idea of what we today call the Platonic Ideas, or the Platonic Forms. (Plato claimed to have learned about the idea from others, especially Socrates, so I won't say that Plato invented the idea, but he made it famous.) The Platonic Ideas are unchanging abstract entities, which, according to Plato, form a realm of abstract reality that exists independently of the physical world. On this view, the universe consists of, at very least, the physical world of matter, and this world of abstract Forms. And the properties, kinds, and so forth in the physical world are actually reflections, in some sense, of the forms in the ideal world of abstract Forms. Platonic philosophers thought of the relation between Forms and physical objects in different ways. But however one understands this, the Forms in the timeless, abstract world are exemplified by things in the physical world. And the substance of the physical world is something that's kind of chaotic and blank, unless it exemplifies one or another of the Forms.

That was Plato's vision of the world. (I've oversimplified it grossly, and ignored most of the important subtleties, but I think I've at least captured an important core of it.)

[2] This idea is not new. It sometimes comes up in general discussions of the nature of philosophy. The idea that seemingly incompatible systems can reflect aspects of truth also occurs in Indian thought, in the concept of *darshanas*.

Many centuries later, Spinoza came up with a different picture of the world. In Spinoza's picture, there is one substance, one basic underlying substance. This substance takes on various forms and modifications. Fundamentally, the world is one — one substance. But the one substance takes on different forms and modifications, which include the events and objects that we normally consider real.

Spinoza's theory and Plato's theory look like different theories of reality. But why can't they both be true? Spinoza discovered something important about the world. He discovered that you can conceive of substance as *one thing*. There are different kinds of substance that make up different kinds of things, but you can conceive of it as all being one principle, or one *something* — one metaphysical reality — that takes many different forms. You can conceive of different kinds of substances as forms of the one substance. The physicists have come close to this position today, by thinking that all matter is a form of energy, and that different forms of energy are interchangeable. But even without modern science, just by looking at Spinoza's system, you can begin to see that it is possible to think of substance as one thing, of which all substantial things are just forms. Spinoza even thought that mental things, not just physical things, are manifestations of the one substance, and that mind and body are two aspects of the underlying substance. So Spinoza shows us, with his speculative "mirror," a universe in which there is one substance which takes the form of many different things. Plato shows us a universe which is more basically differentiated. There are the Platonic Ideas or Platonic Forms, and then there's the receptacle, which is like the undifferentiated matter or substance, and then by a certain process the forms are impressed on the receptacle, on fundamental matter. This gives rise to the things in the world around us.

These two overviews of reality both could be true at the same time, if we just knock some rough edges off of both! First we have to weaken the Platonic system a little bit. We take the system to be basically right, but we stop thinking of physical things as manifestations of a "receptacle" which is almost incidental, and which is somehow inferior to the Forms. We have to think of the receptacle as one substance which is fundamental to everything — and we have to consider it just as important as the Forms. And then we have to admit the possibility that the Forms themselves are aspects of the one substance. In other words, the one substance isn't just the receptacle for the forms, but rather the one substance is what underlies the Forms and the physical objects. Loosening up the Platonic system this way does not change anything really essential in the system. Then we can loosen up the Spinozistic system a little bit, so that it admits the possibility that there are Forms. There are not just the mental and physical things in the world — instead, there are mental things, physical things, and Platonic Forms. And these are all manifestations of the one substance. In this way, the gist of the Platonic system (not every single thing that Plato believed, but the gist) can be reconciled with the gist of Spinoza's theory of reality (not every single thing that Spinoza believed, but the gist).

There is another way to reconcile these two systems of thought. We could say that the mental and physical things are manifestations of the one substance, and that the Forms are something else besides the one substance. That would be another way to reconcile the two. This would make the Spinozistic system admit something else (the Forms) that it didn't originally contain, but it would require less change in the Platonic system.

When you think of Plato's and Spinoza's worldviews in this way, it looks as if the place where they go wrong is in *what they leave out.* Both of these systems, in their positive conclusions about what exists, could be essentially right — perhaps

not in all details, but essentially right in essence, in the core of what they're trying to say. But they're wrong in what they leave out! If Spinoza's system leaves out an eternal realm of Forms, then you can't reconcile the two. But if Spinoza had said either that there are Forms in addition to the one substance, or that Forms are manifestations of the one substance, then you could reconcile Spinozism with Platonism. And if Plato's system could regard the Forms as manifestations of one substance, along with the receptacle and the physical objects, then it is easier to reconcile Plato with Spinoza. It's not what these systems admit that makes them irreconcilable — it's what they DON'T admit. Plato's system does not allow for the underlying uniformity of reality in the way that Spinoza's system does. And Spinoza's system doesn't allow for the full reality of the abstract, to the same extent that Plato's system does. You have to make the systems more humble, in the sense that they don't pretend to be an account of absolutely everything, and they admit that they might have left something out. Then it's possible to see the agreement between these different systems.

When you think of it this way, it begins to look like Plato (or Socrates) began to see certain aspects of reality — he began to notice how important the abstract things are. He may have figured this out through reasoning, or through intuition, or just through shrewd guesswork. He began to understand that abstract objects, as we call them today, really exist — and that they form an important part of reality. Without abstract objects, the physical world wouldn't be much; it would just be an undifferentiated substance, or undifferentiated matter. And Spinoza — through reasoning, intuition, or shrewd guesswork — discovered other aspects of reality. He discovered that there's really no fundamental difference between the substance of this object and the substance of that object. There is just Substance. Everything is fundamentally based on one substance, and that one substance is subject to invariable laws. Things can be thought of, from one point of view, as incidents in the existence of the one substance. This is an important insight into

reality — modern physics backs it up!

Now that I've mentioned physics, I should mention that Spinoza's philosophy is known to have helped to lay the foundations of modern science, with its ideas of strict natural law and the unity of substance. Some people think of Plato's philosophy as antiscientific, too mystical, or spooky in some way. I don't believe that stereotype. People can misunderstand any doctrine and make it into something superstitious. But Platonism does not have to be like that. I'm not claiming that Plato didn't have any superstitions. I'm only saying that we can't regard Plato's philosophy as *intrinsically* antiscientific. Plato didn't put much emphasis on the kind of observations that scientists are interested in, but that doesn't mean that it's antiscientific. It just means this was a peculiarity of his, and of other Greek philosophers as well (the well-known ancient Greek "aversion to experiments").

Spinoza gained a mental picture of some very important aspects of reality. These aspects include the fundamental sameness of all substance everywhere; the importance of the immutable laws that govern nature; and the status of things as temporary manifestations of the one substance. Plato gained insight into other important features of reality. These aspects include the importance of abstract objects; the fact that the physical world would be vague and indefinite without abstract objects; and the fact that there are many different kinds of being or existence. These two thinkers, who supposedly disagree with each other, both had different insights into reality. But their insights were (so to speak) perpendicular to each other. They didn't quite mesh. You can make the two systems agree with each other in all *important* respects, if you just realize that Plato didn't see everything in his mental picture, and that Spinoza didn't see everything in his mental picture. Both of them saw something worthwhile, something important.

Plato and Spinoza are not the only speculative thinkers who have underlying agreements. When you sift through other systems of speculative philosophy from the past, you can see how they can be made to mesh, if you follow the same idea. For example, Aristotle had a theory of the four elements. Some chemistry books suggest that Aristotle didn't believe in atoms, that Democritus believed in atoms, and that the Aristotelian conception misled science and philosophy for thousands of years. These books say that when scientists finally went back to Democritus' idea of the atom, they finally got it right and started making progress. You read things like this in books on chemistry and the history of chemistry. But what really happened?

It's true that you can't have chemistry as we know it without the atomic theory. But aside from the idea of four elements, which science has dispensed with, is Aristotle's conception of the world really contradictory in its fundamentals to Democritus'? If Aristotle said no, there are no atoms, then that contradicts Democritus. But suppose you ignored the denials, and the detailed ideas about the workings of nature (some of which clearly were wrong), and only took the positive, general things in Aristotle's system — the insights into how the world is, not the conclusions about how it isn't. Aristotle was a great naturalist; he probably got something right! We know he got some things wrong, but he probably got some things right too. If you take Aristotle's idea of several underlying forms of substance, you have an interesting idea. Forget about whether it's four elements, and whether water is one of them, and all that kind of stuff. Just look at the idea of several underlying forms of substance, or (what is almost the same) an underlying substance that takes different forms. And he had other ideas, like the idea of teleology — the idea that things tended toward goals, that each thing has a certain goal that it tends toward. I'm not saying that's right, but let's just look at it from the point of view of whether it's compatible with

Democritus' system.

Most of Aristotle's ideas are compatible with the existence of atoms. Whether or not they're right, they're compatible with the existence of atoms. So the conflict between Democritus and Aristotle on the subject of matter is not nearly as big as it seems. Aristotle may have thought in terms of four fundamental substances, each of which was not made of atoms but was continuous, as we would call it today. But this is true only up to a point. Water and air and things like that seem like continuous media when you work with them on a macroscopic scale. So when Aristotle denied the existence of atoms, he was wrong. But when he recognized that substances behave, *for everyday purposes and in most cases*, as though they were continuous, that was not wrong. I think Aristotle's view of the world and Democritus' view of the world can be reconciled, once you knock the rough edges off by taking away the stuff that they said "no, no, no" to and eliminating some unnecessary details. Their *positive* ideas can be reconciled with each other and made into one world-picture. The result would be a world-picture in which there was purpose in the world, like Aristotle said — in which things tend toward goals. Aristotle got some of the goals wrong; he thought everything has to fall down, for example. But that's just a detail. The idea that everything tends toward a goal is an interesting idea, whether it's right or not. And it's certainly not incompatible with Democritus' idea that the world consists of atoms and empty space and nothing else. And Aristotle's idea of a number of fundamental substances which can interact and change into each other and so forth — those could be substances made of atoms. So if you take away the denials the philosophers make, and just take their positive ideas about what is, you can usually find that they don't contradict each other very much. Aristotle learned some important things about reality. Democritus learned some important things. The things that they learned might both be valid.

You can reconcile, or retrofit, other lines of speculative thought in the same way. I won't try to do all the philosophers this way, but you can do this with other systems. It begins to look as though speculative philosophers unveiled different aspects of reality. Their only mistake was to thematize those aspects of reality so strongly that they were not open to admitting that other aspects of reality might be real too.

So, did the speculative philosophers really disagree with each other? No — at least not in any irreconcilable way. If we took all the different insights about reality that the early philosophers had, and put them together, and took out the stuff where they said "no" to each other, and took out some irrelevant details, we would find a lot of valid ideas. Just take the positive parts of their systems, stick to the most general ideas, and ask yourself, what insight did they have into reality? What are they teaching us, in a positive way, about reality? I think each of them discovered something valid.

Thus, we can't say that the speculative tradition failed. Speculative philosophers made mistakes, but their fundamental insights were mostly correct. The worst we can say about the speculative tradition that it became factionalized and dogmatic. But that's not a necessary feature of speculative philosophy. *The speculative tradition in philosophy has not failed. We, today, have failed to understand it.* We don't understand its legacy. And I don't think the old speculative philosophers fully understood the nature of what they were doing, either — that they were gaining insights into the nature of reality, and perhaps needlessly waving away different insights. But today we can understand that. And it's clear to me that the speculative tradition in philosophy did not fail — at least if by "fail" you mean "break down in truly irreconcilable disagreement."

Another modern complaint about speculative philosophy is that the speculative philosophers tended to come up with poorly justified or unsupported theories.

Sometimes you can find serious flaws, or unwarranted assumptions, in speculative theories. When a theory has such faults, you can't regard the entire theory as proven. But does this mean the theories are worthless? Not by a long shot. Analytic philosophy tends to try to make everything rigorous, and to nail everything down, and to defeat all objections. The old speculative philosophy did not do that. Its aim was something different. It tried to try to get a theory that would help us understand the world. Hence, the philosophers didn't necessarily work out all the details as carefully as they might have. Sometimes they just glossed over a lot of details. I don't think that is necessarily a mistake, as long as you take the theories for what they are — world pictures that give overviews of reality from some particular point of view. You shouldn't think of them as theories that are supposed to solve all problems and be precisely right in all respects. Scientists often use theories that are mere approximations to the "true" theories.[3] In physical chemistry, for example, there are approximate theories of liquid crystalline phases.[4] These approximate theories are not quite right; we know they involve some incorrect assumptions and gloss over some significant details. To put it bluntly, these theories are false. But for many purposes, these theories work. And they help scientists understand, visualize, and mentally grasp what's really going on in liquid crystals. Often such "wrong" theories are more useful than a very exact, precise theory — because the approximate theories offer a broad, systematic view of the forces involved in a physical system. The approximate theories are wrong, but they are good mirrors of reality. Sometimes the devil is not in the details, but in the big picture. Sometimes a flawed mirror is better than no mirror at all.

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[3] The argument I am making here occurs, with less detail, in the Preface of my book *From Brain to Cosmos*.

[4] My own work with some of these theories is discussed in two papers by my colleagues and myself: Sharlow, M.F., R. L. B. Selinger, A. Ben-Shaul, and W. M. Gelbart, "Cell Model and Computer Simulation Studies of Layered and Hexagonal States of Aligned, Hard Disks versus Rods," and Sharlow, Mark F., and William M. Gelbart, "On the Parallel-Perpendicular Transition for a Nematic Phase at a Wall."

Speculative theories can play the same role in philosophy that approximate theories now play in science. You don't have to have a theory that's 100 percent right to have a theory that's illuminating. And I think we need to take the theories of the major speculative philosophers as tools that are put forth to help us understand reality. These theories focus on certain aspects of reality (perhaps leaving certain others aside), and use these chosen aspects as keys or themes to help us understand the nature of reality. Through such theories, we can get a picture of the nature of reality that may be useful for understanding the world. The theory may be right in many respects, even it's not quite right in other respects.

The accusation that speculative philosophy is poorly reasoned, or that it is based on grand system-spinning that departs from reality, misses the true point of speculative philosophy. Speculative philosophers tended to go overboard sometimes, especially when they failed to see that their ideas could be blended with other ideas that appear different. But I don't think it's fair to say that speculative philosophy is an airy logical construction that doesn't have proper contacts with reality. I think that's just a misunderstanding.

The two main arguments against speculative philosophy are unsound. There is no reason, in principle, why the great tradition should be over. I look forward to the revival of the speculative tradition in philosophy. The new speculative philosophers will be able to formulate theories of the world without claiming that those theories exclude other ideas. They will recognize that a theory may be basically right, even if not every detail of that theory is correct. If philosophers can exercise moderation in those two respects, then we can foresee a return to a healthy tradition of speculative philosophy that will continue the great tradition that so many skeptics say has ended.

# Talk #4. Reason: a Path to Knowledge?

**Questions:**

**What is reason?**

**Is reason a path to knowledge?**

**Are there other paths to knowledge besides reason?**

**Is it always good to be rational—or can unreason sometimes be a good thing?**

**Answers:**

Today there's a lot of debate about whether reason is a genuine path to knowledge. To address this question, we have to think about the question "What is reason?" Philosophers have engaged in various debates about reason — about the nature of rational conduct, rationality in different cultures, and so forth. Haunting all these debates is the question of what reason really is.

Reason, at bottom, is just careful thinking. It's just a matter of knowing what you're thinking, and being careful about thinking. There's really nothing more to it than that. If you think sloppily, and you don't keep track of what you're thinking, and you draw conclusions just sort of at random, then you're not thinking rationally. If you understand what you're thinking well enough to think about it in a way that won't just lead to random, arbitrary conclusions, then you're engaged in rational thought.

Reason is not an enemy of non-rational methods of knowing things. When you know what a pineapple tastes like (to borrow an example from John Locke[5]), that knowledge is not attained rationally. You don't attain that knowledge by any kind of a reasoning process. Philosophers of mind have a lot to say about what that kind of non-rational sensory knowledge really amounts to — but that's beside the point for now. The point is that *there is such a thing* as knowing what a pineapple tastes like. Otherwise, you wouldn't be able to recognize when something tastes like a pineapple. So, just on the basis of ordinary, everyday experiences like that, you can know that there are forms of knowledge that are not within the purview of rational knowledge.

There are things that we know by other than rational means. We can reason about the taste of a pineapple, and make decisions about it rationally, and so forth. But the knowledge of what a pineapple tastes like is not rational. It's not rationally attained knowledge. However, it's not irrational, either. When people say "irrational," they usually mean foolish, or crazy, or immoderate in some way. But there's nothing irrational or antirational about knowing what a pineapple tastes like. It's just not rational knowledge. It is *non*rational, but not *ir*rational.

There are other types of knowledge, more like regular book learning, that also are nonrational. Sometimes you can guess correctly the answer to a question that you can also figure out by rational methods. This happens especially with mathematical problems. Mathematicians know there is such a thing as "mathematical intuition." How intuition and guessing work — what happens in the brain to make intuition and guessing work — is a separate question. Some people would say that a successful guess shows your brain has reasoned unconsciously to a conclusion. But aside from that question of how it happens, it's sometimes possible to intuitively guess the answer to a problem before you

[5] Locke, *An Essay Concerning Human Understanding*, Book 2, Chap. 1, Sec. 6.

can rationally justify your answer. I'm not saying that kind of knowledge is infallible; it may be more fallible than reasoning. But it is possible to know things by nonrational means. And as I said earlier, that doesn't mean irrational, in the sense of antirational. When people say "irrational," that you're irrational about something, what they usually mean is "against reason" — you have a belief, or an attitude, that flies in the face of reason. So for things that are not done rationally, but that aren't anti-reason in any way, we should probably use the word "nonrational," just to avoid confusing those who use "irrational" as a sort of swearword.

Reason is a path to knowledge. It's not the only path to knowledge. As I've just pointed out, you've known many things that you didn't know through reason. But still, reason is one path to knowledge.

Being rational in your thinking, using reason, is really just a matter of being careful about what you're thinking. I will take an example from political rhetoric as an illustration of this. I'm not espousing any political viewpoint by doing this. A political issue just seems like a convenient example.

Suppose somebody named Henry says he doesn't think affirmative action is the best way to achieve racial equality. Some people would take that and infer that Henry doesn't like anybody who isn't white. And of course, that doesn't follow. For all we know, Henry might believe in racial equality, but he just doesn't think affirmative action is the best way of achieving equality. So the critic who accuses Henry of racism either isn't understanding what Henry said, or isn't thinking about it carefully enough to know what is involved in Henry's opinion. All Henry is saying is that he doesn't think affirmative action is the best solution to the problem of social inequality. He's not saying that he approves of social inequality. He's just saying that he doesn't think this particular solution is an

optimal solution. And if you think carefully about what he's saying, you find that this is what he's saying. He's not saying that he's against the elimination of racism, or anything of that sort. So to draw the conclusion that Henry is a racist from the fact that he is skeptical about the value of affirmative action — that is an *irrational* inference. This inference is not an example of rational thought. It is not a valid inference; we do not have any reason to have confidence that the conclusion is right. Is Henry a racist or not? Who knows? You can't tell from what he said about the value of affirmative action! You can't tell from that alone. You don't have enough information.

If you think carefully about what Henry's position actually is — the content of his statement — you can't, from that alone, infer that he doesn't believe in racial equality. And it works the other way too. I'm not singling out one side of the affirmative action issue. It works this way for the other side, too. Somebody gets up there on the podium, and says "I believe in affirmative action", and doesn't say anything else. An activist from the other side might shout "Communist!" But the fact that the speaker believes in affirmative action doe not mean he is a Communist, or hates white people, or believes in political correctness. All he said is that he believes in affirmative action. For all we know, he might not believe in those other things at all. We don't have enough information to tell.

Irrational thinking of this kind is common in political rhetoric. It also happens in many other places. Unfortunately, it happens a lot in universities. And it even happens in science. People take an idea, and draw conclusions from it that are absolutely not in the original idea. They take a statement and draw conclusions from it that are not implied by the actual content of the statement. This is irrational thought. And again, it's not just in political rhetoric or debate that this happens. It happens in lots of places. People in every field are capable of this.

This is the essential difference between reason and unreason. Rational thought is when you think carefully enough to actually know what you're thinking — or when you think carefully enough about the other person's thoughts to actually know what the other person is saying. That's really all there is to reason. Reason is not a system of logic; it's not a system of logical rules. Logical rules are sometimes useful in reasoning — I will discuss them later — but the essence of reason is really just knowing what you're thinking, and not making up stuff about what's in the ideas you are studying.

What actually follows from the proposition you're thinking about — whatever it is, whatever idea it is that you're thinking about? The effectiveness of affirmative action; or the existence of black holes; or the existence of God; or the justifiability of the continuum hypothesis in set theory — what follows from this idea? Whatever issue you're thinking about, if you take the ideas about it and understand what's really in those ideas, and don't make up stuff about those ideas, then you're thinking rationally. Rational thought begins with recognizing what's ideas really are, instead of just making up stuff that you have no real grounds for thinking is in the ideas.

Systems of logic are not all there is to rational thought. They can be tools for rational thought. But reason, in itself, is really just a matter of understanding what you're thinking. And if you don't understand what you're thinking, then you're very likely to run into errors. You're very likely, at some point, to start with a true proposition, or a true belief, and end up with a false belief, and perhaps even a drastically false belief. So, if you want truth, if you want knowledge instead of just poorly justified random guesses, if you want knowledge instead of just an uneducated guess as to what's true, then it's better to think rationally than to think irrationally.

So reason is a path to knowledge. And once again, this doesn't mean that reason is the only path to knowledge, or that all knowledge is found by means of reason. That, I think, is certainly *not* the case. But reason is a path to knowledge. And if you're trying to take ideas or propositions, and infer from them other ideas and propositions that follow from them, then you have to stick to reason. You have to think rationally to do that, or you will have no control over the truth of the results that you get.

If the quest for truth is a good thing, then reason is a good thing. Reason is a path to knowledge; rational thinking is better than irrational thinking. But this does not imply that all knowledge is gained rationally — because some knowledge (like the knowledge of how a pineapple tastes) is not the result of thinking at all.

# Talk #5. What Is Logic?

**Questions:**

**What is logic?**

**Is logic the same as reason?**

**Do the rules of logic really "work"—and how can we know that they work?**

**Answers:**

People usually associate logic with reason. Some people regard "logic" and "reason" almost as synonyms. But as I said before, logic is not the same as reason. Reason is essentially a matter of knowing what you are thinking — understanding the content of ideas and thinking carefully about them. Logic is a science — not a natural science, like chemistry or physics, but a "science" in the same way that mathematics is a science. Today, logic is an academic discipline (though it isn't only an academic discipline — it's much too important to be just an academic matter). Logic is the science of correct patterns of inference in thought. A classic example of this, which goes far back in the history of philosophy, is the following argument, which was part of the presentation of logic given by Aristotle:

If Socrates is a man, then Socrates is mortal.
Socrates is a man.
Therefore, Socrates is mortal.

Take the statement “If Socrates is a man, then Socrates is mortal.” And take the statement “Socrates is a man.” Those are two statements that express propositions about the real world. And if both of those statements are true, then the following statement also is true: “Socrates is mortal.” We make this inference through reasoning. And we can make that inference by means of a rule of logic — a rule that logicians call “modus ponens.”

Logic is a science that studies the rules of correct inference. There also may be other things that fall within the subject matter of logic — I won’t get into that question here. Set theory, for example, sometimes is considered a branch of logic. One can ask whether set theory is part of logic, or is just related to logic. One can wonder whether set theory just has to do with correct inference, or whether it’s more than that. Personally I think that it’s more than that, and that it’s not really part of logic. But in any case, logic proper, or logic in the strict sense of the word (which is probably all that we should call “logic”), is the science of correct inferences — of the rules for correct inference of propositions.

Logic is an embodiment of part of reason. Logic is an expression, or a consequence, of reason. It’s a tool that can be used for reasoning. But still, reason is more than logic. Reason is bigger and vaster than logic, because in order to “see” or know that those rules of logic are right, you have to think carefully about what they’re saying — in other words, you have to use reason. Take two statements, P and Q (they could be “Socrates is a man” and “Socrates is mortal,” or whatever). There’s a rule of logic that says: From “if P then Q”, and P, infer Q. Logicians give that rule a name (“modus ponens”), but the important thing isn’t the name. The important thing is that you can see intuitively that the rule is right. By “intuitively” I don’t necessarily mean that you have to use some mysterious kind of intuition. I mean this: you can “see” that the rule is right just

by understanding what the statements in the rule mean. If you understand what the parts of the rule mean, then you can see how the third statement follows from the first two. (Actually, you don't even have to understand the meanings of the statements completely. You only need to know the right way to use some of the words. I'll say more about that later.)

Consider the statement "If P then Q", where P and Q are placeholders for some other statements. Stated in other words, "If P then Q" means that if the statement P is true then the statement Q is true. If P is the case, then Q is the case. These are all ways of saying "If P then Q". If you understand what the words "if" and "then" mean, you can "see" right away that if the statement "if P then Q" is true, and P is true, then Q is true. To continue with our old example, if it's the case that *if Socrates is a man then Socrates is mortal*, and it's also the case that *Socrates is a man*, then it's the case that *Socrates is mortal*. If you accept those first two statements, then you're stuck with the third statement. One could perhaps argue about whether the first two statements are true. Someone could question whether Socrates being a man implies Socrates being mortal (though to me, this seems pretty clearly true, at least with medical science in its present state!). But regardless of whether the first two assumptions are true, you can be sure that *if* they're true *then* the third one is true also. If the first two are not true, then the game is off; you can't automatically infer the third one, although it might happen to be true by accident. But if the first two are true, then the third one is true.

This is typical of the way logic works. The rules of logic are such that if you understand the premises of an inference — really understand them — and know that they are true, then you will know the conclusion is true. The rules of logic work that way.

There's been a long debate about whether the laws of logic follow just from the meanings of the words (or symbols in the case of symbolic logic) that are used in logical inferences.[6] For example, if we understand the meanings of "if" and "then," will we then be able to be certain that: "if P then Q; P; therefore Q" is a valid inference? That this argument is good? Is the validity of the argument — meaning the fact that if the premises are true then the conclusion is true — guaranteed just by the meanings of the words used in the argument? The words that we wrap around the statements P and Q to set up the argument?

There's been some debate about that, and people have come up with arguments and examples trying to show that this doesn't work — that there's more to the laws of logic than just the meanings of words. I disagree. I would suggest that the meanings of the words *do* guarantee the validity of an argument, provided that the words are defined in certain precise ways. This is a common position, and some of my arguments will seem familiar.[7] In this talk I won't get into refuting the various arguments against this position — against the position that the meanings of some of the words or symbols in logical argument are what guarantees the validity of the argument. I won't go into rebutting specific counterarguments here. But I think that if you know exactly what you mean by the words or symbols, and how to use them, then the meanings of the words or symbols in a rule of logic guarantee the validity of the rule. And that doesn't mean that we have to be able to write down definitions of all the words or symbols, but that we know how they are used to make an inference. I'm being very vague about this, but here's what I mean in a specific example:

[6] This is the well-known debate over whether logic is analytic or synthetic. It's related to the analytic-synthetic distinction in the philosophy of language. Philosophers disagree on whether the analytic-synthetic distinction is real. I'm not going to take up this larger issue here, because I don't think it's a threat to the tiny bit of analyticity I am about to deploy in this talk. Later in this talk I will cite some papers important to the debate over whether logic is analytic.

[7] Later I will cite some articles for and against this position. The argument I will present here is more elementary and intuitive than the arguments in those papers.

Take the argument

> If P then Q.
> P.
> Therefore, Q.

Symbolic logicians treat "if-then" as one concept; logicians write "P → Q", or sometimes they use other symbols besides an arrow. So we can write the argument as

P → Q
P
Therefore, Q

That arrow can mean various things. And logicians who have studied the problems of if-then statements in logic are acutely aware of this — that the arrow can have more than one meaning. An "if-then" statement like "P → Q" is called a *conditional.* Philosophers have made many different studies of conditionals. But that arrow representing logical implication — if you decide in advance *exactly* how you're going to use that arrow, then you may know, after making that decision, whether that argument is valid or not.

One popular alternative for interpreting that arrow is to say that the arrow acts as a function that takes the truth values (true or false) of the two statements in front of and behind it, and gives back another truth value. Based on what the truth values of P and Q are, the statement "P → Q" has a certain truth value, given by certain rules. If P and Q are both true, then "P → Q" is true. If P and Q are both false, then "P → Q" is true. If P is false and Q is true, then "P → Q" is true. If P

is true and Q is false, then "P → Q" is false. And those are the only possibilities. So once we clearly understand this — once we have decided to use the arrow in *just that way* — then we can put any statements we want before and after the arrow, in place of the placeholders P and Q. And if we know the truth values of those statements, then we know the truth value of "if P then Q," or "P → Q".

That's only one way to interpret the arrow or the "if-then" in logic. There are other ways as well. Logicians, who know the difference between "material implication" and other kinds of implication, will know exactly what I'm talking about here. But once we have fixed the meaning of the arrow in a way that's sufficiently clear, we do not have any problem deciding whether the inference "P → Q; P; therefore Q" is valid. Based on those rules I just gave for the truth value of "P → Q", if P is true, then the only way that "P → Q" can be true is for Q also to be true. If P were true and Q were false, then the "P → Q" statement would be false. So once we've granted that "P → Q" is true, and once we've granted that P is true, then we're stuck with the conclusion that Q is true. Provided, of course, that we use the arrow in exactly the way I just described.

Once we understand this much about how to use the arrow, it's possible to know that that inference rule is valid. You can see that intuitively. (By "intuition," in this instance, I don't mean anything that's mysterious or anything that has a mystical component. I just mean examining ideas, and grasping the ideas with your mind, and understanding what they mean and how they interrelate.)

The inference rule I've been describing is the rule of modus ponens, which I mentioned earlier. Once you understand how to use the arrow — once you have decided "OK, these are the conditions under which the statement with the arrow is true, and that's all" — then the arrow doesn't have anything vague in its logical use. Then the rule of modus ponens can be "seen" to be valid, can be known to be

valid, just through careful thinking. First you need to decide exactly how the arrow is to be used. You're not equating it to every usage of "if-then" that's ever been made in English or in another natural language. You need to say: this is *specifically* how I will use the arrow, or this is *specifically* what I mean by "if-then" in the context of this argument, and that's what I mean, *period*, by the arrow or by "if-then" in this argument. Then the rule modus ponens can be seen to be valid, can be known to be valid, just through careful thinking. In a way, this kind of knowledge depends on something even more basic than careful thinking. It's just a matter of understanding what the concept represented by the arrow is. And you don't need to understand that concept fully. You just need to decide to use the arrow in a specific, exactly specified way. Then you can tell, just by thinking about that, and sort of mentally unpacking it, that that inference is right. And if you don't see that, then your thinking about the usage of the arrow, about how to work with the arrow, has somehow gotten some other element into it — an element besides the way you've decided to use the arrow. Maybe you've got something else in the back of your mind — like maybe you're thinking of other times in your native language where the words for "if-then" don't behave like the arrow. There are many cases in English where "if something, then something" doesn't correspond to the use of that arrow as I just defined it. And I suppose this is true of other natural languages. Natural languages have a lot more multiple meanings than formal (mathematical or symbolic) languages do. But whether we use a symbolic language or not, or just use a natural language and make decisions about precisely how we're using the words, then we're in a situation where we can tell if certain inference forms are valid or not. And you can tell that by — to use a metaphor, just by mentally scanning the meaning of the words involved, be they "if-then" or "and" or "not" or even "or". (There are a bunch of words like these that are crucial to logical inference, that I could be talking about here instead of "if-then".)

Once you understand the meaning of certain crucial words or symbols in a logical argument, whether it's written or spoken, then usually you can tell whether the argument is valid or not. You can tell that just as part of the act of properly understanding the meanings of the words or symbols. And you don't have to understand everything about the meaning — just the exact rules for using the words or symbols, and especially for deciding truth or falsity of statements involving those words or symbols.

I'm speaking here of logical arguments as items made of words and symbols. You could probably best think of a logical argument as being made of *ideas*, and the sequence of words and symbols as just representations of the argument. But I won't try to argue that point here. It leads into the question of how symbols mean. Do symbols *express* ideas, or *denote* ideas, or what? There's been a lot of argument about that in the philosophy of language. But my present point about logic doesn't depend on those details. If you have a logical argument (whether it's written, spoken, or composed of ideas), and if you understand the content of the argument, then at least for short arguments, it's possible to "see" — that is, to mentally recognize — that the argument is in fact valid. And this is the basis for the truthfulness of logic — for the fact that logic does yield truth, if it's used carefully. This is the basis for the usefulness of logic as a tool for rational thought.

When I say that logic is a way to attain knowledge, or that it's a tool for finding truth, I'm not saying that there aren't other ways to knowledge and truth — even ways that don't involve any thinking at all. But logic definitely is one method that can be used to attain truth. And if we clearly think about the meanings of words and symbols, if we understand these and understand the steps made in logical arguments, then we can find out whether those steps are right. Therefore, logic, if used very carefully, is right. Humans being what they are, it's possible to

make errors in reasoning. But it's much more likely for an error in reasoning to occur if you're thinking without any kind of logic, than if you're thinking logically.

There are two additional questions about the correctness of logic that I would like to address. One is the existence of arguments *against* the view that basic logical inference rules are true by virtue of the definitions of terms. (I alluded to these arguments earlier.) Usually, this has to do with basic logical kind of terms, like "if-then", "and", "or", "not", "some" and "all". People have argued for and against the view that basic inference rules of logic are correct (valid) by virtue of the meanings of those terms.

Once again, I will not go into the counterarguments that have been posed against this view that logic depends crucially on meaning.[8] I just want to say that my view is *much more limited* than the view that these counterarguments are meant to attack. What I'm proposing here is much more modest than the view that logical validity depends on the meanings of words. I don't want to go into all the issues surrounding the meanings of words, because semantics is a big area in the philosophy of language, and various theories of meaning have been proposed. My view does *not* require that the meanings of words entail in some way the validity of logical inference rules involving those words. It could well be that if we take the words "if-then" just as they're taken in English (instead of using a more precise version like the arrow), there will be enough sloppiness in the use or meaning of those words that we might get some contradictory results. We might get some "logical" rules that will someday show their incorrectness by declaring the same statement both true and false. We can't rule out that possibility ahead of time, unless we propose a very precise usage for those logical words like "if-then", or of the symbols that stand in for them in symbolic logic. So I'm not

[8] I am thinking of A.N. Prior's noted article "The Runabout Inference-Ticket."

really proposing that logical inferences are right because of the meanings of the words involved. That's a gross oversimplification of what I'm saying. I'm saying that *if* we define the words more carefully — that is, give them similar but more precise meanings — or replace them with symbols having similar but more precise meanings, then we can tell what we can infer from them without going from a true statement to a false statement. First we have to understand the way to *use* those words or symbols. I shouldn't even say we have to know the meanings of the words or symbols; we just have to know the ways to use them. (Philosophers of language know the difference between "use" and "meaning.") Once we have decided on a fixed, unvarying, predecided way to use the logical words, then we can know, from that, whether a particular inference involving those words is valid or not. We can know whether the inference would be right under all conditions, or not. We can know this, if we have made the logical words and/or symbols precise enough, in the sense of giving them a precise usage. Recall the example that I gave before, of taking the arrow that takes the place of "if-then" and specifying the truth value of "P $\rightarrow$ Q" for any possible combination of truth values of P and Q. This is what logicians would call constructing the truth table for the arrow. Once we've done that, we have enough to know whether inferences like "P $\rightarrow$ Q; P; therefore Q" are valid.

There are a lot of questions that are left hanging, or left open, after we've made this decision about the meaning of the arrow. There are questions about (for example) how symbols or words mean. Does the arrow really denote anything? Some philosophers have thought that symbols like the arrow, or its verbal equivalent "if-then", actually denote functions that maps certain things into certain other things — just like an ordinary mathematical function. Given two truth values for P and Q, the arrow "gives back" another truth value — its rules of usage let you determine what the truth value of the statement "P arrow Q" is. So some philosophers have proposed that the arrow stands for a function that takes

pairs of truth values and gives back truth values, in the same way that an ordinary function of two numbers (like f(x, y) = x + 2y, for example) takes two numbers and gives back another number.

So there are all these remaining questions. Does the arrow denote anything? There are questions about whether statements express propositions ("Fregean" semantics), or denote propositions ("Russellian" semantics). Is the *meaning* of a statement something mental? Is it something abstract that's not just mental? Is the meaning of the statement just what the statement stands for? These are among the many questions that philosophers of language ask. Philosophers of language have many more of these questions, besides the ones I just alluded to. These questions are important, but they do not affect the correctness of the inference rules of basic logic — and they do not affect our ability to know that those rules are correct. We don't need to have the answers in the philosophy of language before we can do logic, or before we can know that certain logical inferences are valid. We can know that logical inferences are valid if we have specified a strictly precise usage — a strictly precise way of working with the logical symbols or logical words in the argument. If we have specified exactly how to use "if-then", then we can know that the modus ponens rule is valid. And it doesn't matter if the "P" denotes a truth value and expresses a proposition, as some philosophers (so-called Fregeans) have argued, or if the "P" denotes the proposition and bears a truth value (so-called Russellians) — or whether some other theory of meaning holds. There are multiple possibilities for how symbols and words mean. Does the arrow stand for anything? Does it stand for a function? Or is it just a symbol, what is called a syncategorematic symbol, that means nothing on its own? These questions are important, but if we only want to establish that logic "works," we can set all these questions aside. We can still do logic without knowing the answers to these questions, as long as we are precise enough in deciding how to use symbols, or logical words.

In the case of an inference like the modus ponens, it doesn't really matter what the "P" and the "Q" stand for. One of the nice things about logic — one of the well-known useful things about logic — is that logic is formal rather than material. That is, you can just put placeholders like "P" and "Q" in place of statements, build up more complex statements using logical symbols or words (like the arrow), and make logical inferences based on the structure of the complex statements, without worrying about what the "P" and the "Q" mean. And you can develop patterns of inference that can be known through immediate mental understanding to be right — patterns of inference with placeholders in them. And after doing that, you can just use those patterns or rules mechanically, and just throw whatever you want into the placeholders, and you know you'll get the right answer. You can do this because the inference pattern that you worked out originally is valid, regardless of what is in the place of the P and the Q. So you don't have to fix the meaning or usage of all of the symbols in a logical argument in order to know that the argument is valid. You just have to fix enough of them, as many as you need in order to know by mental inspection that the argument is valid. You don't have to fully and clearly understand every single thing in the logical argument. There will be a lot of things that you can just put in place of the "P" or the "Q" and not worry about.

The bottom line is that substantive questions in the philosophy of language, though important in their own right, simply don't have to be answered before we can do logic. It's impossible to mount a critique of logic from the standpoint of the philosophy of language. People have tried it, but in the end it won't succeed. Logic depends on something too basic to be affected by the specifics of how words mean, and how symbols mean, and so forth.

Logic also doesn't depend on psychology. (The belief that it does is called

psychologism with respect to logic.) The way I've described things, I may have made it sound as though logic contains a strong mental element — as though our ability to understand could influence whether a particular logical argument is right or wrong. But this isn't what I meant. To do logic, we don't need to know exactly how the human mind works. What's important is that sometimes we can understand things, and if we fully and carefully understand the uses of the logical words in an argument, then we can tell whether the argument is right. I should mention in passing that this might not work for very long or complex arguments, because you might not be able to grasp the argument all at once in your mind. That is a limitation of the human mind, but it doesn't matter to logic. In practice, big arguments always can be broken down into simple steps. So you don't need to worry about the fact that an argument that's too long is not intuitively graspable as a whole.

Now let's get back to the previous topic: the arguments against the view that the meanings of words or symbols insure the validity of logical inferences. As I hinted earlier, I'm not claiming that the *meanings* of words or symbols determine the validity of logical inferences. I'm saying something much less venturesome. My position is even more different from this claim than it might seem at first glance. There are philosophical arguments that try to show that the meanings of words don't guarantee the validity of a logical inference. I am thinking of a well-known argument by A.N. Prior,[9] which shows that by introducing new logical words and defining them the right way, we can develop inference rules that give contradictions. J.T. Stevenson found out what is wrong with Prior's argument.[10] The essential lesson of Stevenson's rebuttal is this: when the use of a new word in argument leads to contradictions, you can't get a *truth table* for that word. You can't get a truth table that "works," that gives just one answer for each possible

[9] A.N. Prior, "The Runabout Inference-Ticket."
[10] J.T. Stevenson, "Roundabout the Runabout Inference-Ticket." Actually, Stevenson found out only one thing that was wrong. Nuel Belnap found others; see his article "Tonk, Plonk and Plink."

input that you plug into it. If you can introduce a logical word into a language, and then derive contradictions with the help of the inference rules for that word, then there must have been some kind of imprecision in the definition of the word. You haven't specified the usage of the word precisely enough. And it's especially dangerous to define a symbol in this way. Suppose that I tried to define the arrow by saying, "The arrow is a symbol such that inferences of the following forms are valid", and then giving a list of supposed inference rules for the arrow. You can't do that, because you can't really *define* a symbol that way. If you do try to define a symbol that way, then you're not really understanding how the symbol would be used in all possible cases. There would be a possibility (though not a certainty) that you've loused up somewhere in your understanding of the symbol — that you've created a symbol that really doesn't have a well-defined usage in all cases. (This is the gist of Stevenson's rebuttal as I understand it — though Stevenson's rebuttal was more precise than I would dare to be in this talk.) I haven't given specific examples of this in the time allotted to this talk. I have given sort of a general rebuttal to arguments that say validity is not determined by definitions. I think those arguments fail to hit the position on logic — on the correctness of logic — that I am taking here.

# Talk #6. The Many Paths to Truth

**Questions:**

**Is there more than one way to attain knowledge?**

**Which "ways of knowing" lead to real knowledge? What about reason? science? personal experience? faith? mysticism?**

**Is truth one thing, or are there many different truths?**

**Answers:**

There have been many philosophical debates about ways of knowing, and about the relative merits of different ways of knowing. Epistemology, also known as theory of knowledge, is the branch of philosophy that deals with the nature and sources of knowledge. There are many schools of thought about how we can know. Most lines of thought on this subject fall into the four general categories of rationalism, empiricism, pragmatism, and mysticism. I'm not going to give an introduction to all these types of epistemological thought. (Philosophy textbooks already do that.) Instead, I'm going to state my own opinions about which ways of knowing are right. These won't be the sum total of my opinions on this subject; there's more material elsewhere, in my writings.[11]

We have seen that reasoning is a way to truth. This fact does not license us to rule out any other methods of finding truth. Reasoning is a way to truth, but so is the description of *subjective facts.* A subjective fact is a fact about how things

[11] In my earlier book, *From Brain to Cosmos*, and elsewhere in these talks, among other places.

seem to someone in a particular instance. (I discussed the concept of subjective fact in my book, *From Brain to Cosmos*, where I gave a more complete and careful definition of subjective fact.) I pointed out earlier (in *From Brain to Cosmos*) that one can describe subjective facts, even in the absence of any presuppositions about the existence of an actual world beyond subjective facts. Because subjective facts hold, there are such things as subjective reference, subjective expression, and subjective language. (I've covered these topics elsewhere in my writings.[12]) So the description of subjective facts is good as a way of knowledge. Is it infallible? Yes and no; there are certain respects in which it is infallible, and other respects in which it isn't. I discussed this in *From Brain to Cosmos*. But in any case, subjective description — description of subjective fact — is one way to attain knowledge. You don't attain all knowledge that way; you attain knowledge of subjective facts, of how things seem. In any case, it is a way to attain some knowledge.

Reason is a way to obtain truth — knowledge of truth. I've discussed this elsewhere.[13] But the fact that subjective description "works," and that reason "works," doesn't let us rule out other methods of finding knowledge — other ways of knowing. There can be such ways — whether they're scientific ways, or religious ways based on faith, or mystical ways based on some sort of intuitive experience or "knowledge by acquaintance" (to borrow a well-known phrase from Bertrand Russell).

Scientific knowledge has certain philosophical difficulties connected with it. However, most people feel that knowledge obtained through scientific methods really is knowledge. Scientific knowledge certainly is something that a lot of

[12] Besides *From Brain to Cosmos*, there are my two papers "Notes on *From Brain to Cosmos:* Questions and Answers about Subjective Fact" and "How Subjective Fact Ties Language to Reality."

[13] In *From Brain to Cosmos*, for example, and of course elsewhere in these talks.

people feel to be genuine knowledge. I believe it is genuine knowledge, for reasons that I won't go into right now. But the point is that nothing I have said so far — about the soundness of subjective description and logical reasoning as ways to knowledge — can rule out scientific knowledge, which goes beyond these two ways.

And then there are ways to knowledge that are based on faith. Not all of these ways to knowledge are created equal. Some are dangerous. Someone could pick up an irrational idea — a random idea with no rational justification — and just pick it up, believe it, and run with it. This happens all the time. There might be no justification at all for picking up that idea instead of some other idea. You could justifiably ask, Why is he believing in that instead of in something else? It's just blind, automatic faith. This kind of "faith" doesn't guarantee knowledge, or even a likelihood of knowledge — because if the decision about what to believe is completely unjustified, then why couldn't you just believe something else completely unjustifiable instead? Why one belief and not the other? So blind, mechanical faith is not a way to reach knowledge. Of course, most religious faith isn't like that. Most religious faith is based on a body of thought and religious experience that goes way back in time — so that's a different story.

Faith might sometimes be a correct or productive way of knowing, if one is believing something that comes from an authority one can trust — an authority you know to be knowledgeable about the subject matter at hand. So faith, when it's based on a method of authority and the authority is a *knowledgeable* authority, might sometimes be a useful way of knowing. I'm skeptical of authority in general, and I'm against uncritical acceptance of authority on any kind of knowledge. But if you think a person knows what they're doing, then some degree of faith in them might actually have a rational justification.

Another kind of faith that can have a rational justification is faith based on pragmatism. I'm thinking of William James's pragmatism,[14] which recognizes that sometimes you can't know the answer to a question but assuming one answer is much more fruitful and practical than assuming some other answer. So without going into depth in these questions of what faith is about, and without going into all the details of when faith is a reliable method of knowing and when it isn't, I will just say that faith *may* be, at least in some instances, a trustworthy way of knowing things.

And then there's mysticism. That's a word that means everything to everybody! People use "mysticism" as a name for several utterly different phenomena, ranging from the rankest superstitions up to the highest levels of poetic insight and universal love. But if you think of mysticism more philosophically — as a method of knowledge that relies on *intuitive experience* — then that might be a good way of knowing, too. That might be a way of knowing that can, under certain conditions, lead to real knowledge. There might even be rational justification for believing in certain kinds of intuitive experiences.

Even if we are "rationalists" in the broad sense that we accept reason as a way of knowing,[15] we don't necessarily have to reject all other ways of knowing. We can consider a mystical way, like the philosophy of Henri Bergson (a kind of secular mysticism), or one of the many schools of religious mysticism. We can consider a scientific way of knowing, or a religious way of knowing based on thoughtful faith (*not* blind faith). We can't rule these out just because we're rationalists, in the sense that we accept reason. Whether these ways of knowing are actually good ways of knowing, and actually do lead to knowledge of the truth, is a complicated question. It depends on which particular method we're talking about.

[14] See William James' essay "The Will to Believe" and his lecture "Pragmatism and Religion."
[15] This is not the traditional meaning of the word "rationalist" — a philosopher who thinks reason is the most important, or perhaps only real, method of knowing.

The main argument for science being a correct way of knowing is, of course, that science works — that science has such vast practical consequences, and lets us do things that we couldn't do before. If scientific ideas had no connection with reality, then it's difficult to see how that could happen. But the question of what is actually *known* through science — how much we can actually believe scientific theory — is a big question. There are realists, and antirealists, and so forth, on that topic. I hope to talk more about this subject later.

As for mysticism, we shouldn't trust just anything that passes for an intuitive experience, because at least some of these experiences are delusional experiences of various kinds. But with so-called mystical experiences, you have to ask what kind of knowledge is supposed to be involved. Does the experience seem to lead to *discursive knowledge* (meaning knowledge that can be put into statements)? Or does it lead to what Russell called "knowledge by acquaintance" — that is, a kind of direct grasping of things?

If a mystic claims to have known God, to have directly experienced God, it would be legitimate to ask, What do you mean by God? What's your concept of God, to begin with? If you did attain God, how would you know it was God that you had attained, and not something else? And for most mystics, my understanding is that they think of God as the Ideal of the heart — the one the heart seeks, or the ultimate goal the feeling side of human nature seeks. The one we yearn for, at least unconsciously. The Ideal, you could say — the Ideal of the heart. A lot of religious mystics, and other sincerely religious people, seem to think of God in those terms. And this conception of God leaves open the possibility that mysticism yields real knowledge. Let me explain this point further.

Suppose that by the word "God", you mean a being who created the universe.

Then in order to know that you had really gained some sort of personal knowledge or experience of God, you'd have to verify that the being or reality you had experienced was the creator of the Universe. And that's a tough one! Probably you can't do it. But suppose instead that by the word "God", you mean the ideal of the heart, whatever He, She or It might be. Then, if there is something that is the ideal of the heart, it might be possible, in principle at least, to attain acquaintance with that in some way. This kind of knowledge would not have to involve any paranormal or supernatural perception. To see why not, consider the following question. What if the ideal of the heart were just the *Ideal* — just the abstract values, the sum total of the abstract values which we, as valuing beings, seek.[16] In other words, what if the ideal of the heart were *perfection itself? The abstract quality called Perfection, regardless of whether any physical being has this quality?*

Philosophers of religion have had a lot to say about perfection. But if the ideal of the heart were the quality of perfection itself, then presumably the intuitive knowledge of the idea of Perfection would entail knowledge of God! And a person might attain a deep, personal acquaintance with that idea — not just talking about that idea in words like I'm doing now, but actually feeling it. There's a big difference between talking about it and feeling it. It's like the difference between talking about the size of the universe, and concentrating on the night sky until you *feel the dizzying vastness of Space as though you were out there*. A person who has a deep, feeling experience of the idea of Perfection might be said to be *in union with God.* All this makes sense if your conception of God is that of Perfection Itself — the quality of perfection. Nothing supernatural would be required.

Could the quality of perfection really be considered God? Could a mere

[16] The concept of God I am considering here is not new. It is a version of the Platonic concept.

abstraction like this be God? Maybe, if you believe that abstract objects are real — a question I've dealt with in other talks. And in any case, such a God would not be entirely abstract. Anything in the world that shows the good, or that hints at perfection, would be a partial instance of this abstract object—and hence, in a sense, an instance or example of God. This kind of God is hardly the god of conventional, literalistic religion — but perhaps it qualifies as a *supreme* being, and as a being worthy of worship.

I'm not defending this particular view of mysticism or of God — at least not for the time being, in this talk. I'm just pointing out that there may be mechanisms by which so-called nonrational ways of knowing could work, that would make those methods rationally defensible. That is, we may be able to come up with a rational understanding of how these nonrational ways work.

Religious mysticism is not the only line of thought labeled mystical. There's also Bergsonianism. Bergson often is regarded as kind of a mystic; his philosophy is based on a kind of intuition supposedly more basic than reason itself.[17] Bergsonian intuition is a process of coming to grips with *time* in a very personal way — with the constant outfolding and changing of things in the universe, with the flux of things. Bergsonian intuition is really a kind of personal acquaintance with time. You can make this intuition happen by learning to focus your attention in the right way, instead of in our usual deceiving way. At least this is the way I read Bergson. In addition to these claims rooted in personal experience, Bergson makes certain claims about reality that can be stated in words — claims that go beyond direct personal experience. Whether those conclusions can be drawn from studies of the experiences behind the Bergsonian system, is another question. I'm not here to analyze, defend or attack the Bergsonian philosophy right now. My point is that it's possible there might be so-called mystical or intuitive ways of

[17] My remarks on Bergsonianism are based mainly on Bergson's book *Creative Evolution*.

knowing that are not tied to religion.

As for methods based on faith, I've talked about them already. William James has talked about them more than I have.[18] As James pointed out, it may be possible to justify a nonrational commitment to a certain position, based on the practical consequences of that position.

The upshot of all this is that there are many potential ways of knowing — many possible ways of knowing, some of which actually work. Even if we adopt reason and subjective description as the most basic, fundamental and reliable ways of knowing (and I think we should), we can't rule out the possibility that other ways lead to real knowledge! Maybe these other ways aren't quite as airtight as rational thought — but on the other hand, maybe some of them are. For all we know, maybe some of them can rise to an equal level of reliability.

There are many different potential ways of knowing. Some that seem irrational might actually have rational roots; there might be some rational justification for their use. There's nothing in reason or in rationality that rules out the possibility of sources of knowledge that depend on personal experience or belief, instead of just reason.

I should say a few words about theories of truth. Later on, I may get back to different kinds of knowledge, like scientific knowledge, and have more to say about them. (Science too.) In the mean time, I'd just like to say one thing about theories of truth. I've already discussed this in *From Brain to Cosmos*, so I won't say much here.

In *From Brain to Cosmos* I suggested that there might not be one single theory of

[18] See my earlier footnote on James.

truth that fully describes the notion of truth. Truth is one thing. Whatever truth is, however you regard it, there's such a thing as the truth, and there's such a thing as untruth. At very least, a statement may be true or may be false (untrue). Philosophers have put forth different theories of truth to try to explain what truth is and how it functions. I think that those different theories of truth may be, not competitors, but complementary. They may be applicable in different areas of theory and practice — different theories for different areas — even if there is only one underlying idea of truth. I pointed this out in *From Brain to Cosmos*.

I can't absolutely rule out the possibility of a final theory of truth. But why does there have to be one? There can be multiple theories of truth instead, even if truth is single and unique. I'm not arguing for the postmodern idea that there are many different truths. I'm saying that even if there's one thing called truth, one property of statements or propositions called "truth," one abstract item called "truth," this still doesn't mean that one theory has to fit it in all cases. So the different theories of truth could be complementary to each other, rather than competitive.

# Talk #7. Reality and Consciousness

**Questions:**

**Could the physical world around us be an illusion?**

**Are abstract things (like shapes, colors, and numbers) just as real as concrete physical things (like tables and chairs)?**

**Answers:**

In *From Brain to Cosmos* I developed several ideas, including a view of the existence of physical objects. According to that view, the conditions for the existence of a physical object can be taken to be conditions on *subjective facts*. [19] This view of physical objects solves some problems about reference in language. I discussed this solution in one of my papers.[20] But this view also can overcome skepticism with regard to physical objects. If a physical object is simply that which exists when certain subjective factual conditions are met, then skepticism with regard to physical objects, in its traditional forms, simply goes out the window. This includes a number of different kinds of skepticism. Most notably, we overcome Cartesian skepticism, which regards physical objects as possibly being illusory.

According to my view, if all observers' experiences are exactly as they would be if a physical object existed, then a physical object exists. Experience can tell us

[19] I developed the idea of subjective fact in detail in my earlier book, *From Brain to Cosmos.* A subjective fact is just a fact about how things seem in a particular instance — for example, it seems to you now that there are written words in front of you. The definition of subjective fact in *From Brain to Cosmos* is a bit more complex than that, but that's the gist of it.

whether there are physical objects — Descartes' famous thought experiments notwithstanding. There are other ways to overcome Cartesian skepticism, but this way is one such way.

Another kind of skepticism about physical objects also goes out the window. Certain lines of thought in the philosophy of science regard physical objects as theoretical objects that are postulated to explain regularities in experience. I'm not going to argue for or against the view that this is the real purpose that belief in physical objects serves. I'm just going to point out that according to my view of existence, a physical object is simply that which we are justified in postulating when certain regularities in experience occur. There are subjective factual conditions which guarantee the existence of a physical object. If appropriate experiences occur, then these conditions guarantee that it is correct to postulate a physical object. And this is the same as guaranteeing that there is a physical object. Someone could say that the physical object is only a fiction that we postulate when certain regularities occur in experience. From my standpoint, if those regularities in experience justify us in relying unreservedly on the fiction that there is an object, then we can say also that those subjective factual conditions imply the existence of an object. After all, what is there to lose? Appropriate conditions on subjective facts are equivalent to the existence of an object. An object isn't reducible to subjective facts; we can't say there are really only subjective facts. But certain sets of constraints or conditions on subjective facts are equivalent to the existence of an object of a certain sort. If we take the regularities in experience, and take the regularities in subjective fact associated with those regularities in experience, *and then also* take those regularities in subjective fact to be conditions for the real (not just fictional) existence of a physical object — what more are we assuming in the last step? What more are we really assuming — not just in words, but in reality? From a practical standpoint,

[20] "How Subjective Fact Ties Language to Reality."

we are not assuming anything beyond what we assume when we say, “Well, these regularities in the data occur, so let’s play pretend and speak as if there’s a physical object.”

A physical object is an entity that has a specific relationship to subjective facts. In scientific practice, if certain regularities in experience exist, then we assume there is a physical object. For example: we assume there are atoms because our experiments on matter have certain repeatable results. This is the way that scientists arrive at beliefs in physical objects. It also is the way that common sense arrives at beliefs in physical objects. (If I see a pin on the floor, if I touch the sharp end and it hurts, etc., then I assume there is a pin there.) Another way to describe this relation is: if certain conditions (regularities) hold on subjective facts, then a physical object can be postulated. This is just the way that science and common sense look at the existence of physical objects. If certain regularities in experience exist, then we postulate a physical object. Evidently there is a relationship between the category of physical objects and the realm of subjective fact. And there’s really no contrast, I would argue, between that relationship and the following relationship: certain conditions on subjective fact imply the existence of a physical object, and even are necessary and sufficient conditions for the existence of a physical object. What makes these two relationships different? Where’s the contrast?

Suppose that a physical object is the kind of thing which we can safely assume (pretend?) to exist if and only if there are certain regularities in subjective fact. What’s the difference between that, and the view that a physical object really exists if and only if there are certain regularities in subjective fact? I don’t think there’s any real contrast there. We are on just as sound an ontological ground if we say yes, the physical object does exist, and exists because of a logical tie with the realm of subjective facts. That is, the existence of a physical object is a

consequence of the regularities in subjective fact. And if those regularities in subjective fact are there, then the physical object exists. Normally we assume (perhaps implicitly) that if those regularities happen, then we can at least pretend the physical object exists. I don't know why we would need to just pretend. Subjective fact is the kind of thing that can give logical "life" to the reality of an object! We already know that conditions on subjective facts, and regularities in subjective facts, can make plausible the existence of physical objects. So why not just postulate the physical object? If a physical object is anything, it's the kind of thing that would manifest itself through regularities in experiences. This is another way of saying that it's the kind of thing whose existence would be logically tied to regularities in subjective fact.

Thus, I think skepticism about physical objects based on the idea that they're only theoretical objects goes out the window. This view of existence that I'm setting forth can refute that skepticism. I think certain other skeptical views go out the window, too — like the idea that there isn't really a single physical object, there's really just a collection of interacting elementary particles. This is a view that goes back to Democritus, who said there's really nothing but "atoms and Void."[21] This kind of skepticism goes out the window too. An argument against this type of skepticism would start with the fact that the subjective factual conditions for the existence of the physical object are met when the particles are there in the right arrangement. (If the particles are there in the right arrangement, then observers will experience the physical object.) Thus, if the particles are there in the right arrangement, there really is a physical object. And just as in the previous form of skepticism (the theoretical-object-based skepticism), one could say, "Well, if it's coherent with all our other experience to suppose there is an object when certain conditions hold, then why not just postulate the object? Why not just take the conditions on subjective fact to be the conditions for the real (not pretend)

[21] Democritus, quoted in Freeman (ed.), *Ancilla to The Pre-Socratic Philosophers*, p. 93.

existence of a physical object?" Subjective facts are the kinds of things whose regularities can logically imply the existence of an object. So why would the subjective facts that occur in connection with observers' experiences of, say, a chair, imply the existence of the atoms but not of the chair? We don't really gain any ontological economy by not postulating a chair — because it isn't really a question of ontological economy. The question is, are subjective facts the kind of items whose regularities can justify our belief in an object? And the answer is: Yes, they can. So why would we want to postulate just the atoms and not a chair? It's not a matter of, "Well, we can get by with postulating less objects, we can be more Occam's razor-ish, if we don't postulate the chair." It's not like that at all. The ontological foundations of the chair — the subjective facts — already are there. And why don't we want to postulate the chair too? We're actually introducing more complications, and more unnecessary assumptions, if we assume that those subjective facts can help to underpin the existence of all those atoms, but they can't help to underpin the existence of the chair! Especially in view of the fact that the atoms are not directly observable, and therefore are more tangentially, less directly, related to the subjective facts than the chair itself would be if it existed! So the view that only the atoms or particles exist becomes very difficult to support if we adopt the view of existence that I began developing in *From Brain to Cosmos*.

So skepticism about physical objects — or at least a few brands of that skepticism — seems to go out the window. What's also interesting is that the new view of existence (existence as a logical outgrowth of subjective fact) also appears to solve, or rather undermine, problems about the existence of abstract objects of various sorts. One would expect the subjective factual conditions for existence of these objects to be very different from the subjective factual conditions for the existence of concrete physical particulars. For example, one could ask: Does a property exist when, and only when, the subjective factual conditions for the

existence of an object having that property are met? We can, in principle, formulate the subjective factual conditions for the existence of a square object — the constraints on subjective fact that would imply the existence of a square object. Would it be wrong to take those conditions to be the conditions for the existence of the property of squareness? Or perhaps the conditions we should be looking at are not the conditions for the existence of some square object. Perhaps the appropriate conditions are the subjective factual conditions for it to be *possible* that there exists some square object. Maybe that's what we should be looking at. But in any case, once we have the conditions for the existence of some actual or possible squareness in the world, then why not regard those as conditions for the existence of *squareness* as an abstract object? What would we lose by doing this, and what would we gain? The subjective factual conditions are the same, whether or not we recognize them as conditions for the existence of an abstract object. And those conditions really are what underpins the reality. So by postulating the abstract object of squareness, technically we're postulating another object — but actually, in terms of what underlies the existence of objects, we're not postulating anything new! We're just discovering a fact about the realm of subjective facts — that is, that the conditions for the existence of squareness are the same as the existence (or perhaps the possibility) of a square object.

In one of my other papers,[22] I argued that we should take a modestly realistic stance toward universals, because universals have conditions of existence different from the conditions of existence of physical particulars. I didn't use subjective fact in that paper. Here I'm proposing something like this, except I'm being more specific. For "conditions of existence," I'm substituting "subjective factual conditions of existence." The suggestion here is more specific — we regard universals as having subjective factual conditions for their existence,

[22] "Getting Realistic about Nominalism."

different from those of physical particulars.

If you take the subjective factual view of existence that I am discussing here, the case for the existence of universals doesn't seem much weaker than the case for the existence of physical objects. In both cases, we take some subjective factual conditions that we can consistently regard as conditions for the existence of an object, or of an object of a certain kind. In both cases, postulating the existence of the object helps us to understand our experience — it has an interpretive value. And that's enough of a tie between the category of subjective fact and the category of physical objects, or of abstract objects, to let us regard such objects as real if appropriate subjective factual conditions are met. In other words, we can do for abstract objects the same thing that we did for physical objects in the teeth of Cartesian skepticism. We can say: Why not postulate this? What are we really losing? Are we really violating Occam's Razor by postulating an entity for which the subjective factual conditions are already there? I don't think Occam's Razor even comes up in this instance. Once you've admitted that concrete objects are logically dependent upon *patterns*, regularities, in subjective facts, then you're not postulating anything fundamentally new by postulating a new kind of object, dependent on a slightly different condition on subjective facts.

Also, the theory of existence that I've put forth in *From Brain to Cosmos*, and that I'm developing a little further here, provides a way of thinking about *how we know* abstract objects — and specifically, about mathematical intuition. In mathematical intuition we have available to us certain subjective facts. Our experience involves certain subjective facts. These subjective facts might be the subjective facts underlying the existence of an abstract object — a set perhaps. This also applies to any kind of intuition of an abstract object, like recognizing that all red things have a property in common and going "Aha! I understand what the word 'red' stands for." Mathematical intuition is a special case of this abstract

intuition. Given a particular kind of abstract object, and an intuitive experience that we would normally would call intuition of that kind of abstract object, we have available to us the subjective facts involved in that experience. And those subjective facts are actually part of what underlies the existence of the abstract object — the number, or the set, or whatever, that we're intuiting. So it could be that those regularities in subjective facts that we find in mathematical intuition might support the existence of an abstract object in the same way that sense experiences support the existence of a physical object. These regularities include different mathematicians having the same intuitions and being able to "see" the same theorems, and so forth. Of course, there would be no question of the abstract object *causing*, or causally influencing, the experience. The tie between the abstract object and the intuitive experience lies in the fact that regularities in the world of abstract objects — regularities that happen among the subjective facts of mathematical intuition — are enough to logically underpin the existence of an abstract object. And the same thing could be said, with appropriate changes, about intuitions about other kinds of abstract objects, besides mathematical intuition — like the intuition of recognizing a common property exemplified by several objects, and so forth. So this view of existence could give us a clue as to how it's possible to "directly" know an abstract object through intuition — even though, presumably, an abstract object has no causal influence on the brain.

# Talk #8. What Is in the Universe?

**IMPORTANT NOTE TO THE READER:** This particular "talk" is unlike the other talks — it never was read. It is a set of notes for a talk that didn't quite materialize. (If the talk *had* materialized, it wouldn't have been impromptu like the other talks. Think about that.)

**Questions:**

**What kinds of things really exist?**

**What are "abstract" objects? How do they differ from ordinary "concrete" objects, like tables and chairs?**[23]

**Answers:**

These days, we hear a lot about the universe. We hear things from scientists about black holes, and other universes, etc.

All of this raises the question: What is the Universe, anyway?

Supposedly, the Universe is the sum total of everything that exists.

But what kinds of things really exist?

[23] Most of this chapter is an introduction to the notion of an abstract object. Philosophers may find this chapter overly familiar and boring, except for the part where I state my own opinions, which philosophers may find irritating.

Most of us believe that the physical things around us are real. Also, things that scientists have discovered, like other galaxies and black holes.

But surprisingly, there are lots of other things that exist, that people usually don't even think of as really existing.

Take, for example, *shapes*.

The things in the world around us have different shapes. For example, some things are rectangular in shape.

Most doors are rectangular. Most sheets of paper are rectangular. Many other things are rectangular.

Not many of these things are perfect rectangles, but many things are rectangular.

So there are lots of different things that have the property of being rectangular. They have the property of rectangularity.

All rectangular things have a common property. They have the property of rectangularity.

Now what is this property of rectangularity, that all rectangular things have? Most doors are rectangular, but a particular door isn't the property of rectangularity. It *has* that property, but it *is not the same as* that property. It's just a door, it's not a property. Rectangularity is a property, and the door isn't a property — it's just a door. So rectangularity isn't the same thing as a door, or anything else that's rectangular. Rectangularity is a *property* that all these things

have in common.

Now think about this property of rectangularity. What is it?

It's a property. There's nothing mysterious about it. It's just a property or feature of ordinary things. Yet, there is something strange about it when you think about it — because here are all these doors, and screens, and other rectangular things, and then there's *also* the property called rectangularity. That property isn't the same as any of these things.

So it seems that in addition to physical things like doors and windows, there's also something else in existence besides the physical things — and that "something else" is the *property* of rectangularity.

This isn't a thing at all; it's a property instead of a thing. But still, I would argue that it's there; it's real. Some things are rectangular, so there is such a thing as rectangularity — at least in some sense of "is." To say that there is no such thing as rectangularity, period, would be to say that there's nothing rectangular. (I stated this view dogmatically here. I argued for it more carefully in my paper "Getting Realistic about Nominalism.")

So it seems that in addition to all those windows and doors and other things, the universe also contains rectangularity, which is not a thing but a property.

There are many, many other properties besides rectangularity. There are many different shapes, which also amount to properties, just as rectangularity is a property.

There are also many different kinds of properties besides shapes.

For example, there are colors. All red things have a color called red. Red is a property of things. Every color is a property that things can have. (These properties are "relative" to the human organism — they have to do with the way the human visual system reacts to things — but they're still properties.)

And there are many other kinds of properties besides colors and shapes. Water has the property of wetness. Diamonds have the property of hardness. Knives have the property of sharpness. (At least some of them do, sometimes.) I could go on and on with lists of properties. But the important thing is that there are *properties* in the world, as well as *things*.

We don't live in a world of just things. We live in a world of things and properties.

So the universe, or reality, consists of things and also properties. Physics doesn't take this fact fully into account. Even the most sophisticated theories in physics are mostly theories about what kinds of things there are or how those things behave. And even though physics also deals with properties of things all the time (like shape, mass, or electric charge), physics doesn't say whether the properties really exist in addition to the things. Science says that the Earth is round — in other words, the Earth has the property of roundness. But science doesn't really worry about whether *roundness* has an existence of its own.

As far as science is concerned, the Earth exists, and it's a fact that the Earth is round — and that's that. Science doesn't say whether or not the universe also includes something called *roundness*. Science recognizes that there are round things, and scientists could say "Earth has the property of roundness" just as anyone else could. But science doesn't say whether there really also is a property

of roundness, in addition to all the round things.

The question of whether there's really a property of roundness, or whether there are just round physical things, is a philosophical question. Philosophers have had different opinions on this. If you've heard of a philosophical problem called the "problem of universals," this is what I'm talking about. There are two basic ideas about the nature of properties.

Some philosophers claim that properties really exist, just as they seem to. Others claim that there are only concrete things, like round things or rectangular things, and that we don't need to assume that there are properties in addition to these things.

I've written about this question in the past. And my opinion is that most philosophers have the whole question somewhat wrong. I don't think there's a need to argue about whether there are just round things, or whether there are round things *plus* the property of roundness. In my opinion, the fact that the property of roundness exists is just a fact about what things in the world are like.

What do I mean by this?[24]

When something exists, its existence is a *fact*. When a door exists, the existence of that door is a *fact*. Existence is a fact. When we say that something exists, we're asserting a fact. So the existence of a physical thing is a fact, and the existence of a property (if properties indeed exist) is a fact too.

When a gold nugget exists, its existence is a fact, but *what kind* of a fact? Well, it's the fact that a certain kind of matter is there, and that the matter is arranged in

[24] In the next talk I'll deal more carefully with the idea I'm about to present here.

a certain way. When we say that a gold nugget exists, we're saying that there is some matter of a certain kind, namely gold, and that this matter is shaped and arranged in certain ways to form a certain kind of whole. So you can think of the existence of a gold nugget as a fact about the way matter is arranged. (This does *not* mean that the gold nugget is only its matter, or is only atoms, or anything of that sort. Those are separate claims. I am only saying that the *existence* of the nugget is a *fact* about how matter is arranged.)

Similarly, you can think of the existence of roundness as a fact about the way that physical things are. The fact that there are round things in the world, or there possibly could be round things in the world, or roundness is a combination of other properties that we know exist — that single complex fact might *be* the fact of the existence of roundness.

In my view, the fact that roundness exists is just some fact of this sort, about how things in the world are. So in my view, it's kind of silly to deny that roundness exists. To deny that is to deny that there are any round things.

Now we need to make an important distinction here: the distinction between what are called *concrete* objects and *abstract* objects.

Abstract objects are things that we know about mainly through thinking. Our senses can detect the shapes of things, but we can only know about the shape properties, like rectangularity, through thinking about rectangular things and recognizing what they have in common. All properties are abstract objects. Calling them objects doesn't mean that they're "things" — it just means that they exist; they're real rather than being nothing at all.

Ordinary physical things are called concrete objects. This doesn't mean they're

made of concrete, it just means that they're not abstract objects.

Actually, sometimes it's hard to tell what's abstract and what's concrete. I may discuss that problem later.

But the important thing, for now, is that abstract objects are as much a part of the real world as concrete objects. The world contains both kinds of things. There are physical things, and then there are entities like rectangularity and roundness, red and green and blue, dryness and hardness — all of these properties that are abstract objects.

So now the universe begins to look a lot bigger than it did when we started. In addition to all the physical things around us, and the physical things known to science, there also are abstract objects. The real universe contains more kinds of things than we had imagined.

What are properties like? What kind of items are they?

First of all, they have no definite positions in space — except through their instances (objects that have, or exemplify, them).

Second, they have no definite positions in time, except through their instances.

Third, they don't seem to have any weight or mass or substance of their own — only the physical things that have them possess weight or mass or substance. So abstract objects are special objects. They're beyond our usual conceptions of what reality is like. But at the same time, there's really nothing mysterious about them. These are just ordinary features of reality that we find around us all the time. Shapes, and colors, and so forth. But when you sit and think about them,

you find that they're really quite remarkable. There are all these items that aren't just simple physical things, but the world we live in is full of them.

Many other examples of abstract things.

Relations.

Sets.

Things from mathematics — Shapes (already discussed) — Numbers (sets or properties of sets)

When you get thinking about it, there are lots of different kinds of abstract objects. (I may slip and call them "abstract things" once in a while, but actually they should be called abstract objects, because they're not really "things" at all.)

All these abstract objects have a few features in common. First of all, they're known mostly through thinking. The senses alone don't tell you that they're there; you have to grasp them with your mind. Your senses can show you rectangular doors, but you have to grasp with your mind the fact that all doors are rectangular, and once you've grasped that, you can get to the idea of rectangularity. It takes some reasoning and insight to realize that these abstract things are there.

The second thing that abstract objects seem to have in common is that they lack physical substance. This doesn't mean they aren't there. They can be in the physical world, and they can even be very vivid and lively, like colors and patterns of colors, but they don't have substance and mass and weight like concrete things do.

Why do we bother about all this? Why do we even worry about abstract objects?

Well, it's because some of the most important things in the universe actually are abstract objects. There are some abstract objects that may well be the most important things there are for human life! I plan to discuss that in another lecture — or maybe in another paper or book.

# Talk #9. Abstract Objects and Physical Reality

[*Note to the reader:* This talk discusses abstract objects in a much more technical way than the previous talk. Some background in the philosophy of abstract objects — like knowing what "nominalism" means — will help with this one.]

**Questions:**

**Are abstract objects real?**

**What is the difference between abstract and concrete objects? Is there any real difference?**

**Could physical objects be made of abstract objects? Could physical objects *be* abstract objects?**

**Are "concrete" and "abstract" object two ends of the same stick?**

**Answers:**

Recently I wrote a paper arguing for a form of realism with regard to abstract objects.[25] I argued that the conditions for the existence of an abstract object — the factual conditions that have to hold for an abstract object to exist — can include things that a nominalist would love, like resemblances for example. An abstract object can be an entity that exists if and only if certain resemblances hold,

[25] "Getting Realistic about Nominalism."

or certain classes exist, or the like. The conditions that a nominalist would put *in place of* the existence of an abstract object are conditions that can *guarantee* the existence of an abstract object. So in a sense, we're safe in assuming realism with regard to abstract objects, although we have to remember how modest that realism really is. This is all explained in the paper I just mentioned. Because this paper already exists, I won't explain the argument further here, except to mention that I am a realist, but I am not the kind of realist who thinks of abstract objects as additional pieces of stuff added to the universe. Abstract objects exist, and quite possibly could even exist without a physical universe. (I'm not ruling out that ultra-Platonistic kind of realism, where abstract objects exist quite independently of the physical universe. In my paper I explain how that could be, even on the account of abstract objects that I give there.) My position is that we assume very little when we assume that abstract objects exist. Realism isn't as extravagant as the nominalists usually think it is. And it doesn't violate Occam's Razor. The paper about universals explains much of my current thinking about that topic, so I won't talk about that further.

A couple of additional thoughts about abstract objects. First, there's the possibility that we may be able to regard abstract objects — universals, or perhaps tropes, or whatever — as the result of *a deeper analysis of physical objects than what physics can achieve*. This idea is implicit in all so-called "bundle theories" of physical objects — that is, theories which regard physical objects as analyzable into bundles of properties or other abstract objects. It is important to be aware that there are two different ways to analyze a physical object. [26] You can take apart an object in two ways. You can decompose it into its component parts — mereological analysis. That's what physicists do when they ask what's everything made of. Or, you can take an object and decompose it into its

[26] As a precedent for this idea, I wish to cite Nelson Goodman's distinction between "physicalistic systems" and "phenomenalistic systems" for the analysis of the world of appearance (*The Structure of Appearance*, chapter 4, section 4).

*properties*. And this is the sort of analysis that a realist — and especially a bundle theorist — would just absolutely love. We might not be able to do this analysis in the laboratory, but we can distinguish and point out in our thought the separate elements (properties) in a physical object.

A person who rejects bundle theory would think there's something left over after this analysis — that you can't analyze a particular completely into universals. Now let me say a word about "bare particulars" — about the item that (according to some) is left over when you mentally take away all the properties of an object.

*Is a bare particular anything but an abstraction?* If bare particulars exist at all, then a bare particular only exists as a carrier of properties and relations. Why can't we think of a bare particular as a *property* of the properties and relations that it binds together? If a stone has the properties of hardness, whiteness, and so forth, then why can't we regard the bare particular in the stone as a feature that all those properties have in common? Sort of the "this-stone-ness" of those properties? (Note for historians of philosophy: This sounds like the medieval idea of a "haecceity," but it's a different idea.) What if we just think of the bare particular as a property shared by the properties and relations that it binds together? Is there really any contrast between a bare particular and a feature that binds together certain properties and relations into a particular, into a thing? The obvious answer is, "Well, yeah, there's a difference. The bare particular is a particular, but the feature of which you speak would be a property of properties and relations. Hence the feature is a property of *the properties and relations of* the bare particular. Hence the feature couldn't be the same as the bare particular."

I would not accept that point of view uncritically! It's true that we think of a bare particular as being at the rock bottom of ontology. We think of the bare particular as the bottom-level object to which properties and relations become attached. We

think of it as something that's not a property, not a relation, simpler than any property or relation — it's what's left when you take away all the properties and relations. And we think of it as a particular because it's what is left over when you take away all the properties and relations. But two things are questionable about this conventional view.

First, if you argue that the bare particular couldn't be a property or a relation because it's what you get when you take away all the properties and relations, that's actually not true. The bare particular is what you get when you take away the properties and relations *of the particular* — the properties and relations that the original, non-bare particular exemplifies. And that's different from saying that it's what you get when you take away *all* the properties and relations involved with the particular. What if it were a property that belongs to something else *besides* the particular? Then it wouldn't necessarily get taken away in the analysis. The property could be involved with the particular in some other way besides being a property *of* the particular. Perhaps it could even be the property that "holds together" the properties and relations of the particular.

Second, we think of a bare "particular" as being just a particular, but that view can be called into question. We think that a bare particular can't be multiply exemplified, because we think of it as sort of a core that's left when we take away all of the properties and relations of the particular. We think of the bare particular as structureless, at least as far as the ontology of properties and relations is concerned. So we think it couldn't be an abstract object. But this view is based on the intuition that if the bare particular were an abstract thing, it could only have further particulars as instances. We visualize the bare particular as the "core" of the particular, and then we conclude that bare particular couldn't be multiply exemplified. We can't imagine lots of it lying around in the world, in the same way that there's lots of red or squareness lying around today. The bare particular

seems unique and unrepeatable. So, we say, why should we regard the bare particular as anything other than unexemplified, or only singly exemplified?

Here is a possible reply: Even though there's only one example of the clothed particular, the so-called bare particular may be a different story. The bare particular isn't multiply located in space (as far as we know). It isn't something that belongs to multiple *particulars,* as a universal would. But can we really be so sure that the bare particular is not multiply exemplifiable at all? Our intuition that the bare particular is just a particular, and can't be exemplified, is not necessarily a well-founded intuition. We really don't have any intuitions on this that are worth cleaving to very strongly, because we have never encountered bare particulars — we only encounter clothed particulars. What if we think of the bare particular as multiply exemplified, but not by particulars? What if we think of it as multiply exemplified *by the clothed particular's properties*? Not by other particulars, further down the ladder of logical structure, but by properties — the properties that must be added to it to get the clothed particular? Imagine a stone that is white and hard. It's one thing to imagine taking away the whiteness and hardness and so forth, and ending up with the bare particular, and then recognizing that this bare particular is not exemplified by further particulars like the stone. But it's another thing to say that the bare particular isn't exemplified by the *whiteness* and the *hardness*. After all, the whiteness is a property of this stone — one could call it a *this-stone property*. What makes the property of whiteness a this-stone property? The presence of the bare particular! The whiteness is a this-stone property precisely because of its *tie to the bare particular*. When you think of it that way, it begins to look as if the bare particular of the stone is exemplified by the properties and relations of the stone. It is what gives the properties and relations of the stone their "this-stoneness." At very least, there's a relation in there that's much like exemplification — and we could consider it a case of exemplification without losing anything.

So perhaps the bare particular is a property of the clothed particular's properties and relations. What view of particulars does this give us? We don't get a traditional bundle theory, because this "bare particular plus properties and relations" complex is not simply a bundle. It's not a set or class of the properties and relations of the clothed particular. There *really is* a bare particular in there. The only novelty is that the relationship of the bare particular to the properties and relations of the clothed particular is not quite what we thought it was. But there is not just a bundle; there is something real in there tying together all the properties and relations. The properties and relations of the stone are not just elements of a bundle. There is a "knot" that ties them all together, so to speak. There's a "pin" that goes through them and nails them all together — but it's not an unexemplified, structureless pin like we thought it was.

On the one hand, imagine the bare particular of the stone. On the other hand, imagine the property of belonging to the stone — the property of being exemplified by the stone. Where is the contrast between those two? That's a good question to ask. I would suggest that this is a "distinction without a difference," to use a hackneyed phrase.

That's what I had to say about bare particulars. I think bare particulars are more abstract than they seem.

We can explore further the idea of an analysis of objects into properties. The analysis into properties can occur at any scale — we can do it with macroscopic objects, with atoms, with quarks, or at other scales in between. Although the analysis can occur at any scale (including macroscopic), what if we also think of this analysis into properties and relations as a way to continue the subdivision of matter *beyond* the endpoint of mereological analysis? Suppose we subdivide

matter into its parts, and finally get down to the level of quarks. For the sake of argument, let's suppose that we can't subdivide wholes into parts any further. Actually we might be able to analyze quarks further; if string theory is right, and a quark is a quantum mechanical string of some sort, then perhaps a point of the substance of a string would be the ultimate unit of mereological analysis. (Unless, of course, a string is indivisible in the relevant sense to make it ultimate.) In any case, let's suppose for the sake of argument that there is an ultimate unit — an ultimate stopping point of the mereological analysis of matter, whether it's a regular particle or just an inseparable part of some larger unit (like a totally confined quark or like a limitingly small piece of string). What if we analyzed matter down to the final mereological units, and *then* started to analyze these units into their properties? If we did that, we could continue the analysis further. Whether it leaves a residue behind in the form of bare particulars is a separate question. As I said earlier, maybe the bare particulars themselves are properties.

The idea that matter is analyzable into abstracta of some sort is not a new idea. Quantum mechanics has made it difficult to imagine the ultimate constituents of matter except with the help of mathematics. In modern physics, the smallest particles of matter look awfully mathematical. We might begin to wonder if they aren't abstract objects of some kind. The idea that the physical world ultimately might be mathematical is not a new idea. That idea goes back at least as far as Pythagoras, and reappears in modern thought.[27]

For now, let's pursue a more conservative path. Let's suppose we can take the ultimate unit of mereological analysis of matter, and analyze it further into properties and relations of some sort. (These might be multiply exemplifiable, or they might be the "one-shot" properties and relations that some philosophers call

[27] Rucker examines this idea in *Infinity and the Mind*. See pp. 200-201 in that book (and especially footnote 10, where Rucker presents arguments against the idea).

tropes.) Is any other analysis possible on the ultimate mereological parts? The analysis into properties and relations is the only kind of analysis possible, unless there's some totally different kind of analysis that we haven't yet anticipated. "Featural" analysis (decomposition into properties and relations) would be possible; mereological analysis would not be possible. Normally there is a clear distinction between mereological and featural analysis. This is true, for example, at macroscopic scales. But after we've reached the point where further mereological breakdown isn't possible, maybe we should think of featural analysis as a *continuation* of the mereological analysis. Maybe we should think of the next level of decomposition of matter as *decomposition into properties and relations.* Maybe we should think of the properties and relations as *components* (if not literally parts) of the ultimate mereological units. Even if we don't want to think they really are parts (because they aren't results of mereological subdivision), we can think of them as "parts" in a strained or extended sense of the word "part." There's no possibility of mereological subdivision (hence no actual parts), but clearly there's still some structure inside these entities. Why not regard the only things we can decompose them into (properties and relations) as their parts in a generalized sense? And so, we may be able to regard the domain of universals (or tropes, or whatever the abstract constituents are) as the next level of analysis *below* the ultimate particles or subparticles. When we get "done" with the mereological subdivision of matter, we may be able to regard the next level of subdivision of matter as leading to abstract objects.

Another possible way to understand this kind of analysis is to regard the properties and relations resulting from the analysis as parts, period — not parts in a strained sense, but actual parts. In that case, the original mereological analysis did not really reach an endpoint; it only reached the limit of spatial subdivision of the objects. Further subdivision has to be done by means of decomposition into properties and relations. This is an alternative way to regard the same sequence

of subdivisions that I just described. One can regard it either way, but it is the same thing: a subdivision of matter into concrete parts as far as this will go, followed by a further subdivision into abstract objects.

If we make this conceptual step, then we can think of abstract objects and concrete objects as forming a kind of continuum of analysis. We can think this way even if there is a definite dividing line where we go from the concrete to the abstract. But that break might not be as sharp or as well-defined as we expect — especially if bare particulars are abstracta, as I've proposed elsewhere, or if the ultimate structures of matter, which seem so mathematical, really are mathematical, as others have proposed. We may end up thinking of concrete physical objects as very complex abstract objects of a certain sort. This possibility does not depend on the truth of bundle theories, which already regard physical objects as classes or as something else abstract. Whatever our opinion on bundle theories, maybe we should think of physical objects and abstract objects as forming a continuum of analysis.

We also should consider the possibility that this analysis of abstracta and concreta is, in a sense, circular. Take a concrete object and mentally "remove" all of its properties and relations. If my we get down to a bare particular, then (as I pointed out earlier) we find ourselves with a property of properties. By going down to the "lowest" level of concreteness — the lowest logical type, as it were — we have rebounded back "up" to the level of abstract objects. If we try to reach the deepest level of concreteness with our analysis, we find ourselves back in the abstract. On the other hand, there might be no bare particulars. Then if we analyze a particular, we still get back to the abstract. (If a bundle theory is true, this is what would happen.) So then, in a sense, maybe the analysis of abstract and concrete objects goes in a loop. Abstracta are exemplified by concreta, or in the case of classes, have concreta as members. But the reverse relationship also

holds: concreta are exemplified by abstracta, or have abstracta as members. If we think in terms of logical type (which may be ill-defined in this case), concreta are of lower logical type than abstracta, but also are of higher logical type than abstracta. The set of logical types is not linearly ordered in this case.

Normally we think of so-called abstract and concrete objects as belonging to two separate realms. Perhaps instead we should think of these objects as forming a continuum. I don't mean a continuum in the mathematical sense; I just mean a single realm with no divisions — a seamless reality, instead of a reality with a dividing line between "concrete" and "abstract." Maybe we shouldn't think of the concrete and the abstract as two separate levels. Maybe we should think of them as two intertwined levels, or as levels without a sharp boundary, or even as just one level of abstract/concrete things. Abstract things as the limit of analysis of concrete things. Concrete things as a special case of abstract things.

In any case, we have a world with many different kinds of things in it — even if those things cannot be thought of as hierarchically organized.

That completes the suggestions I wanted to make regarding the ontology of abstract objects. I do think abstract objects are real. I think that the assumption that abstract objects exist is an assumption that commits us to very little. I explained that in my paper that I mentioned earlier.[28] We shouldn't be reluctant to assume that abstract objects exist, because we're really assuming very little by doing so. My other suggestions about abstract objects — questioning the abstract/concrete division — are more speculative. But the gist of these suggestions — the direction in which they're going — is that perhaps we should think of the concrete and abstract worlds as ends of a continuum, instead of as discrete levels. This idea is not foreign to the Platonistic thought of past

[28] "Getting Realistic about Nominalism."

centuries, which recognized multiple levels and gradations of reality instead of a stark duality of concrete and abstract. Despite these strong precedents, I think my particular approach to this idea probably is somewhat original.

# Talk #10. Two Ideas about Free Will

**Questions:**

**Do the findings of science rule out human free will?**

**How can free will exist in the universe that the physicists and neuroscientists have shown us?**

**Answers:**

I'd like to say a few words about the problem of free will.

First, I'm a compatibilist. I think free will is reconcilable with determinism. Certain imaginary examples seem to bear this out. (I can't take full credit for these examples, as they are similar to a lot of previous arguments.) If you imagine a God who is completely free, and not subject to any compulsion by anything, but who is perfect and always does the right thing in any situation, then God's actions would be completely predictable. But a God of this kind would be the freest being of all. This being could simply want to do what's right, and then do it — without compulsion. This example isn't meant to make a point for or against belief in God. It's meant to make a point about free will. Free will and predictability can coexist. Similarly, if I always knew what was right, and always wanted to do the right thing and were able to do it, then I think I would be more free than I am now — but I would be more predictable, too. It wouldn't matter how I got into the state of always wanting the right thing; there could be physical causes behind this state, and still I would be more free than I am now. I don't think determinism and predictability, in themselves, interfere with our free will.

There have been arguments for and against this view, and I don't want to recapitulate all those arguments here. But the arguments for compatibilism have always seemed more convincing to me than the arguments against compatibilism.

Having said this, I'd like to discuss a couple of ways of thinking about *indeterministic* free will that might actually make that compatible with *determinism in the observable world*.

The first idea has to do with what might be called "delocalized free will."

Even in a deterministic universe, there is some wobble — some play. It isn't the case that everything is absolutely inevitable, because the universe itself could have been different. Unless you believe this is the only possible world — which I don't think is a justifiable belief — the universe could have been some other way than it actually is. So there is some "free choice," some degree of freedom, in the structure of the universe. One might be tempted to ask where in spacetime the relevant degrees of freedom are located. One might feel it is correct to say they are located at the beginning of the universe (if the universe has a beginning). A physicist would think in terms of the initial conditions for the universe — although in general relativity, that concept has some problems and complexities too. But in any case, if the universe could have been different, then there are some degrees of freedom in the universe. Things didn't have to be just that way. You can take a section of the universe at a given time — a hypersurface across the universe, assuming that the geometry of spacetime isn't too complex. You can take the conditions on that hypersurface, and say, "well, things could have been different on this hypersurface if the universe had been different."

[*Editorial note:* In this talk, I used the terms "hypersurface", "spacelike hypersurface," "complete spacelike hypersurface" and "spacelike slice" without

due care as to their differences. Usually it's safe to assume I meant "complete spacelike hypersurface."]

In this sense, there are some degrees of freedom in the universe even if the universe is deterministic — because the universe isn't every possible way at once. There are theories about branching spacetime, and multiple worlds, and so forth[29] — but the *world we know now*, even if it is a branch, could have been otherwise.

For simplicity's sake, I'm going to formulate the rest of this argument in terms of Minkowski spacetime. This argument doesn't strictly require Minkowski spacetime. It just requires a spacetime that's well-behaved enough that you can take a spacelike hypersurface across it and use that as the basis for prediction and retrodiction of the dynamics. A "deterministic" universe, whether it's special relativistic, general relativistic, or classical, should at least have this feature.

There is some freedom, or some "play," in the makeup of the universe. One could think of the initial conditions of the universe as determining the fate of the universe thereafter, assuming that there's a beginning and that the geometry there isn't too messy (which it could well be). But in any case, in a deterministic universe, you can place the so-called "initial" hypersurface at lots of different places. You can take any time t, with the time t being represented by a hypersurface in general relativity, and say that the conditions on this hypersurface determine everything that comes after. If the universe suddenly popped into being and didn't have an initial singularity, that you could just take the initial state and use that as a hypersurface. The universe didn't start that way — but that's

[29] Physicists and philosophers today are taking the ideas of branching spacetime and multiple worlds quite seriously. For an introduction to the many-worlds interpretation of quantum mechanics, see Deutsch and Lockwood, "The quantum physics of time travel." A key paper on branching spacetime is Belnap, "Branching space-time, postprint January, 2003." A good scholarly work on branching spacetime is Savitt (ed.) *Time's arrows today: Recent physical and philosophical work on the direction of time*.

beside the point. My point is, why take that initial hypersurface as special? You can take any complete spacelike hypersurface, and use that as the basis for predicting and retrodicting, and get everything else that happens in that history of the universe. And that hypersurface could have been different from the way it actually is. There is some "freedom" on that hypersurface. It's easy to think of a universe with a beginning as having the "freedom" on the initial hypersurface. That is, the universe started this way, it could have started a different way, and then it would have been different all the way down the line.

If the universe has a beginning, then it's pretty clear that there is some freedom embodied in the beginning of the universe. This can't be equated immediately to free will (unless one thinks God created the beginning through a free act). But think about the indeterminacy — I'm not saying indeterminism, but just the indeterminacy, or degrees of freedom, or "play" — in the initial state of the universe. It's pretty clear that if there's more than one way the universe could have started, then there is some indeterminacy in that initial hypersurface.

So far, so good. Now, what if I take another spacelike hypersurface, somewhere a billion years down the road, in the future of the initial spacelike hypersurface? You could use that new hypersurface just as well as the initial hypersurface to predict the whole future of the hypersurface. You can use the new hypersurface to retrodict the whole past, too. You could use it to get the whole dynamics of the universe, the whole picture of what happened, the whole history — including the initial hypersurface. Once again, I should emphasize that I'm speaking now of a strictly deterministic universe — one that doesn't have any difficulties that would compromise the determinism at a classical scale, like naked singularities, or large-scale quantum effects, or anything of this sort. My point is that if determinism really were rigorously true, then the initial hypersurface would not be *privileged*. There would be other hypersurfaces, lots of them, that would be just as good for

reconstructing the whole what's-going-to-happen and what-has-happened — the whole history. And this carries over to the case of a universe with no beginning — without an initial hypersurface. Any complete spacelike slice is as good as any other for reconstructing the whole history of the universe.

If the universe has a beginning, then it's easy to think of the play, or indeterminacy, in the universe as indeterminacy in the way things started — that is, indeterminacy on the initial hypersurface. But any other complete spacelike slice has the same qualifications for being the slice that has the indeterminacy. Why not ascribe the indeterminacy to a later hypersurface? This question is especially relevant in a universe without a beginning. Why not just any complete spacelike slice? What's so special about an initial hypersurface? Why should we think of the indeterminacy or free play as being on an initial hypersurface, instead of on some other hypersurface? The wrongness of this bias toward the initial hypersurface becomes especially clear when you're dealing with the universe without a beginning. Some models of the universe don't have a beginning — yet the play still is there. Why should we regard any hypersurface as being *the* one that fixes everything, when mathematically speaking, any hypersurface of a suitable kind (spacelike, complete, and so on) will fix everything in the history?

So, in other words, there's some indeterminacy in the universe, some "could-have-been-otherwise-ness" in the universe. And in a deterministic universe, this indeterminacy still exists, but any given spacelike slice contains all of that indeterminacy — because once we have such a slice we can fix the rest of the history of the universe; there's no further indeterminacy to worry about. But why not a *later* hypersurface? It seems completely artificial to regard an initial hypersurface as the one that fixes everything — because *any* complete spacelike hypersurface fixes everything else!

Now, here's the big step. Suppose I pick a spacelike slice that I'm going to use to calculate the rest of the history of the universe. I happen to select a slice (call it S) that cuts through the worldline of my life. As my subjective time rolls forward, I reach that slice *now*. I'm making a decision right now. Boom! I've made a decision as I crossed the slice S.

If it's just as correct to say that S determines the future as to say that any other spacelike slice determines the future, then my action is one of the events that determines the future! (It's also one of the events that determines the past in a mathematical sense — which seems kind of strange, but of course there's no backward causation involved here; causation might be going in a forward direction everywhere.) That hypersurface S determines everything that came after and everything that came before. So instead of saying the initial state of the universe (or some very early hypersurface) determines my future as of now, why couldn't we say instead that *the hypersurface containing my decision* is what determines my future now? So therefore, my decision is part of what determines my future. Isn't the choice between those two alternatives completely arbitrary, when you think about it? Because any spacelike hypersurface of a suitable kind determines the future!

(Technical detail: The fact that my decision is not instantaneous does not change this argument in any important way. Even if my decision takes a while, the hypersurface S that cuts through the event of my decision will contain data about my neural state while I'm making the decision. If I had made the decision differently, the past and the future also would be different. So still, my decision helps to determine the past and the future.)

Why does all this seem strange? Because when we think about what fixes the history of the universe, we have a strong prejudice in favor of the *beginning* of the

universe. Intuitively, we feel that the beginning of the universe could determine the whole subsequent history of the universe. We feel that a later situation could not do this. When I suggest that something later than the beginning of the universe might determine the whole history of the universe since the beginning, we think (at least subconsciously) of reverse causation. We get the feeling that something is fishy. We think, "The determining situation has to be at the beginning, or else it couldn't fix the whole history. If the determining situation happens later, then part of the history already has happened. The determining situation couldn't reach back and fix the history retroactively." We feel that if we let a non-initial hypersurface fix the history of the universe, we have let in some kind of retrocausation or perhaps even magic. But this feeling is wrong! The scenario I am suggesting has nothing to do with retrocausation or affecting the past. We are free to assume that causation always flows from past to future. (Incidentally, physicists don't always assume that anymore.) Even if causation always flows from past to future, we still can assume that what happens on some later hypersurface *determines* — not *causes*, but mathematically *determines* — what happens throughout the history of the universe. And mathematically, from the standpoint of dynamics, it looks like we're stuck with this last fact. In a universe governed by strictly deterministic law, any suitable hypersurface is sufficient to determine everything that came before as well as after. The data on the hypersurface *logically determine* the rest of the history — they are logically sufficient for the rest of the history — even if no event in the hypersurface causes any event in the hypersurface's past.

So, even if causality always flows forward, the sum total of events on the present hypersurface still "fixes" the past in a mathematical and logical sense. There's a difference between fixing something, determining it, necessitating it mathematically or logically (or nomologically) — and, on the other hand — causing something. There's a difference there.

The upshot of all this is that it makes no difference whether we think of some early state of the universe as fixing everything subsequent, or if we think of what's happening *now* as fixing everything before and after. The choice between these two alternatives is purely arbitrary. It begins to appear that the play, or degrees of freedom, or indeterminacy in the deterministic universe, would be *delocalized*. It isn't something that you can assign to a particular time. Even if there's a sharp beginning, you couldn't assign the freedom to a particular time. This freedom is a feature of the universe, but it belongs to all times equally! You can impute it to any particular time — and once you have done so, all of the freedom is present at that time.

The conclusion is that even in a fully deterministic universe, it's just as correct to say that my actions help to determine the future, as to say that some initial early state of the universe determines the whole future. It's a completely arbitrary choice! So it's silly to deny that my actions are efficacious. You can take your own actions to be part of what determines the history of the universe, and as embodying some of the freedom in the universe, just as well as you can take the beginning of the universe as the determining state. The choice is arbitrary. The idea that there's one place in time that determines all the rest, and that no other place in time is privileged that way, just doesn't hold water. At least it doesn't hold water if we believe in a deterministic universe.

That's one thing I'd like to say about free will.

I'd like to say a couple of other things, too.

First, there is a type of spacetime structure that would allow the universe to be indeterministic, even though all observations and experiments made within that

universe would show that it's deterministic. In 1998 I published a paper about general relativistic time travel scenarios.[30] (Physicists really think about such things nowadays.) I argued that in a typical time travel scenario from general relativity, a particle might start out in one classical history of the universe and end up in another classical history. This does not involve a change in the past. What it amounts to is that the particle could begin with one history (including a past and a future) — and at a later time on the particle's clock, have a *different* path through history (including a different past and a different future). Surprisingly, this does not require changing the past or even reverse causation. It's just a consequence of an odd spacetime topology. This topology is like the branching spacetime of Belnap[31]; the main difference is that my topology branches in the past direction as well as in the future direction. There has been some speculation, which I cited in that paper,[32] about the possibility of spacetime branching into the past. In that paper I mentioned that, and used that idea.

The possibility of a spacetime topology with branching toward the past suggests a new, highly speculative idea that I call "retrodeterminism." The idea is that when one performs an action now, one enters into a history in which the past is causally consistent with one's present state. Before the action, one has a particular past history (say P) and future history (say F). During and after the action, one has a different past (say P') and a different future (say F'). The action is not physically determined by P, but by P'. Thus, an action occurs that did not follow from the past that existed before the action (P) — and yet, after the action occurs, if one looks back at the past (P'), one finds that the action is causally determined. Thus, at any given moment, if we examine the past and and trace the causes of our actions, we will find that they are causally determined. We will find no

[30] Sharlow, M.F. "A new non-Hausdorff spacetime model for resolution of the time travel paradoxes." *Annals of Physics* **263**, 179-197.
[31] Belnap, N. (2003). "Branching space-time, postprint January, 2003."
[32] Matt Visser discusses this topic in *Lorentzian wormholes: from Einstein to Hawking* (pp. 254-255).

observable exceptions to determinism. And yet, a moment before we did the action, the past was not consistent, under deterministic physical law, with the action yet to come.

It's very hard to talk about these things without drawing some spacetime diagrams. But the spacetime diagrams in that 1998 paper of mine will give you some idea of what I'm talking about. We're on a spacetime manifold containing our past, present and future. To simplify things, take this to be a flat (Minkowski) spacetime. To make it drawable, imagine the spacetime is only two-dimensional (a plane). Now imagine another spacetime manifold (also visualized as a plane). Imagine that this second plane cuts through the first plane. The line where they cross represents a light cone in the real, four dimensional spacetime. If you begin in the first plane, and your worldline (path in spacetime) crosses that line, and you perform an action at that moment of crossing, then you find yourself in the second plane. After that, you have a new past that lies in the second plane. You have a different past and a different future.

In this way, it might be possible for a person or object, or the universe, to undergo an event that its past did *not* determine, and then end up with a past that *does* determine that event. The disturbing feature of this scenario is that determinism will appear to hold at all times. At any given moment, the past will be such that the past determines the present events. Any experiment to check determinism will find that determinism holds. And yet, something undetermined happened. I call this idea "retrodeterminism." It is a very, very speculative idea, but it is interesting because it's at least logically possible. It's even physically possible, if spacetime is allowed to have a certain kind of branching structure. Retrodeterminism seems strange, but it does not appear to be inconsistent with the observed facts of physics.

Note that all this happens without change in any past event, and without any retrocausation or time travel. No event in the past is either changed or caused by any of this. The causation continues flowing forward. (In the time travel scenario discussed in the original paper, there is retrocausation, but retrodeterminism does not require time travel or retrocausation.)

This is a very speculative idea. I want to repeat this disclaimer so that self-professed skeptics don't break out their typewriters too quickly. *This is an extremely speculative idea.*

A number of philosophers have used forward-branching spacetime to model free will and quantum indeterminism.[33] So maybe retrodeterminism — which is perfectly natural in a spacetime that branches both forward and backward — is less novel than it seems.

And that closes my discussion of free will, for the time being.

[33] For good examples, see respectively Belnap, "Concrete transitions," and Belnap, "Branching space-time, postprint January, 2003."

# Talk #11. Science and Rational Thought

**Questions:**

**Is science logical?**

**Some academics have claimed that science is based on sexual or racial prejudices. Are these critics of science right?**

**Is there one, single, objective standard of scientific method and truth? Or is the scientist's personal judgment the real standard?**

**How much confidence should we place in the findings of science?**

**Answers:**

The first thing I have to say about science is that scientific knowledge is not as logical as it seems. It is not based entirely, or even mostly, on reason, although science certainly uses rational methods to accomplish its aims. In a moment I'll explain what I mean by this provocative statement. And the second thing I'd like to say about science is this: a lot of the criticisms of science that have been put forth in recent times, and in earlier times too, are baloney. I think I will discuss those criticisms first, before I go on and discuss my own view of where science is right and where it's wrong.

Postmodernists and related writers have tried to show that science is only a product of certain economic conditions, or certain ethnic and gender groups, or things of that sort. They have tried to show that there are racial and sexual biases

built into scientific methods. This doesn't just mean that some individual scientists are prejudiced, or that scientists sometimes let their prejudices affect their conclusions, or that scientific communities and institutions have problems with discrimination. The postmodernists go far beyond this. They have argued that racial and gender biases are built into well-established scientific ideas (like Newton's laws of physics), and even into scientific method itself.

I know I will upset some academics when I say this postmodern position is so obviously wrong that it doesn't really need an answer. Most of the arguments that I have seen for these conclusions are not really arguments at all; instead, the postmodernists depend on wordplay or punning. Postmodernists sometimes claim that science is sexist or racist, just because early scientific writers used sexist, racist, or colonialist metaphors to describe their ideas. Actually, this only shows that the thinkers had the prejudices of their times — or at least were willing to refer to the prejudices of their times to make a point. But according to postmodernism, if someone used sexist language while creating modern science, then modern science is sexist. Anyone who really thinks for a moment can see why arguments like these are absolute bunk. These arguments substitute wordplay for thinking. They take metaphors and puns as seriously as purported literal truths. The postmodernists try to shoot down the facts of physics by using, not experiments, but — puns!

If the academic establishment had more guts, they would call postmodernist arguments of that sort untenable, and have done with them. Some academicians have had the courage to do this. Others, unfortunately, have not. No matter what kind of philosophy or political ideology you believe in, a pun cannot take the place of thought.

The criterion for scientific "belief," for accepting scientific hypotheses, is whether

the hypotheses are consistent with the facts of observation. And the facts of observation are what they are, regardless of one's sex or race or anything else. If racial, gender, or economic biases creep into scientific conclusions, it means that some scientists have ignored some of the facts available through observation. That is all.

Even if the facts of observation varied from one racial group or sexual group to another (and I'm not saying they do), there still would be only one set of facts for everyone. Let me take a specific example. Apples fall down. If an apple is released above the Earth's surface, and nothing is holding the apple up, then the apple falls down. Now suppose that when Africans do this the apple falls down, while when Europeans do it, the apple falls up. Then the facts would be as follows: when Africans drop the apple, it falls down, and when Europeans drop the apple, the apple falls up. Those would be two perfectly good facts. Both facts would be true for *both* races. Actually, of course, that's not what happens. Apples fall down for all races; people of all races can observe this. My point is that when you say that the facts of nature are different for different races (as some postmodernists do), what you're really saying is that there are different facts *about* each of the races involved. But all of these facts are true for all the races. Suppose that there really were a racial difference in physics, so that when people of one race made certain observations they got certain results, and when people of another race made closely similar observations they got different results. If that happened, it would not mean that different races had different "truths." It would only mean that the two races got different results — and members of either race could compare notes and figure out that's what's happening. So it's silly to say that a well-tested scientific conclusion can be a function of race. If people of different races got different results when they did an experiment, then that would be a fact of nature too. Both sets of results, both sets of facts, would be true for everyone. If when Africans drop apples, the apples fall down, then it's true for

Africans that *if Africans drop apples the apples fall down*, and it's also true for Europeans that *if Africans drop apples the apples fall down*. And if, when Europeans drop apples, the apples fall up, then it's true for Europeans that *if Europeans drop apples the apples fall up*, and it's also true for Africans that *if Europeans drop apples the apples fall up*. So by stating what happens — which results are gotten by which group — we would have a set of perfectly objective, interracially true, internationally valid facts.

There are a few ways that scientific knowledge might vary from one race to another. One way is if different racial groups (this applies to other kinds of groups as well) emphasize different topics in their scientific research. These differences in emphasis, based on personal experience and history, could lead investigators of one race, culture, nationality, or gender to come up with something that investigators in other groups just didn't think of. But that kind of difference would have nothing to do with different "truths." If this happened, then the other groups could come in and verify those results too, and presumably they'd get the same results. And if they didn't get the same results, then we'd have a very interesting scientific fact! We'd learn that different races, or other human groups, get different results when they do certain experiments. And that would be an interesting fact that some scientist might want to try to explain. I don't believe this has ever happened in real life. But even if it did happen, it would not undermine science. Even in this case, the observations yield objective facts — like the objective fact that when this person of this race observes this under this condition at this time, they get this or that result.

Scientific hypotheses should be accepted or rejected on the basis of their consistency or inconsistency with the facts of observation. They shouldn't be accepted or rejected for other reasons. If people accept a scientific conclusion, and their acceptance of it is driven by race or gender or anything of that sort, then

they're violating the scientific method. It's true that in the past, some scientists have drawn racist and sexist conclusions and called those conclusions "scientific." In the past, some scientists accepted some really terrible things about racial differences in intelligence and things like that. But that is only because the scientists were not following scientific methods! If there's prejudice in some science, it doesn't mean science as a whole is bad. Prejudice exists in science because scientists are fallible and are only human, and do not always follow scientific methods. Scientists sometimes let their personal biases get in the way instead. The fact that this sometimes happens is *not* an argument against scientific methods! Actually, scientific methods are opposed to personal and group bias; they represent one attempt to reduce personal and group biases in thinking. Some postmodernists and feminist scholars try to attack science for being full of racial bias and sex bias. Actually, the only place they can attack science effectively is at points of *deviation* from scientific methods — instances in which individual scientists deviate from scientific methods. That is where the bias and prejudice comes in — not in the method itself.

It's true that if scientists deviate from scientific methods, then their personal biases (including racial and sexual ones) can affect their work in all kinds of ways. But that's not an argument against scientific methods. Scientists who let their personal biases infest their work are not behaving scientifically. And the postmodernists who attack the scientific method because of its racism or sexism are attacking something that can't successfully be attacked in that way.

I'd like to say a lot more about this subject. I've been very, very sketchy here. But it's clear that the postmodern and related critiques of science are just way wide of the mark. I am not claiming that science is perfect or supreme. In fact, I have my own ideas about the limitations of science. But the postmodern critiques of science, as well as the critiques by Marxists, radical feminists,

poststructuralists, and so forth (these are overlapping groups) — they're just way wide of the mark. These antiscientists are exploiting facts about mistakes that scientists have made, deviations away from scientific methodology, and they're using those to attack science itself. The whole attack is just silly.

Now, having said that, let me state some of my own views on science. First, science does have to do with objective reality. If scientists adhere to scientific methods, instead of letting their own biases and their own concerns about tenure and career get in the way, then scientists will tend eventually to eliminate hypotheses that are wrong. Thus, science is a way of approach to truth.

Logical reasoning is an important part of scientific procedure. However, *scientific confirmation, in itself, is not a logical process.* Some scientists may be shocked to find out that no scientist, logician, or philosopher ever has found a purely logical justification for scientific methods. People often say that scientific inference is based on "inductive logic." But inductive logic, it turns out, is not really a part of logic at all! Logicians and other philosophers have spent many, many decades trying to find a purely logical justification for so-called inductive inference. *No one ever has succeeded in doing this.* It may seem scandalous, but it is so. Strictly speaking, there is no such thing as "inductive logic." Inductive reasoning may "work" in practice, but it has no known strictly logical justification. The process of scientific confirmation is in the same position. Scientists and philosophers have never succeeded in finding a logical, purely rational justification for scientific methodology. A number of philosophers have tried to find such a justification. In my opinion, Karl Popper came closer than most philosophers. But even Popper didn't find a logical foundation for scientific methods. He may have found a foundation of a different, more practical kind.

The fact that induction and scientific confirmation are not founded in logic may

be a surprise to many scientists. This idea is more familiar among philosophers. This idea may be downright upsetting to those who worship scientific "rationality." (In my experience, most of these worshippers are not scientists, and most scientists are not worshippers of this sort.)

One often hears it said that science is "self-correcting." I think this self-correcting character is one of the great strengths of scientific knowledge — it is the reason why scientific knowledge often approaches truth, or at least ends up in the vicinity of objective reality. To the extent that scientists truly behave and work scientifically, science is self-correcting. It's self-correcting because a false empirical hypothesis can be refuted by future observations. Thus, a bad hypothesis eventually can be eliminated. It might not always be easy to dislodge a bad hypothesis — but eventually, a bad hypothesis can be eliminated. There are no rules as to how long a bad hypothesis will last before scientists finally abandon it. There is no guarantee that the bad hypothesis can be gotten rid of in any particular amount of time, or by means of any particular set of experiments. But if scientists are careful in their work, and don't rely on unwarranted assumptions and biases, then scientific methods will lead to the elimination of hypotheses that are not true.

So science is self-correcting. This does not mean science always is right. We can't even be absolutely sure that all widely accepted scientific ideas are right. But we can be sure that science is a darn sight better than a set of randomly made assumptions, or a belief system that's based on guesswork and obedience to authority. Why should we value scientific methodology? Not because it's a royal road to truth, but because it's better than no road at all! There are other roads to truth besides science, too. I've explained that elsewhere.[34] But when it comes to

[34] For example, elsewhere in this collection, and in the discussion of theories of truth in my book *From Brain to Cosmos*.

*a posteriori* facts about the behavior of the *physical world* — facts about the physical world that cannot be determined through reasoning alone — then science is the best way available for approaching those facts. Science involves the testing of hypotheses against observation. Accepting hypotheses that are not tested against observation would be worse — less objective, and less likely to reach the truth. So if you ask me whether I believe in science, I will respond with a definite yes. I believe in science — but I don't believe that science is infallible, or that science is firmly grounded in logic.

Now, as for the objectivity of science, we must recognize that scientific judgment ultimately is a form of human judgment. There are no known strictly logical rules that can tell us whether to believe a hypothesis given a particular set of observations. Ultimately, it's the individual scientist who makes this call. It's up to the judgment of the individual scientist to determine whether there's enough evidence to accept or reject a particular hypothesis. Scientific inference cannot be done according to mechanical rules of logic. Science depends on human judgment. There is no way to get rid of this dependence; we are stuck with it. The success of science depends on the human mind's ability to estimate the impact of evidence on the believability of a hypothesis. There is no replacement for this ability. And it is possible for these estimates to vary somewhat from scientist to scientist. We are stuck with the possibility of these variations — with the possibility of scientific disagreements that cannot be settled by logical means.

This dependence of science upon human judgment has an interesting consequence. It implies that there's no single body of scientific truths that we can be certain every sincere, logical, knowledgeable investigator would agree upon. This is as true of any scientific discipline as it is of science as a whole. Scientific inference is not a mechanical process which, if done correctly, is sure to lead to a single answer. Logicians never have been able to formalize inductive logic in a

satisfactory way. No one ever has succeeded in formalizing and rigorizing the notion of probability of a hypothesis. (This notion comes up in statistics, but in that case the existence of probabilities is presupposed, not demonstrated.) Ultimately it's up to an individual mind, an individual informed thinker, to evaluate the evidence and judge whether a scientific conclusion is true. And by an "informed thinker," I mean a person with sufficient knowledge to understand the hypothesis, to understand the relationship of the evidence to the hypothesis, and to think carefully about both of these. This is not necessarily an expert turned out by the schools (though usually that's the case), but an expert in the genuine sense of the word.

The individual scientist has to make a judgment as to whether a hypothesis is confirmed or disconfirmed by the available evidence. Without such judgments, science wouldn't get done. And this judgment can't be done purely logically in any known way. So ultimately, science depends irreducibly upon human judgment.

This dependency of science upon human judgment is one reason (though not the only reason) why experts in science sometimes disagree. Sometimes experts even get into big fights about a scientific hypothesis. Occasionally, one expert will be a holdout, and will believe something that other experts don't believe — and *sometimes* the one expert will turn out to be right. This can happen even if no one on either side makes a scientific mistake. It can happen just because science depends on human judgment. Even if scientists were completely unbiased by tenure, fashions, taboos, and careerism, science still would have an element of human judgment in it. Unfortunately, things like fashion and careerism infect a lot more science that we usually realize. There are definite fashions in science; what was considered crackpot twenty years ago sometimes is gospel today, and vice versa. Things go in and out of fashion; this skews the objectivity of science

very badly. This is not an argument against science. It just shows that scientists are only human, with all the faults that go with that territory. But even without these bad influences, even without the damage that human weakness causes, science still would contain an irreducible element of human judgment. And until logicians find some way to rigorize scientific inference — and I suspect this cannot be done — science will depend on human judgment. So ultimately, the body of confirmed scientific hypotheses may vary from one scientist to another.

This is not an attack on science! Those who think I am an antiscientist and an opponent of reason (or of Reason) should just calm down. I'm not proposing any kind of relativism here. I'm not proposing that science is a social construct. Any body of knowledge that's reliable enough to make dozens of spacecraft fly is not just a social construct. It's real knowledge with at least some degree of objectivity. It's not just imaginary knowledge, no matter which name you wish to call imaginary knowledge ("social construct," "culturally relative," "pure fantasy," or whatever). Science is something more than that. It's real knowledge. But still, the set of scientifically confirmed hypotheses can vary from one person to another. This is the case even though there's only one reality and one version of the truth; even though what's out there in the world is what's out there, and is the same for everyone. The set of confirmed scientific hypotheses — hypotheses in which a scientist can have confidence — can vary from one scientist to another. This doesn't mean that different scientists live in different worlds, as the postmodernists might want us to say. There is one world and one version of the truth. But human minds have some variability, from person to person, in how they handle confirmation and in what they perceive as constituting confirmation. And since there's no strictly logical way to make those judgments about confirmation, it follows that different experts may end up with different lists of hypotheses that have, in their view, been confirmed. Something similar can be said for the set of hypotheses that are merely plausible, which is a lower degree of

credibility than confirmation. That set of hypotheses can vary from one observer to another.

So ultimately, scientific knowledge is partly a matter of personal judgment. That sounds terrible — somebody's going to claim I said science is just a matter of opinion. I am not saying that at all! Science is all too often affected by opinion, and by careerism and tenure, and even by fads. There are some people in science who have not gotten over adherence to fads, which is too bad. But even if all those extraneous factors didn't exist — even if all investigators had full intellectual and ethical integrity — there still could be some wobble in what constitutes proper confirmation for one investigator as versus another. And I think this is all right! I think we just need to accept this. This doesn't mean that there isn't an established body of knowledge called "science." All it means is that the body of knowledge is fuzzy at its edges. The body of scientific knowledge may vary a little bit (or perhaps even a lot) from one scientist to another. And that's all right. For any individual scientist, there's still a body of information called "scientific knowledge." And because of the self-correcting nature of science, this body of information will tend to become more and more alike over time for different observers. Of course, people sometimes upset this convergence by making wild new discoveries. But the set of hypotheses that has been around a while will tend to converge. Different scientists will tend to have much the same opinion on these, because as more and more evidence accumulates, it becomes clearer and clearer to every careful thinker that these hypotheses are right.

Science is *not* purely subjective. Science is *not* a mere social construct. Science is *not* a racial, cultural, ethnic or gender construct. But also, science is not logical. It's not irrational — it's just not logical. Science uses logical methods, but it also depends irreducibly upon human judgment. Science is not logical, and that's not necessarily a bad thing! And science is more *individual* than we generally realize.

The confirmation status of a hypothesis can vary from one individual to another. I repeat that I am not proposing anything postmodern here — no relativism, no nutty attacks on science. I'm just proposing that because judgment is an individual matter, scientific confirmation has an irreducibly individual element in it. And I think that's just a fact we have to live with. It doesn't mean that science isn't knowledge, or that science isn't a path to truth. It does imply that science is fallible, and that science doesn't always have final answers. But anyone who thinks carefully about science already knows that!

Sometimes it's difficult to tell when science has established the truth of a hypothesis. Scientific conclusions that withstand the onslaught of the evidence, and are consistent with the evidence, can be relied upon to be *useful*. There is no logical guarantee that such a hypothesis is true — but there's a guarantee that it is *useful*. I think this guarantee of the usefulness of confirmed hypotheses is what's left of induction once we realize there's really no such thing as inductive logic. If a hypothesis always has predicted the correct results in the past, then we should rely on that hypothesis in the future — for want of anything else to rely on!

The alternative is to make up another hypothesis that predicts the correct data for the past, but that predicts something very different for the future. But then we'd have to ask ourselves, why that hypothesis and not some other hypothesis? When you have a law L that always has worked in practical applications, it's possible to assume that the law L will work in the future. Alternatively, it's possible to assume something like: the law L worked in the past, but some other law L' will work in the future. But then the question is: When will the new law take effect? If we make up an answer, like "Next year," then another question arises: Why next year? Why not the year after? Why not some period later this year? And there is another unanswered question: Why the law L'? Why not some other possible law different from L and from L'? So when you start to look at the

details, you find some arbitrariness. Either we stick with the law L, or we are forced to make arbitrary choices of laws and times — which leaves us with nothing definite to go on as a basis for practical action. This argument is, of course, based on Nelson Goodman's famous Grue-Bleen Paradox.[35] The argument I am giving here does not contain anything new. But I'm not talking here about truth; I'm just talking about practical usability. If you write down the hypothesis that L' becomes true in a particular year (say 3000), and you could have inserted some other year just as well, then why should you believe just that one, the 3000 hypothesis, instead of the 3001 hypothesis? Just from a practical point of view, there's no reason to favor one hypothesis over the other. So the simplest thing, or rather the only non-arbitrary thing to do, is just to assume L. This is the only assumption that won't leave us wondering what to do.

I think this is part of the reason why science is useful in practice. All else being equal, we really have no choice in practice but to assume that what's worked in the past will work in the future. So we need to rely on the hypotheses that have withstood the test of experience, if only as a practical matter. If the hypothesis turns out not to work in some instance, then we'll try to figure out what went wrong. We'll cross that bridge when we come to it, as the saying goes. But in the mean time, we need to rely on the well-established hypotheses. Of course, if we are critical thinkers, we also will keep looking for exceptions to those hypotheses.

This raises another big issue. When a hypothesis is well-established, we need to keep looking for exceptions. This is the only intellectually honest way to go. Otherwise, science just turns into a dogmatic system. If we reject an experimental result on the basis that it violates a known hypothesis, then we have gotten the scientific method completely backwards. *In science, observations refute hypotheses — hypotheses do not refute observations.* We can't ignore a strange

[35] Goodman, *Fact, Fiction, and Forecast*, chapter 3, section 4.

experimental result just because it seems to go against what we think we know. We need to be cautious and think critically, but we should not be afraid to consider the experimental result. Anything that seems to violate a well-established hypothesis should be looked at very closely, because we might learn something very important from it.

# Talk #12. Art, Imagination and Truth

**Questions:**

**Are art and science equal paths to truth?**

**Are the "subjective" experiences of poets as important to human knowledge as scientific measurements?**

**What is the place of the imagination in human knowledge?**

**Do imagined things (like fictional characters) have a reality of their own?**

**Answers:** [36]

I'd like to talk about the subject of art, imagination and truth.

People often feel that the purpose of art is a completely subjective purpose. We feel that art exists to make the world more beautiful, or to add beautiful things to our surroundings. We also know art can make a social or political statement, or convey hidden meanings of a social, political, sexual or psychological nature. The tendency today is to regard art as subjective — as conveying only purely

[36] Some of the ideas in this chapter appeared previously in my e-book, *Poetry's Secret Truth*, where I wrote about poetry and generalized my views to other arts only in passing. There I repeatedly cited Clyde Kilby's book *Poetry and Life* as a source. Kilby points out that poetry can reveal truth that is not mere fancy (including things hard to say in prose), convey experiences and knowledge, disclose imaginative possibilities, and offer a grasp of reality different from that of science. As the reader of this talk will see, I share these ideas of Kilby's. I wish to fully acknowledge Kilby here. See *Poetry and Life*, especially chs. 1-2 and pp. 325-331.

imaginative experiences, plus some objective messages (political and other) that could be conveyed in plain words. I'd like to challenge this view that artistic experience is subjective — that art cannot convey objective truths besides truths that could just as well be said in prose writing.

Art performs an experiential function. When you experience a work of art, often you learn to see things in new ways — ways in which you wouldn't have seen things before. The experience of art provides a new level of experience that you likely wouldn't have had without the art.

Let me give a personal example. When I was about eight years old, I saw a painting that showed a river — I don't recall which river. The painting showed the trees and other plants growing around the river. It looked like unspoiled land. Suddenly my perception of the painting changed — I felt almost as if I were there, on the banks of the river. I could almost feel the cool of the river. This change was striking; I felt that something had shifted in my mind. The scene of the river brought back other, earlier experiences of the wilderness — my earlier experiences of nature. It was as if the painting had brought me into contact with many other things, places and times — not only in the actual world, but also in the world as it might be.

That experience struck me as something special. I had seen lots of art, and had all sorts of feelings about other works of art. And I was in the process of becoming an artist myself. But for some reason, that painting struck me as something special. It was almost a door that I could walk through into another place.

People have experiences like this in connection with art. These are not purely emotional experiences (though one does feel them emotionally). They are not intellectual, analytical experiences such as an art critic might have. These

experiences involve something more. They involve a change in the way one perceives things.

One of the functions of art, perhaps the most important function of art, is to provide *special experience.* This doesn't just happen with realistic art; it happens with abstract art as well. Those familiar with the abstract sculpture of the 1960s may have had the feeling that *here is something that didn't exist in nature before.* I'm thinking of the steel constructions of David Smith, though there were several other artists whose works can elicit the same reaction. You look at these great abstract sculptures of Smith's, with their intricate geometric content, and you think, Now, here is something that could have been part of the landscape of Earth. Here is something that belongs here, but that nature didn't happen to make. Now that it's here, it's something new in the world. The artist has made something that nature, or God, didn't happen to make. And observing these sculptures on the landscape — like the fields where David Smith placed much of his work — gives experiences that you wouldn't get from a natural landscape alone.[37]

When you view abstract sculpture of this sort, you have all kinds of mental associations — with technology and machinery, and also with nature and its forms.[38] You get an experience that you couldn't get from anything else but that particular work of art. The experience may vary from person to person, but still it's a *new* experience. I've been using abstract sculpture as an example, but representational art gives experiences of this sort too. If you look at the paintings of some of the Renaissance artists, you get *feelings of light and dark* that you wouldn't otherwise get. Also, the artwork conveys you back in history to an earlier time. You wonder what the people in the painting are feeling, and how it

[37] See Candida N. Smith, *The Fields of David Smith*, for an overview of David Smith's work and ideas. Smith seems to have thought of his art as an addition to nature itself, almost along the same lines I am suggesting here. (See *The Fields of David Smith*, especially pp. 17, 43, and 133.)

[38] David Smith was well aware of these associations. Machinery and natural settings played key roles in his work. See Candida N. Smith, *The Fields of David Smith*.

relates to the affairs of their time. Artistic experience creates a system of impressions and associations. This system could not come into existence without the art. When you go into nature (the other great source of beauty in the world), you get certain kinds of experiences, impressions and feelings. Art gives you different ones. A work of art can give you something different.

Notice what kinds of impressions and feelings you have when you have an aesthetic experience, a feeling experience. I don't mean an emotional, jumping-up-and-down type of experience. That is something different, and much less interesting and important. I mean an experience in which you feel something in the way that you feel art. An experience of beauty — and it doesn't have to be beauty alone; things that are commonly regarded as ugly sometimes convey this experience also. An experience of the *feel* of things, the feel of the world, the feel of things instead of just the raw sensory impressions. How does an object, or a situation, or an event, feel to you? What are the feelings, not the obvious emotional reactions but the subtle and elusive "feels," associated with it?

When you experience a work of art, you are seeing things in a certain way. At very least, you are seeing that work of art in a certain way. By using the word "seeing" I don't mean to single out the sense of sight. The art could be music or spoken poetry, so you could be hearing it instead. When you experience a work of art through your senses, you experience the world in a new way. The art brings experiences that wouldn't have otherwise happened. And it can even bring different experiences to the same person who contemplates the work of art on two different occasions. This isn't just true of works of art. This is true of natural things, too, which resemble art insofar as they create aesthetic experiences — experiences of beauty and of feelings. It isn't just a matter of beauty alone, or of obvious feelings. There are elusive feelings and impressions that play around the edges of our consciousness when we perceive works of art or things of nature.

I'm not speaking scientifically now. I'm just trying to point out a certain feature of experience. Consider what happens when you view a painting — a painting that you feel is done well, not something that's boring to you, but a painting that makes you feel something, that gives you a definite impression. If you have some sensitivity to art, you will probably understand what I'm about to say. When you experience a work of art, there are *elusive feelings and impressions* that occur in your mind — in the back of your mind, or in the fringes of your mind. These are not the simplistic sense impressions (as in "I see green"); they are something different. You can look at the work of art and say, That part's red, that part's blue, and so forth. But those statements express ordinary sense impressions. In addition to those, there are what you could call feelings — or perhaps they're a type of sensation or perception — that's more elusive, that's more subtle. They make up the *feel* of the thing. This is not an idea that's easy to make clear. You need to have had these experiences already to fully get what I'm talking about. There are lots of *feels* in our experience, besides the blatant and easily nameable ones like seeing a green rectangle or hearing the note middle C. Those are the blatant, coarser aspects of sensory experience. I am thinking of another type of experience, with a different and subtler "grain" to it. These *feels* can occur when you look at a work of art or a natural object. They can occur when you look at an artificial thing of some other kind that isn't considered art. Right now I'm looking at a plastic lighted sign — the kind that took the place of so many of the old neon signs. This sign has a feel to it that's a little different from the feel of other things. Now I am looking at a different plastic lighted sign. It seems different. It has a different sort of emotional tone to it. And it has a different impact on the senses and the perceptions. It reminds me of certain things in my past — times long ago when I frequented a place with a similar sign. The fact that one of the signs is kind of dusty and the other one is clean also creates certain *feels* in my mind.

Are you getting the drift on this?

There are subtle, elusive impressions, *feels,* sensations, or feelings — whatever you wish to call them — that occur in your mind when you look at something, or hear something, or smell or touch something. The "something" can be art, or a natural object, or an artificial object that's not considered art but that nevertheless has an impact on the psyche.

It is possible to cultivate and bring to the fore these subtle impressions that we get from things. Normally we are bombarded with impressions. As long as we are conscious, we're bombarded — no, bombarded is a rough word, and this is a subtle and fine subject; I should say instead that we are constantly *receiving* impressions from our surroundings. We're constantly absorbing impressions from our surroundings. Most of the impressions get by us nearly unnoticed. We take note of some of them — like when I look up at the lighted sign and say, "Oh yeah, I know what market that is, maybe I should go in and buy something." We notice the grosser, more obvious, more in-your-face aspects of our experience. But we do not usually take note of the subtle psychological feels that surround a thing.

Art can help bring these finer experiences, finer elements of experience, or finer impressions to the fore. It can help you notice them more and feel them more. This is especially true of poetry — the reading of poetry, and the mental pictures of that poetry paints in your mind. By cultivating the love of poetry, you can become more sensitive to how your surroundings really feel; to how the world really feels, and to how things in the world really feel. You become less automatic; you are no longer limited to registering so-called factual matters. You become able to utilize and really take in more of the full spectrum of impressions

that reach us through the senses.

You become more awake.

In our normal condition, we do not experience the world as fully as we should. Art can provide impressions and experiences of a different kind — different from what would have existed without art. Art can bring new kinds of experience into the world. And this is an important function of art — to bring *new* experiences to light. Once upon a time, I wrote some material about a concept that I called subjective fact.[39] A subjective fact is a fact about how things seem in a particular instance. When I'm seeing a lighted sign made of large red letters, it is a subjective fact that it seems to me now that there's a red patch there, and another red patch there, and so forth. Besides these simple, sensory facts, there are other ways that it seems to me when I look at that sign. I don't just see the patches of red. They are letters for me, and the sign as a whole is a word. These facts are part of the way things seem. And also, there are ways that it seems to me that are hard to put into words. For example, the sign seems to be hanging there in space, and… I would have to say it seems like the sign is just sitting there silently, sort of transmitting a message to me with its letters, its word, and its color and shape. That's the feeling I get. Sitting there silently in the night. Glowing and transmitting its message, spelled out by its letters. That's the way that that sign *feels* to me. Also, I associate the sign with other things. I think of other signs I've seen in my past. I think of the whole neon phenomenon that was so big during the Sixties. I think of the Sixties, with all they entail. I think of the chemical element neon, which I read about when I was a boy with a chemistry set. And I think of all sorts of things — all sorts of associations that branch off from this experience. And in addition to memories and associations, there are all the other facets of the way it *seems*.

[39] I introduced this concept in my book, *From Brain to Cosmos.*

When you sit and really experience something, really try to take something in, and feel everything you can, and see what the experience can bring to you — then you begin to experience things more fully. One of the functions art can fulfill is to bring to the fore these normally ignored, elusive, subtle impressions. And when you start to take note of those impressions, you begin to experience them more fully and more intensely. You begin to feel that our ordinary experience *is mostly made up of impressions that we overlook*. In ordinary life, we're too busy seeing the coarse outlines of things, and getting the information we need for survival. We're too busy having strong, coarse emotions to notice anything else. (Even if an emotion is strong and we're taught to label it as deep or heartfelt, this doesn't mean the emotion is anything more than coarse. It all depends on which emotion, and when it occurs, and for what purpose.) We're so overwhelmed by the sensory and emotional aspects of our daily life, and by the constant stream of thinking and worrying and what-iffing that goes on all the time, that we miss the finer side of our experience. But this finer side is the larger part of our experience. The automatic way that we normally see things is only one possible way to see. There are lots of other possible ways to experience things. The impressions that we don't normally notice probably form the greater bulk of our impressions, of our conscious experience. The greater bulk of what's in our consciousness, or of what tries to get into our consciousness, we simply miss. We just overlook it.

The arts can bring to the fore the important aspects of experience that we normally miss. They can deepen and broaden our experience. And this is not an imaginary effect. Now, some skeptic is sure to say, "Oh, he's just talking about purely subjective impressions — 'merely psychological' impressions. The real impressions are the simple ones, like what color is that patch, and what shape is that patch, and things like that. These subtle impressions, these elusive

associations and feels that he's talking about, are all in the head." My answer to this skeptical reply is: Baloney! These subtle impressions have the same standing in reality as simple sense impressions. Impressions of both kinds are caused by the interaction between your brain/mind and your surroundings by way of your sense organs. Even for a simple sense impression like recognition of a shape or color, your brain/mind has to interpret what your eye takes in. In order to hear music, your brain has to interpret what your ear takes in. Even to hear common noises like the sound of an engine, your brain has to interpret the input of the ear. The ear just sends nerve impulses to the brain. Your brain has to interpret that. So when your brain interprets sense experiences, that's what makes sense out of your experiences. In fact, that's what makes experience — without that interpretation, there would just be nerve signals coming down the nerve from the eye or the ear. And the so-called "subjective," so-called "psychological" impressions — the subtler aspects of experience — they work the same way. They are perceived because of processing in the brain/mind. So why should we regard those impressions as "merely psychological" when we regard the plain old sense impressions as less "psychological" and more "objective"? Suppose I notice that a door is rectangular. No one would say that my noticing that the door is rectangular is all in my imagination. My brain/mind produces the experience, but the door really is rectangular. So why should the feel that I had when I approached that painting of the river be all in the imagination? Sure, it was an interpretation of the painting by my brain/mind — but so is the fact that the door looks rectangular to me! And just as it's objectively true that the door is approximately rectangular, so it's also objectively true that it's *possible* to experience that painting of the river in the way that I did! If you ask me what are the counterparts in objective reality of the subtler aspects of aesthetic experience, I would point to the fact that the painting, or whatever I'm observing, can be experienced in that way. This is a fact about what is possible. It is an objectively true fact.

Think about what happens when you view things *artistically* — and when you try to experience things fully, without ignore how it feels, how it seems. If you're looking at a picture or sculpture of a tree, don't just say, "Oh yeah, that's a tree." Instead, experience the object from all around. See how it feels in your mind. What impressions do you get? Open up to your own experience. You will learn an objective fact about reality — an objectively true fact — just as a scientist learns an objectively true fact by looking through a telescope at a newly discovered planet. One objectively true fact you will learn is the fact that it's possible to see this particular object in *this* particular way.

The deep experience of art reveals new ways to see things — new possible ways to experience things. These ways of experiencing things are objective features of reality! It is an objective fact that you can experience *that* painting in *that* way. You could say it's a psychological fact, because it involves human experiences — it's a fact about how things can be experienced. It's not just a fact about something completely external to people, like the fact that there's a stone in the desert where nobody is present. A fact about ways of experiencing things is a fact that involves observers, or observers' minds. But observers' minds are part of reality too. Your perceptions are parts of reality. The fact that you're in a certain mental state is an objective fact. The fact that things can seem a certain way is an objective fact. So when you experience art, you're actually learning something about objective reality. You're learning about *new possible experiences*. You're learning that certain experiences are possible — that it's possible to experience things in a certain way; that a thing can *feel* a certain way; that a thing gives a certain feel.

Someone might try to object to all this by saying you're only learning about what's going on in your own head. According to that argument, you're not really

learning about reality, because the experience of art is different for different people. Different people will look at a work of art and get different experiences. A work of art will feel different for different people. But that doesn't imply that art doesn't teach you about objective reality. It just means that people whose brains are in different states will get different experiences from the same object. But that's an objective fact about the world, too! If I'm in a particular state of mind, and have the particular body and brain that I have, and I get a certain impression from a work of art, then it's an objective fact that an observer with my characteristics and in my state will have that impression when exposed to that work of art. If someone else, named Henry, has a different impression, this shows that an observer with Henry's characteristics and state will have that other impression. These are facts about the world — the fact that an observer with particular qualities and in a particular state will experience the work of art in a particular way. These facts are *relativized to an observer*; they have to do with the way things seem to particular observers, or to observers in particular states. But that doesn't mean they're not objectively true facts. The special theory of relativity, which is a well-established scientific theory, uses a similar notion of observer-dependent fact. In the special theory of relativity, it's quite possible for different observers to measure the size of an object (the length of a yardstick for example) and get different answers. And all of the observers are right! In the theory of relativity, you don't say the length of an object is one meter, period. You say the length of an object is one meter when measured by an observer in a particular frame of reference. Length, mass, and some other properties of objects are relative to the observer's state of motion. And art, though seemingly far from relativity theory, works somewhat the same way — because what an observer detects in a work of art is dependent upon the state of the observer. No one should say that relativistic shifts in the sizes and masses of objects are unreal, or are "all in the mind." Physicists don't say that. These shifts are real — they're part of the real physical world. Similarly, the differences in the way that

observers experience a work of art are real differences. They're part of the real world. The fact that certain observers experience certain things in certain situations is an objective fact, objectively true.

In some of my earlier writings, I pointed out that a subjective fact — a fact about how things seem in a particular instance — is, in a sense, the most objective fact there is.[40] If things seem a certain way, then no matter how things really are, at least they *seem* that way. So the subjective fact is true, even if it doesn't reflect the way things really are. The subjective fact is true even if the way things seem is completely different from the way things really are. The subjective fact about how things seem is still true.

I'd like to make that point again here, in relation to art. The experiences associated with the perception of art are objectively real. By having those experiences, by witnessing art, you learn more about the universe. You learn that this object in the universe can be experienced in this way. That is a fact. It is a fact about the work of art — that it can give this feel; that it can give this impression. That is a fact! It is an *objectively true fact* that this particular work of art can be experienced in the way that I am now experiencing it. It is an objectively true fact that an observer in a suitable state would have an experience like this upon encountering this work of art.

When you experience a work of art, you learn about the perceptual possibilities of the work of art — and therefore about the perceptual possibilities of the universe, because the work of art is part of the universe. And if you fully experience the world you live in, instead of just rushing through it and ignoring the beauty, colors, forms and other qualities of the world — if you fully drink in the experience of the world, you are learning about the perceptual possibilities of the

[40] See *From Brain to Cosmos*, p. 50 and chap. 13, and my e-book *Poetry's Secret Truth.*

world. You are learning something objectively true about the world. And you are learning something which (at least for all practical purposes) can't be learned any other way than by that kind of full experience of the world.

Art leads to objective knowledge by disclosing new ways of experiencing the world. If somebody shows me a painting of a river, I learn something new. I might even see and learn something I wouldn't have seen if I had looked at the river myself. If I look at a painting of a medieval duchess by one of the old masters, I may see that duchess, who I may have read about in a history book, in a new light. I experience things in ways that I didn't experience them before. And thereby I learn. But this access to knowledge is not the whole story. Art also acts as a medium of communication — not only of ordinary knowledge and experience, but of the *special experience* that art can produce in the viewer.

In representational art and in abstract art (which is built on ideas and thoughts, also parts of the world), the artist experiences the world in a particular way, and records or communicates that perception. And then the *viewer* of the art experiences the work of art — gets an experience that wouldn't otherwise have happened for the viewer. This may or may not be similar to what the artist experienced. The viewer also *re-experiences*, indirectly, the thing that the painting or other work of art is about. So, when I looked at that painting of the river, the artist had experienced it in a certain way and recorded that. Then I experienced the painting and also, indirectly or imaginatively, experienced the river. I knew the river in a new way. I had never seen that particular river before, but I experienced it in a way that I wouldn't have probably experienced it if I'd gone there and seen it on my own. This *re-experiencing* is one way that art can communicate the vision of the artist.

The work of art may or may not succeed in conveying exactly what the artist

experienced in the first place. The observer of the art inevitably puts another layer of perception into it. It's very difficult to make a work of art that will convey exactly what you experienced at the time. But if this happens (or comes close to happening), then another kind of communication has occurred. Fortunately, that rare kind of communication is not the only role of art. That's only one function of art. There are other kinds of art that don't really record at all, but deliberately leave the perceptual possibilities more open to the observer of the art.

Aside from the matter of communication, art opens up new perceptual possibilities — not only perceptions of the art itself, but perceptions of the world that existed before the art. And in doing so, art discloses *new facts about the universe* — new facts about reality, that could not have been disclosed in any other way than through the art. There may be a tendency to think that these perceptual possibilities of the world are "just psychological" or "just subjective." But that's not the case — because, as I explained before, they are objective facts about the world.

The division between science and art is not as real as it seems. At the foundation of science lies human experience. And the experiences that lie at the foundations of science are only a small percentage, a small fraction, of human experience. Scientists tend to concentrate on specific kinds of experiences: meter readings, looking for certain features in pictures of outer space, and things like that. The experiences that scientists use are instances of human perception. All scientific evidence is built upon human experience! In our present society, we regard those experiences that scientists use, those careful observations, as objective and important. Why shouldn't we regard the experience of the artist, or of the viewer of art, as objective and important? We have picked out a small fraction, a small piece, of the spectrum of human experience. We've called this small piece

"scientific." And we have the nerve to think this small piece is objective, and nothing else is! The experiences that scientists use as data are just subjective facts — just facts about how things seem. We have this huge stream of subjective facts pouring into us all the time — this huge stream of impressions that our minds are picking up all the time from our surroundings. Scientists use a small fraction of that stream as the basis for scientific inference. They call those particular subjective facts "scientific observations." What number did I see on the meter after I threw the switch? In this picture, does this galaxy appear to have a jet of matter coming out of it? The answers to these questions are the basis for scientific data. *And all they are is subjective facts!* If scientists can repeat experiments successfully — that is, if scientists keep having similar subjective facts, that are similar in relevant ways — then scientists draw a conclusion. They arrive at a conclusion about what's going on in the physical world.

Scientific evidence is rooted in subjective fact. Art also is rooted in subjective fact. Art and science spring from a common fountainhead. And as we have seen, art has as great a claim on objectivity, in its own way, as does science.

Let me repeat and amplify some of what I said earlier. Art can reveal objective truths about the world that can't be reached by scientific means. Art does this by revealing new perceptual possibilities for seeing things, for observing things. There are many different possible ways to observe a scene. Take a scene of a landscape, for instance. You can stand there in the real landscape, and you can make measurements on it. You can take a transit and take measurements of the distances to things in the landscape, or take a spectroscope and measure the light spectra that different things are giving off. And you can come up with a set of measurements. That's one way to observe the landscape. Alternatively, you can just stand there and observe the landscape, without doing scientific things like that — observe it as a normal observer would, instead of a scientific observer would.

The scientific observer collects certain kinds of information about the landscape, and concentrates on those kinds of information. Other observers collect other kinds of information. Your senses collect information and bring it to your brain. You notice certain things about the surroundings; you see the scene in certain ways, and the scene elicits certain *feelings*. This is all a matter of collecting information about the surroundings. Scientific observation is *one* way of observing the world. There are other ways, too. And the other ways reveal other facts about the observed world — facts that scientific methods overlook. *One of the great strengths of science, and one of the great weaknesses of science, is that science overlooks a lot.* Science concentrates only on those features of reality that don't depend on the psychological state of the observer. The features of reality that science regards as real are the features that don't depend on the psychological state of the observer. Those are the features of the world that exist for everyone in common, regardless of their exact psychological state, as long as they have normal, typical powers of observation. So, for example, the fact that there's a stone in the field, and the fact that if you put acid on the stone it bubbles — those facts are true from your standpoint regardless of what psychological state you're in. But suppose, instead, that you look at a painting of that same field, and you get an impression of the landscape looking *just that way*. Or suppose that you go out there and observe the landscape yourself under different kinds of light — observe it as an artist would. Then you form very different impressions. You notice facts about that landscape that a scientist would not regard as facts and would completely ignore. Science deals only with those features of the world that are independent of one's mental state. There is an apparent exception to this: scientific psychology can study how people observe things when they're in different mental and emotional states. But those observations aren't really observations of mental-state-dependent facts. The psychologist actually observes behavior. Observable human behavior is independent of the state of an external observer of that behavior. (If I raise my fist, then I have raised my fist, regardless

of what your mental state might be.)

So these are the features of the world that science studies. But these are not the only features of the world! There are a lot of different observers observing the world all the time. There are lots of observations going on all the time. It is possible for there to be even more observers than there are, and it is possible for the observers who are there now to be in different states and to form different impressions of the world. All of these actual and possible observers are different from each other. Different observers will look at the same scene and get different impressions of it — different sensory impressions, because their senses are working a little differently, but more importantly, different mental and emotional impressions. And it so happens that there are some impressions that are common to most people most of the time. There are facts that can, in principle, be verified through experience by everyone who is intelligent enough to carry out the procedures for verifying them. For example, there are facts about chemical compositions. The fact that a particular stone in that landscape will bubble if you put vinegar on it — that's a fact that anyone can verify, by putting vinegar on the stone. The stone won't fail to bubble just because you're in a certain mood at the time, or have certain memories. So, the chemical composition of matter, and chemical and physical properties of matter — the things that science is interested in — are really just the observer-independent features of the world. More precisely, they are the features of the world that are not dependent on the psychological state of the observer. They can depend on the speed of the observer, and things like that, as relativity has shown us. But they don't depend on the psychological state of the observer.

There are a lot of other facts about the world that *do* depend upon the psychological state of the observer. And those are real facts. The fact that a landscape looked a certain way to Monet on a certain day — that is a fact! You

could call it a psychological fact, or a subjective fact — but it is an *objective* fact. It's a fact that is objectively true — that landscape did, in fact, look that way to Monet in that particular instance. So facts about subjective impressions, and how things seem, are *fully objective facts*, even though in an obvious sense they're subjective. Not only are they objective, but they are just as objective as scientific facts! In a way, they are even more objective than scientific facts, because a scientific fact always is a conclusion drawn from observation instead of a matter of direct experience. When a scientific observation is made, people collect information about how things *seem* to observers and experimenters in certain instances. Some of that information is called "*scientific data*." Then scientists draw conclusions from those data. So a scientific conclusion is a few steps removed from experience. Scientific conclusions are not facts about how things seem. Scientific conclusions are *inferred from* facts about how things seem. Scientific conclusions are the result of inference, not of experience alone. This is not a point against science; it's just a fact about science.

Facts about how things seem are facts of direct experience of the world. The experience isn't "direct" in any physiological sense; light and sound (or other stimuli) have to reach the sense organs, and then signals have to go to the brain and get processed. But from a psychological point of view, you can think of facts about how things seem as "directly experienced" facts. In any case, these facts are just as objective, just as true, as scientific facts. And we can have more certainty about them than we can have about scientific facts. I've discussed this point in my earlier writings (*From Brain to Cosmos*), so I won't argue it here. You can't discount subjective facts about the world on the grounds that they're subjective, because actually they're highly objective. One argument against subjective facts being as "real" or as "true" as scientific facts (whatever that might mean) is that the subjective facts are dependent on the state of the observer — the psychological state of the observer. Someone might say the subjective facts are

"only in the imagination," whereas scientific facts are facts about how things "really are." This is false, because the fact that things seem a certain way to you in a certain instance of seeming is an *objective fact*! There is no way to make this fact less than objective. The feel, or the subjective experience or impression, of a scene observed by an observer is dependent on the state of the observer. But that doesn't make the facts of subjective experience less than real and objective. If these facts are less than real, then the state-dependent properties in special relativity, like length and mass, also are less than real. The special theory of relativity says that the state of motion of the observer is one of the variables that governs the observed length and mass of an object. So if I observe the length and mass of an object, the result that I get will depend on my state of motion, my speed and direction of motion, relative to that object. The observer is in a total state which can be described by a set of physical and psychological state variables. The length and mass of an observed object depend on some of these state variables — namely, velocity. The artistic qualities of an observed object depend on other state variables — the psychological ones. In either case, the results of an observation depend on the state of the observer. It is arbitrary to claim that an observer-dependent property like mass is objective, and then turn around and say that an observer-dependent property like beauty is imaginary. The *feel of spring*, the unique feel of a spring day; or the peculiar feeling that comes after a rainy day, where the air seems to be charged with some strange electricity — these *subjective properties of the world* depend on the state of the observer. These subjective properties depend on the *psychological* state of the observer, while properties like length and mass depend on the *state of motion* of the observer.

Why do people think it's acceptable for a property to depend on the observer's state of *motion*, but not acceptable for a property to depend on the observer's *psychological* state? In one case, we call the property real. In the other case, we

call it “imaginary” or “purely subjective.” Yet the state of motion and the psychological state are just different parts of the overall state of the observer, which is an objectively real state. What’s the problem here?

If you believe what most neuroscientists believe about the mind, then a psychological state is a physical state of a certain sort. Even if the mind is not strictly physical, psychological states are closely tied to physical states of a brain. Thus, an observer’s psychological state is part of that observer’s physical state. When the physical state of the observer affects the perceived mass of an object, we still regard mass as an objectively real property of things. This is just relativity. But when the physical state of the observer affects the *beauty* of the thing, we use this to discount beauty and to label beauty as purely imaginary! Why do we do this? I think it’s just a matter of prejudice. Various philosophical prejudices factor into this, but I think the main culprit is the prejudice against the psychological and the subjective — a prejudice that came up with the rise of modern science, or more correctly, the rise of ideologies based on the so-called scientific worldview. I think that is the real reason why we discount beauty, but not length or mass, for being relative to the state of the observer. It’s just a matter of prejudice.

People say “beauty is in the eye of the beholder.” And it’s true that beauty is in the eye of the beholder — if this means the beauty of an observed entity depends on the psychological state of the observer. Different observers can have different impressions of how beautiful something is. That is a commonsense fact. But when people say that beauty is in the eye of the beholder, often they mean that beauty isn’t genuinely real — that it’s purely imaginary. People tend to regard beauty as less real or important than properties like mass, length, and duration, which are considered objective. In this common view, beauty has a lesser status.

I would say that beauty is a function of the state of the beholder. But that does *not* mean beauty is only in the beholder's imagination Beauty is not just in the observer's imagination. It isn't just in the observer's perceptions. It isn't "all in the head." *It is a property of the pair made up of the observer and the observed.* Beauty depends on features of the object being observed. These features are registered by the observer's brain. But beauty also depends on the state of the observer's brain at the time that those features are registered. So it's best to think of beauty as a property of the observer-observed pair. This is one way to think of a relative property of the entity being observed. Beauty is real, but relative — in the same way that the decay time of an elementary particle is relative according to modern physics!

Think about the so-called subjective properties of the world. Not just beauty, but other properties as well — other, more specific properties. The feel of a spring day when you're outdoors on the lawn. (If you've ever been there, you know what I mean.) The peculiar feel of the time after the rain, when the air seems to be clean and crystalline and charged with something vital. The feel of the time *before* the rain, with its lowering clouds — almost a sinister feel, a feel that is somehow meditative, somehow pensive. These *subjective feels* of the world, with which artists concern themselves, are *real, objective properties of the world*. The only difference between them, on the one hand, and properties like length, mass and duration on the other hand, lies in the way these properties depend on the state of the observer. The so-called physical properties are dependent on the state of motion of the observer, which is part of the observer's physical state. The so-called subjective properties — the aesthetic, artistic properties of the world — are dependent on the observer's psychological state, which also is part of the observer's state. And since mind has a physical basis (or at least is closely correlated with the physical), the observer's psychological state is part of the observer's physical state.

The science-driven worldview of modern times relegates the subjective properties of the world to the margins of reality. We should de-marginalize these subjective properties. We should stop regarding them as "only in the mind," and admit that these properties are real properties of the world. The subjective facts that artists know, that poets know, constitute *real knowledge of the world* — knowledge of *the way things really are*. This knowledge is relative to the observer's psychological state, so in most cases science cannot use that knowledge. But the knowledge is real knowledge nevertheless. The great strength of science, and also its great limitation, is that it sticks strictly to the "intersubjective" — to facts that are testable, in principle, for everyone. Science is about facts that are true regardless of your psychological state. The great strength of science — what makes science so useful — is that it sticks to those facts, and reveals the features of the world that are universal, dependable, repeatable, and lawlike. By focusing on these facts, science makes discoveries and inventions that work for everyone. But this focus also excludes science from studying other kinds of facts — facts that are more personal and elusive.

Science discovers the repeatable, universally true laws of nature — or at least it tries to discover those, even when it actually discovers approximations that it has to replace later. Science tries to discover the universal, intersubjectively real features of the world.

Art focuses less on the universal, and more on *particular* features of the world. Someone once said that poetry focuses on "*the statistic of one.*"[41] That's a good way to express part of what I'm trying to say here. Art focuses on facts that particular observers notice while in particular mental states, and under particular personal circumstances. Art does not try to get to an impression that is shared by

[41] Clyde Kilby said this in *Poetry and Life* (p. 11).

everyone under all circumstances. In fact, I think it is nonsense to speak of "an impression that is shared by everyone under all circumstances." The idea of a subjective aesthetic impression independent of the state of the observer is an idea that has no counterpart in reality.

One of the important functions of art is to reveal and record facts that *are* state-dependent. These are subjective facts that science cannot process. Art brings these facts to light and may try to record them. Besides revealing and recording, art can *draw people's attention* to these delicate facts, which often get dismissed as imaginary or simply go unnoticed amidst the rush of outward life.

It is possible for artists to discover things that are of interest to scientists. This is true of all artists, but especially of photographers. There's a possibility that a photographer in the jungle will document a new animal that has never been seen before. Then the photo would be a work of art, and also be scientific data. Art can capture facts of interest to science. But normally, art doesn't concentrate on facts of that kind. Art concentrates on subjective facts that are not constrained by the search for scientific knowledge. Art is intersubjective in its own way, because there's an indirect interaction between the artist and the observer of the work of art. Some works of art communicate what the artist originally experienced while creating the work. Scientists look for a fact that's dependable for everyone who tries to verify that fact. (At least science works that way when human folly and error don't get in the way.) Science is supposed to look for universally true natural laws and regularities in experience. That is a very important way to approach experience — but it is not the only way to approach experience. The artistic way is a different way. The artistic way is concerned with subjective facts that aren't necessarily scientifically useful. As I pointed out earlier, there are no grounds for denying aesthetic facts full reality and truth, and even objectivity. Aesthetic facts are not universally intersubjective in the way that scientific facts

are, but that is no argument against aesthetic facts. Science is useful to humanity's physical well-being because science deals with the features of reality that are the same for everybody. Because of this sameness, we can build machines that work for everyone, and devise medical treatments that work for everyone who is in a suitable bodily state. When something is scientifically verified, you can count on it to work most of the time. (The best kind of "verification" of scientific ideas is verification through use in technology — not verification through one or two academic studies that could have been biased.) That's why science is so useful. It deals with facts that you can count on under all circumstances. Art deals in facts of a much more elusive, subtle, and personal character. But these facts still are objective facts. And they are as much part of reality as any other facts.

We can conclude that art reveals facts about reality that are beyond the scope of science — facts that science cannot use as data, cannot verify, and would not even regard as facts. Art is a real form of knowledge.[42] It's complementary to science, deals with different facts, and uses different ways of learning and knowing, but it is as much a real form of knowledge as is science. To do art or to observe art — and to be *awake* while doing so, instead of just doing it out of habit — is to explore the universe. An artist is a knower of the world. An artist is a discoverer, just as much as is a scientist. It is time we realize this, instead of relegating art to the realm of the purely imaginary or to the task of making something pretty. Art has many functions, all legitimate — but one of those functions is the attainment of a special knowledge of the world, a knowledge that is not accessible to science.

There is nothing supernatural about this concept of art as a way to special knowledge. Nothing I have said contradicts any of the natural laws discovered by

[42] The idea that art is a real form of knowledge is not new. It is at least as old as Neoplatonism. For an instance closer to our time, see Kilby, *Poetry and Life*, pp. 8-13.

scientists. The question of whether something supernatural exists is a separate question that shouldn't come up at all here. Whatever the answer to this question, it has no bearing on my claims about art. I am mentioning the supernatural only to forestall attacks by skeptics of a certain kind. When I say "a special knowledge beyond science," certain so-called skeptics will pounce on that and say, "Oh, you're advocating belief in the supernatural," or "You're advocating a return to the demon-infested world of ancient superstition." Needless to say, my position has nothing to do with superstition or the supernatural. Any sensible person can see that. The existence or nonexistence of the supernatural is a separate issue. The knowledge revealed by art is not antiscientific. It is just a type of knowledge in which science is not interested. A psychologist or neuroscientist could try to come up with a scientific explanation of subjective experience: why a particular scene produces a particular mental, emotional, and sensory response in a particular person under certain conditions. Scientists can try to figure out why art "works" on the mind the way it does. But even if there were a complete scientific explanation of how the mind works, that would not change the fact that the mind does work that way, and that art does accomplish what it accomplishes. And that a meadow in spring *really does* feel that way.

A widely repeated philosophical saying, often attributed to Bishop Butler, says "Everything is what it is, and not another thing." This is an important rule to remember in the present age of wild reductionism. The fact that something has a scientific explanation doesn't imply that the thing is anything different from what it is. If psychology explains why we feel the way we do under certain conditions, that doesn't mean we don't really feel that way. It only means that we now know something about why we feel that way. So even if you believe everything in the world will someday have a scientific explanation, this does not change the fact that *art reveals a knowledge beyond the scope of science.*

Subjective experiences still would be what they are, even if the mechanism that produced them became known. The fact that a spring day feels *that way* — this fact does not change, even if we knew how the brain makes us feel things.[43] Some philosophers, overstepping their facts, might say, "Well, someday when we know about the brain, we will be able to know all about what it's like to experience a spring day, without actually experiencing it."[44] But that's beside the point. Even if you have enough information to specify the feeling of a spring day, *you won't be experiencing a spring day!* Maybe if we totally understood the brain, we'd have a complete description of what the brain is doing when you experience a spring day. Maybe somebody who's never experienced a spring day could say, "Ah, so this is what it's like to experience a spring day. This is what I'd say if I experienced it. This is how I would act, and how I would describe it." But that person does not get that experience by virtue of having that information. And *to get the experience is to know a subjective fact.* Even if you "know what it's like" in the sense that you know how you would behave under those circumstances, you still wouldn't get the experience. Even if you know what your brain would be doing, or what you would say you felt, and so forth, you would not get the experience. Of course, we're nowhere near that kind of knowledge about the brain; no one knows whether we ever will have that knowledge. But even if we did understand the brain well enough, you still could not encounter a subjective fact yourself, except by encountering it yourself — by being "part" of it; by actually having the experience. *Having the experience* is a kind of knowledge that goes beyond the discursive, intellectual knowledge of what the brain would do under given conditions.

Philosophers of mind may think the statement I just made is equivalent to the

[43] I used related spring-day examples in my earlier book, *God, Son of Quark* (p. 2), and in my e-book, *Poetry's Secret Truth* (especially p. 136).

[44] Materialist philosopher Daniel C. Dennett has argued (in *Consciousness Explained*, pp. 398-401) that a person with *complete* physical information about a color experience would not learn anything new by having that experience.

conclusion of Frank Jackson's famous "Knowledge argument" about a scientist named Mary.[45] Actually it is not equivalent. I'm not making a "knowledge argument." I'm not claiming that there is information accessible to the subject having the experience, but absent from a full description of the neural events behind the experience. I'm not saying whether that kind of information exists. What I am saying is that *artistic knowledge is more than just information.* You could know all about the subjective experience, what causes it, what a person having the experience would say, how they would act, and so forth — and then I suppose you would "know what it is like" in a sense. But you still haven't had the experience! *And having an experience is a kind of knowledge.* Having the information in you as an experience is different from just knowing the information intellectually, as if you had a list with the information written on it. Look at a landscape. All kinds of light and sound reach you. Information about that landscape goes into your brain — information from the natural environment, that your brain extracts from the natural environment by way of your senses. You have that information *in you*, in a way different from being able to enumerate the information verbally. To have that information in you in this way is to *know*. If having information in your brain, and being conscious of that information, isn't a kind of knowledge, then what do you call knowledge? The fact that you are conscious of the information in a non-discursive way does not change the fact that you *know*. When you look at the landscape, you have information about the real world in your brain, and you're consciously aware of that information. That's knowledge!

Experiencing the world, experiencing your surroundings, is knowing. It is one type of knowing. Having the experience is *not* the same as knowing all about how the experience works. Even if you had information that would completely specify the experience, having that information would be different from having

[45] Frank Jackson, *Epiphenomenal Qualia*.

the experience! The soundness or unsoundness of the "knowledge argument" cannot change this.

Whether or not the knowledge argument is correct, there's a difference between having an experience and knowing about the experience — no matter how much you know. I'm not saying that there's extra information in the experience — knowledge in the purely intellectual sense in which a computer data set is knowledge. I just want to point out that experiencing something is a way of knowing. And it's a way of knowing different from just having a description of the experience. Whether or not there's any additional information involved, the act of knowing through having the experience is still different from the act of learning all the talk or mathematical formulas that would describe the experience thoroughly.

I've gotten into a subject that's a little different from the original subject of this talk. I was arguing that art yields knowledge about the world, and that this knowledge is mostly of a type with which science doesn't concern itself. It's a type of knowledge that's outside science, in the sense that science doesn't concern itself with that kind of knowledge. And now, in this last part of the talk, I've made a different point. Even if we could give a complete physical description of what an experience is like, this still would not bring artistic knowledge within the scope of science, because having an experience is different from knowing all about the experience. And this is true whether or not there is extra information accessible to the subject of the experience. The "knowledge argument" in the philosophy of mind depends on the idea that there's some additional information you learn when you have the experience yourself. What I'm saying here is a little different. I'm saying that regardless of whether there's extra information, knowing the world through personal experience is a type of knowledge different from knowing the world through "discursive" knowledge. This adds to my earlier

argument that art can yield a type of knowledge beyond the scope of science. This last part of the argument implies that artistic knowledge cannot be equated to scientific knowledge of a psychological state — not even to a complete psychoneurological description of what is happening in you when you have the experience. Knowing what happens in you when you experience the meadow is not the same as experiencing the meadow. Having an experience is not the same as knowing about an experience, no matter how comprehensive the latter knowledge may become.

Artistic knowledge is not just the gathering of information, but the having of experiences. Earlier I said that artistic knowledge is beyond the scope of what science is interested in, and is beyond the scope of what science can use as data. Now I can say more. Artistic knowledge is not reducible to scientific knowledge — not even to psychological or neurobiological knowledge. This claim is not antiscientific in any way, nor does it involve anything supernatural. Artistic knowledge is simply a type of knowledge that doesn't fit within the type of knowledge that science, even psychological science, can pursue. Scientific methodology just doesn't deal with this kind of knowledge — just doesn't make use of it. Science isn't aimed at achieving this kind of knowledge. But nevertheless, artistic knowledge is knowledge.

I suppose some reductionist who doesn't like subjective experience might try to get around this argument by redefining "knowledge" so that only discursive knowledge counts as knowledge. In other words, redefining knowledge so that "knowing" does not encompass going out and experiencing the spring. But redefining "knowledge" in this way would be patently dishonest. It would be a pure cheat! It would be like proving the existence of ghosts by saying, "Let's call the skeleton of a deceased person a 'ghost'." It would be a total cheat.

Art is an activity that yields and transmits knowledge. The knowledge that art yields and transmits includes knowledge beyond the scope of scientific knowledge. Therefore, in order to get a complete view of reality, we can't get by on science alone. We also need art. Even science and philosophy together cannot eliminate the need for artistic knowledge. From what I said earlier, it should be obvious that philosophical knowledge cannot entirely encompass the type of knowledge that art can yield. Unless, of course, we define philosophy so broadly and so metaphorically that it includes the subjective experiences connected with art. Such a definition of "philosophy" would not fit philosophy as it really is in the West — or, for that matter, even in the East.

In conclusion, it's safe to say that science and philosophy together are not sufficient to provide full knowledge of reality. We also must include the arts.

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I'd like to talk some more about the subjects of art, imagination and truth.

Specifically, I'd like to say a few words about fiction.

Fiction is an art form that involves the creation of imaginary beings — imaginary scenery, imaginary situations, imaginary people, and so forth. A work of fiction is a work of imagination. Works of poetry often are works of fictive imagination too. Many poems deal with fictional characters, places and events. I'd like to make a few remarks about fiction, and about ways in which fiction, whether in poetry or in prose, can yield truth.

There's a big, ongoing philosophical debate about what are called *nonexistent objects*. I won't try to summarize this debate here; there's a large philosophical

literature about it. But the main question behind the debate is whether things that we regard as nonexistent have any kind of being or existence at all. Consider a fictional character, like Sherlock Holmes — a character sometimes used as an example in the philosophical literature. If there was no actual man named Sherlock Holmes whom Conan Doyle could have been writing about, then Sherlock Holmes is a fictional character. Now we can ask a question: Is there such a being as Sherlock Holmes?

What should we say about Sherlock Holmes? There are two possibilities.

Possibility One: Say there's just no such thing as Sherlock Holmes. The Holmes stories, of course, are real (there they are, in the books). But the character Sherlock Holmes in the stories? There's no such entity. You shouldn't really say the stories are about Sherlock Holmes. Strictly speaking, the stories are not about anyone.

Possibility Two: Say that there is, and was, no such actual man as Sherlock Holmes, but that Sherlock Holmes is a *fictional character*. That's an attitude that we could take toward Sherlock Holmes. In other words, we fully realize that the Sherlock Holmes stories are not about any actual detective, but nevertheless, there is a fictional character Sherlock Holmes. And in this case, "there is" *means* "there is". It doesn't mean "we're pretending there is." It means that there really is a fictional character called Sherlock Holmes. There just is no actual person.

Philosophers could conceive of that fictional character in different ways. There are philosophical theories about the nature of fictional characters.[46] There are different possibilities for how a philosopher might want to formulate this. But

[46] See Charles Parsons, *Nonexistent Objects*, especially pp. 32, 49-60, 172-187. Parsons uses Sherlock Holmes as an example of a fictional character.

here I just want to stick to the basics. Do we say that the Sherlock Holmes stories are really not about anything — that there is no such thing as the fictional character Sherlock Holmes? We think there's no such thing as the physical man Sherlock Holmes. But do we also want to say that there's no such thing as the *fictional character* Sherlock Holmes? Or do we want to say that Sherlock Holmes is a fictional character, and there *is* such a fictional character as Sherlock Holmes?

Let's examine the consequences of these two beliefs. If Sherlock Holmes is nothing at all, then when we talk about the stories being about Sherlock Holmes, or about Sherlock Holmes being a character in these stories, we are talking bunk. Literary historians need to make statements like these all the time — but those statements are bunk. There is no fictional character Sherlock Holmes at all. On the other hand, if we say there is a fictional character Sherlock Holmes, what we really are saying is: yes, there is a fictional character, but we're still fully cognizant of the fact that there's no such actual person as Sherlock Holmes. Sherlock Holmes, the actual detective, doesn't exist; there's no such man. (Unless, of course, some historian proves that Holmes actually existed after all.) Both of the positions that I'm discussing would admit that there is no such actual man. But one position would say Sherlock Holmes is nothing — that strictly speaking, there is not even a fictional character Sherlock Holmes. The other position would admit that Sherlock Holmes is a fictional character.

The second position, that there is fictional character Sherlock Holmes but no "real" person, seems to make more sense. The first position, that there is no fictional character Sherlock Holmes, has a serious flaw. Next I'll explain what's wrong with it.

People sometimes say that a fictional character exists, or that there is a fictional

character with such-and-such characteristics. What needs to be true in the world for such claims to be true? What needs to be true in the world in order for there to be a fictional character? Is there something in the world of non-fictional things that needs to be there, in order for there to be a fictional character? Is there some fact about the world of non-fictional things that needs to be the case? Are there non-fictional facts that insure that there's a fictional character?[47]

The answer to the last three questions is yes. The required non-fictional facts are facts about *stories*.

Stories are real. Some stories are fictional, and describe things that arguably are unreal — but the stories themselves are real. You could think of stories as blocks of information that people transfer to each other. Stories are real, and so are the media in which stories are transmitted. Books are real, pulp magazines are real, sound waves are real, and so forth. And the information that these media carry is real information. So stories are real. At very least, the physical media that carry stories are real. There's no question about that.

For us to correctly say that a fictional character exists, all that needs to be the case is that certain kinds of media (books, magazines, sound waves or whatever) exist — that certain kinds of *story-carriers*, with certain properties, exist. Take Conan Doyle's Sherlock Holmes stories. If books, articles, oral stories (series of sound waves), or any other kind of story-carrying media exist, and these media carry the Sherlock Holmes stories — those are the conditions that induce us to say that Sherlock Holmes is a fictional character. We say that Sherlock Holmes is a fictional character because Sherlock Holmes stories exist. And we say that Sherlock Holmes stories exist because the media on which those stories are

[47] Readers familiar with my ideas about the existence of abstract objects might find the following paragraphs rather familiar. See the material in this collection about abstract objects, and also my paper "Getting Realistic about Nominalism."

inscribed exist.

Now, when we say that the fictional character Sherlock Holmes exists, we're not just saying only that books and magazines with certain features exist. The statement "The fictional character Sherlock Holmes exists" is not self-evidently a statement about books, magazines, or sound waves. The statement says that Sherlock Holmes is a fictional character. The statement can be true only if there is such a character.

However, the statement has *truth conditions* — necessary and sufficient conditions for it to be true — that do involve those media. We may not be able to say easily what those conditions are, but in principle there should be such conditions, because it's by virtue of what we notice about the media that we assert with confidence that Sherlock Holmes is a fictional character. We assert this on the basis of what we know about the books, magazines and so forth — that they carry stories, that the stories they carry are Sherlock Holmes stories, and so forth. If there were no books and other media containing Conan Doyle's stories, and there had never been such media, and Conan Doyle had never written any of the stories, then we would not have grounds for asserting that Sherlock Holmes is a fictional character. (I won't ask whether there still might be such a character; I am only saying we would lack justification for asserting that there is.) What makes us assert that Sherlock Holmes is a fictional character, what induces us to assert that, is a combination of facts about story-carrying media. The story-carrying media contain the kind of marks that we regard as representing stories about Sherlock Holmes. It's those physically existent media (and perhaps our reactions to them, our understanding of them) that make the difference. Certain circumstances involving the physically existing media are enough to make it true that Sherlock Holmes is a fictional character. *But we cannot eliminate the fact that Sherlock Holmes is a fictional character, and replace that fact with those*

*circumstances*. It is literally true that Sherlock Holmes is a fictional character.

Facts about media can make the statement "Sherlock Holmes is a fictional character" literally true. And by "make it true" I mean imply it — strictly imply it, or entail it. If some media exist and have certain characteristics, then the fact that Sherlock Holmes is a fictional character is true — where the "then" represents a strict kind of implication.

It might be hard to spell out exactly what characteristics of the media would make the statement about Holmes true. To begin with, what does a story have to have in it to make it a Sherlock Holmes story? There are lots of unanswered questions here. The important thing is this: the fact that there are media with Sherlock Holmes stories inscribed in them, makes it correct to assert that Sherlock Holmes is a fictional character. So there are conditions in the physical world that can make it true that Sherlock Holmes is a fictional character. But nevertheless, the fact that Sherlock Holmes is a fictional character is a literal fact. We cannot deny that fact and also accept the relevant facts about the physical media.

In this way, actual physical circumstances can guarantee the existence of a fictional character. But the fictional character really is a fictional character. It is not the case that only the underlying actual circumstances exist. There is a fictional character also.

I would say that the fact that Sherlock Holmes is a fictional character is true, and that it is not a mere figure of speech. It isn't the case that strictly speaking, the Sherlock Holmes stories are about nothing. No, they are about Sherlock Holmes — but Sherlock Holmes is a fictional character. There is no actual person Sherlock Holmes. There is a fictional character Sherlock Holmes.

In my earlier writings (especially in my paper "Getting Realistic about Nominalism"), I said that for an abstract object to exist, it is enough for certain physical conditions to obtain. I pointed out that physical facts that don't seem to be about abstract objects can make up the *existence situation* of an abstract object. A situation involving concrete physical things can be an existence situation for an abstract object. For example, if there are red things in the world, then the color red exists. The existence of red things in the world is enough to ensure the existence of the color red. (Perhaps even the possible existence of red things is enough.) Thus, there are circumstances that may obtain among concrete physical objects, circumstances of the existence of red things (or of the possible existence of red things), that form the existence situation for the color red. The existence of an object is a situation; when something exists, that's a situation. And the situation of the existence (or possible existence) of a red object *is* the situation of the existence of the color red. The color red is not identical to any combination of red things. And it is not true that red doesn't exist, as nominalists would like to claim. A situation in the concrete physical world, like the situation of the existence of red things, can be the situation of the existence of an abstract object like red. That doesn't mean that there are really only the concrete physical things, and really no red. It just means that the existence of red is a situation that can also be described as the existence of red things. But red is not any of the red things, or any combination of them.

I think the existence of fictional characters works the same way. If the Holmes stories exist, then Sherlock Holmes is a fictional character and there is a fictional character called Sherlock Holmes. And "there is" *means* "there is", because the situation of the existence of stories can be a situation of the existence of a fictional character. And that's what the existence of a fictional character amounts to.

This is much like what I have said elsewhere about the conditions for existence of an abstract object. Indeed, a fictional character is an abstract object of a certain kind. (Someone might want to quarrel with me about this last point. Instead of pursuing this debate right now, I will say that a fictional character is, at very least, *much the same kind of entity* as an abstract object.)

I am not saying that the fictional character Holmes doesn't really exist, and that there is only the situation of the existence of stories. I am saying that there *really is* a fictional character, and the fictional character is fully, truly existent by virtue of a situation of the existence of certain stories. By "real" I don't mean that the fictional character is an actual, concrete person who we might have bumped into. Sherlock Holmes never existed that way (as far as we know). But Sherlock Holmes is a fictional character. And for there to be a fictional character, is for there to be a situation of a certain type — a situation involving stories. That doesn't mean there's really only that situation. *There also is a fictional character*. The *existence* of the fictional character is just a situation in the world of non-fictional things. But there really, truly is a fictional character *too*. There's an extra thing. I probably shouldn't use the word "thing" in this context, because "thing" usually means a concrete, actual physical thing. A fictional character exists, *but only as a fictional character*.

At this point, we are tempted to apply Occam's Razor and say, "What good does it do to assume there's a fictional character? Why not just assume there are the stories? That simplifies things and avoids unnecessary objects." I would say that this is a questionable use of Occam's Razor. Applying Occam's Razor to a fictional character isn't like applying Occam's Razor to an unproven new species of animal. For a fictional character, the existence situation of the character is a situation that we already know to be real. You can't make the fictional character go away by using Occam's Razor, because if you make it go away, then you make

its existence go away — and by doing that, you make the known actual situation (involving stories or media) go away as well. If you invoke Occam's Razor to deny that the fictional character exists, then you're also denying the existence situation in the actual, concrete world — the situation involving stories, which is the situation that is the existence of the fictional character. And that situation is real.

The line of argument that I've used previously for abstract objects also lets us conclude that fictional characters exist. If that argument doesn't convince you, then consider the fact that we lose nothing, ontologically speaking, by saying "There exist fictional characters." If we remember that we're not postulating something *independent* of the actual world — that we are postulating something whose existence can be described in a different way as well — then we recognize that we're not adding anything truly new by assuming that there is a fictional character. So we are safe in assuming that fictional characters exist, as long as we remember that their existence is different from the existence of concrete, actual physical objects.

Now I can state the conclusion I've been moving toward, about the art of fiction in prose and in poetry.

Since fictional characters exist, it follows that the art of fiction reveals a realm of existence beyond the scope of science. This is not just a reprise of what I said before about art revealing knowledge beyond the scope of science. Certainly, fiction can do that too — but fiction does something more. Fiction discloses to the mind entities, things, beings of a different order from physical things. These are abstract entities of a certain kind — or something much like abstract entities.

One can ask whether a fictional entity is an abstract entity. I am inclined to say

that it is. I am inclined to say that Sherlock Holmes is what philosophers call a *universal* — an abstract entity that can have multiple examples or instances. Sherlock Holmes is a property that all Sherlock Holmes stories have in common. Surprisingly, Sherlock Holmes is a *property* of a certain kind. A fictional character is a *feature of a story*. What are fictional characters if not features of stories? But whatever a fictional character really is, it is certainly *something like* an abstract object. And above all, it exists.

Therefore, by reading or writing fiction, or by telling stories, we discover a new realm of existence different from the actual physical world. That realm is accessible to us only by way of the imagination. If this is what "imaginary" means, *then this other realm is imaginary. And yet it exists, and has a special type of existence all its own.*

# Talk #13. The Cult of Meaninglessness in the Twentieth Century

**Questions:**

**Does science support the opinion that life has no meaning?**

**Do evolution, modern astronomy, or modern psychology really show that people are insignificant?**

**What are the real sources of the "scientific" belief that our existence has no meaning?**

**What are the rational alternatives to this "cult of meaninglessness"?**

**Answers:**

The twentieth century was, in many respects, a time of meaninglessness. It was a time of decay of the traditional belief that human existence matters. Before the twentieth century, several prevailing viewpoints endorsed the meaningfulness of the world. There were traditional religious views, which held that a supreme being created the world and cares about humanity. There was the rationalistic outlook of the Enlightenment, which spoke of the perfectibility of the world through human effort. Both of these viewpoints declared human existence to be important and meaningful.

In the twentieth century, and to some extent before, a different attitude took hold. The view of the universe as meaningless became a major player in the field of

thought. This view existed before the twentieth century, but in the twentieth century it seemed to become a dominant theme in our civilization. The view that nothing matters became commonplace among intellectuals. Most people did not believe this view outright, but the specter of meaninglessness infested the thinking and haunted the feelings even of those who did not believe it. In the twentieth century, most people's minds harbored a suspicion that maybe nothing matters — that maybe it's all a joke. This kind of thinking was not as prevalent in earlier centuries, though presumably there always were some who thought that way. The suspicion of meaninglessness — the sense that perhaps nothing matters — is mostly a twentieth century phenomenon.

The observation that twentieth century thought was marked by meaninglessness is not new or original. I am not the first to notice this attitude; most of the observations I will share in this talk did not originate with me. Some of the philosophies characteristic of the twentieth century reflect this meaninglessness. One example is existentialism — a philosophy which, in many of its forms, is based squarely on the meaninglessness of the world. Other examples are the various forms of materialism and extreme reductionism that dominated twentieth century thought. There was the logical positivist movement, which held (roughly speaking) that there is no truth outside of science. Some of the logical positivists famously held that moral statements were meaningless. In ethics, various schools of thought held that value statements are not literally true — a position which, if taken seriously, implies that life cannot literally be better than death.

More important than these philosophies was the rise of the so-called scientific worldview. I say "so-called" because this worldview is not really scientific. Neither science nor any of the findings of science imply this worldview. The scientific worldview, as it is called, rests on the attitude that what is not scientifically verifiable is unworthy of attention at best, and unreal at worst. I will

argue that this so-called scientific worldview lies at the root of the entire cult of meaninglessness in the twentieth century — even of those philosophies that appear to be nonscientific or even antiscientific.

One of the more recent forms of the cult of meaninglessness is postmodernism. There are many kinds of postmodernism, and it is hard to generalize about all the types, but most of them revolve around the idea that there is no truth. Postmodernists have various degrees of intolerance for the idea of objective truth. Many forms of postmodernism do not allow that there is such a thing as objective truth. Postmodernism also tends to endorse the cultural relativity of values. If you try to say that something is right or wrong, or that something is important or unimportant, the postmodernists might say that you are guilty of cultural chauvinism, and that those values may hold in your culture but do not hold in other cultures.

Postmodernism, if taken seriously, would not let us assert that human life truly matters. It might allow someone to make such a statement as a culturally relative "narrative." It would not let us say that human life matters, period; at least it would not let us say this and really mean it. At least, postmodernism does not let us make such assertions without cheating. Any ethical statement, or any metaphysical statement, if claimed as objectively true, is questionable in the eyes of postmodernism. Sometimes postmodernists are dishonest or evasive about this. They pretend to allow such statements provisionally. But in reality, if the postmodernists say that a statement is relative, or that it can be deconstructed, or anything of that sort, what they're really saying is that it isn't true. They can fudge all they want to, but the things they say imply that it isn't true!

Postmodernism is the final development of the tendency to view things as meaningless. It is a product of the twin tendencies to regard human existence as

meaningless and to regard truth as unknowable. Postmodernism typically is antiscientific, considering science a social construct with no ultimate value as real knowledge. In spite of this, I would say that postmodernism actually is a product of the scientific worldview. Later I will explain why I think this.

Religious fundamentalism is a very important force in our time — even more so than it was in the twentieth century. In view of current events, I don't need to comment further on the importance of this aberration of human thought. But religious fundamentalism, which is the most antiscientific viewpoint in the world, actually is the finest flower of the scientific worldview. Postmodernism and religious fundamentalism — the twin enemies of truth and value today — are outgrowths of the scientific worldview, even though both of them sometimes are stridently antiscientific.

Before I argue for these outrageous claims, I will explain what I mean by "the scientific worldview."

The scientific worldview, so-called, is a conception of reality based on the view that only what science can know is real and important. During the Enlightenment, progressive thinkers used science as a weapon against religion. This use of science was necessary at the time. Europe was infested with a heavy-handed religious orthodoxy. Science was effective as a weapon against this. Science also was the enemy of superstition — that is, of unproven beliefs based on ignorant guesswork, hearsay, and authority. In that era, religion had degenerated into a deadly force of oppression in Europe and elsewhere. Because of the need for resistance against this oppression, the Enlightenment tended to be irreligious. Not all Enlightenment thinkers were atheistic or agnostic. Certainly Voltaire was a deist. But the Enlightenment did involve the use of science as a weapon against religion — and also the use of *materialism* as a weapon against religion. And

here is an important difference. Materialism — the belief that there is nothing but matter, that everything is material, and that there is nothing nonmaterial — is widely believed to be a consequence of science. Many people think that if you take science seriously, you have to be a materialist. Nowadays, physicalism (which admits energy as well as matter) has replaced traditional materialism. The scientific worldview, so-called, is actually a physicalistic worldview — not the only possible physicalistic worldview, but a physicalistic worldview nonetheless. The problem with this is that neither materialism nor physicalism actually follows from science. *Science does not force you to believe in materialism or in physicalism*. Science does not say that there isn't anything nonphysical. Science cannot prove materialism or physicalism. Science only studies the physical world; hence science is physicalistic in a way, but only by way of *method*.

"Physical" is a word that's somewhat vague. Exactly what does it mean to say that something is physical? If by "physical" you mean objectively observable through the senses, then science deals only with the physical. Science cannot do otherwise, because science is a form of knowledge based on the evidence of the senses. That is what science is; that is the way science works. Scientific knowledge is based on the evidence of the senses, and specifically through sensory observations that can be confirmed independently by different observers. Repeatable sense knowledge, or objectively verifiable sense knowledge, is the only kind of knowledge that science can produce. This is fine — it is what makes science great. Science sticks to facts that are "true for everyone" — that are confirmable in principle by anyone. This is why science is able to deal with the things that can be of technological use to humanity. When science comes up with new cures for disease, new machines, or new ways to make our lives better, it can do that because it deals with facts that are true for everyone. If a machine doesn't work for everyone, it's not a useful machine. If it just happens to work once in a while by accident, then it's not a useful machine. (A toaster may cause a fuse to

blow once in a while, but a toaster isn't a fuse-blowing machine. It's a machine for toasting things.) To have useful technology, you have to rely on repeatable sensory knowledge. You have to rely on facts that are "true for everyone," in all times and places, and that are not just true sporadically or true in some way unrelated to sense experience. Science deals only with repeatable sensory facts. This is one of the greatest limitations of science, but also is one of its greatest strengths.

Science deals with repeatable facts, and with information obtained through the senses. An example of a perfectly respectable subject not based on sensory information is mathematics. We think of mathematics as a science, but it's not what philosophers call a natural science. It's something else. Sometimes it's called a formal science, but the terminology is beside the point. Mathematical conclusions are based on reasoning from basic assumptions. They're not based on observation of the world. You can discover new mathematical ideas by looking at things in the world; you can learn how to count by counting marbles. But mathematics itself — mathematical knowledge — is not based on the evidence of the senses. Mathematics is not scientific knowledge. Not all knowledge is scientific.

Mathematical theorems cannot be proved or disproved by the evidence of the senses or by scientific methods. All we can prove in this way is that a given mathematical theory is, or is not, a good representation of physical reality. When people discovered the Earth was round and not flat, that meant that Euclid's plane geometry was not a good representation for large stretches of the surface of the Earth. This didn't mean Euclidean geometry was false; it didn't mean propositions like the theorem of Pythagoras were false in plane geometry. It just meant that Euclidean geometry isn't applicable to the surface of the Earth, unless you take a small enough piece that is nearly flat. No sensory evidence can make

us believe that Euclidean geometry is true or false in itself, or that the theorem of Pythagoras is or is not a theorem of Euclidean geometry. Only reason can make judgments of that sort. Evidently, there is rational knowledge outside of science.

Let me now introduce an example of nonscientific knowledge besides mathematics: *philosophical knowledge.* Philosophy is the discipline in which one can debate questions like, "Is there anything that isn't physical?" and "Is there any kind of knowledge besides scientific knowledge?" People can debate and discuss these questions, and can come up with rational arguments about these important topics. Philosophy is the proper venue for deciding whether physicalism is true. You can't decide that question just by looking at science. Science can neither confirm nor disconfirm physicalism, because science only looks at the physical.

*Materialism and physicalism are not scientific beliefs.* They are philosophies that restrict reality to the things science can study. Physicalism looks at the things that science can study, and then says, "This is all there is. Everything else is a fantasy of some kind." Here "fantasy" means a useful theoretical fiction at best, and utter bosh at worst. Physicalism says that only the things science can deal with are real. And that is a nonscientific belief.

Physicalism is very different from science. To believe in science — to have confidence that science can find knowledge — is one thing. To believe in physicalism is something else entirely. Physical*ism* (note the "ism") is not the same as science. Physicalism is an extra ideology that some people impose on science.

What do we mean when we say something is "physical"? The word "physical" is vague; I've been using it here even though it's vague. But certainly part of what "physical" means is that a thing can be studied through the senses — either by

direct observation, as when an ornithologist studies a bird, or by some kind of indirect observation, as when an astronomer looks through telescopes, does calculations, and draws conclusions about distant galaxies. Physical things aren't necessarily observable directly by the senses, but knowledge about them can be obtained from sense information, combined with reasoning. The world that's available to the senses in a reliable way — the world that can be studied by means of sensory knowledge, and by repeatable sensory observations — that's the physical world. And science studies only the physical world. It cannot study more than that, because science depends on the evidence of the senses and on repeatable observations. Even when experiments aren't repeated, they are done in such a way that you expect that they could be repeated. Scientists depend on repeatability. And scientists depend on the five senses for evidence.

Science is just sensory knowledge, extended by means of reasoning and instruments. Science is that part of sense knowledge which is *objective,* in the sense that it can be confirmed independently by separate observers. This is what science is.

Physicalism is not the same as science. Physicalism is the belief that what science can study is all there is. Now physicalism, at bottom, is a pessimistic ideology. First of all, it is a philosophical viewpoint. It is not a scientific viewpoint. Science can never establish that physicalism is true. When people make arguments for physicalism — like the clichéd "There's no other reliable kind of knowledge besides science, therefore science is the only real knowledge" — they should first of all realize that they're making a *philosophical argument*. To blame science for that argument, to say that the argument represents science or represents the scientific viewpoint, is baloney. *Science cannot prove that only what science knows is true.* And science cannot prove that we ought to believe only what science tells us. Science cannot prove that there is no good reason for

believing some things that science can't tell us about.

Some people would say, "Well, maybe science can't really prove that there's no knowledge besides science, but there's no good reason for believing that there is such knowledge." But that also is a philosophical argument — not a scientific argument. Science cannot tell us that there is no good reason for believing in nonscientific knowledge. People who use this argument probably mean that there is no good *scientific* reason to believe in nonscientific knowledge. But you can't use the fact that there is no good *scientific* reason to prove that there is no good reason at all — unless you assume that science is the only knowledge worthy of the name. And if you make that assumption in order to debunk nonscientific knowledge, then you are begging the question.

What I am getting at is that science does not prove the so-called scientific worldview. All the facts and theories of science — and even possible scientific discoveries in the future — cannot establish that the so-called scientific worldview is true. And science cannot prove physicalism, because physicalism is not a scientifically testable hypothesis.

Science does not force physicalism upon us. Physicalism is a philosophy. It's a philosophical commitment. There are other possible philosophical commitments that are rational but not physicalistic. People who study philosophy know of these. Physicalism is a philosophical viewpoint. And when someone embraces physicalism without the support of philosophical arguments, I would call it a religious viewpoint — because then it's a viewpoint based on faith. When a physicalist commitment is backed up by emotionalism (which sometimes happens), it is no longer a philosophical commitment, but a religious one. Suppose someone says "I believe there is nothing except what is physical." Suppose that they don't just say this, but also give reasons for it — reasons that

are not necessarily correct, but at least are rational and well thought out. Then they're treating physicalism as a philosophy. Even if their arguments are wrong, they're being reasonable. But many adherents of physicalism do not give arguments of this kind. Instead, they say something like this: "Before there was science, the world was dominated by superstition and dogmatic religion, and it was an awful world. Science is the light that lights up the darkness. We must make a stand for science. And therefore, we must believe that only the physical is real!" When physicalism is backed up by "arguments" like that, it's a religious conviction — a conviction based on faith and emotion rather than on reason. Thus, physicalism often amounts to a religion, especially with people who trumpet themselves as skeptics. For honest and reasonable physicalists, physicalism is a philosophy. For dishonest or unreasonable physicalists, physicalism can be a religion. *But in either case, physicalism is not science.*

Physicalism is a claim that goes beyond what science can prove or disprove.

Physicalism is a pessimistic philosophy. I don't mean to say that everyone who's a physicalist is a pessimist. Some people who believe in physicalism manage to be jolly sorts. But, if we took physicalism seriously, we would be driven into a pessimistic point of view. One of the consequences of full-fledged physicalism is that human beings are really nothing but material objects — basically, nothing but pieces of meat. If nothing is real except what science can confirm, then there's nothing *important* in us — there are only chemicals. If people are strictly physical, strictly what science can study, then there is nothing about people that can matter. This is because the claim that something matters is a nonscientific claim. I'd like to take the next few minutes to explain what I mean by this.

Science, *acting alone,* can't test statements about whether things are meaningful or meaningless, or whether things are right or wrong. All judgments of values

and meaning are nonscientific judgments. Science can neither confirm nor disconfirm them. Science can certainly teach us something about values and about meaning. For example, it can keep us from falling into bad moral beliefs by refuting bad factual beliefs, like beliefs about racial inequality. So science certainly has a bearing on ethics. We can learn things from science that will help us make ethical decisions. This is especially true for environmental issues, and other areas where ethical decisions have to be made on the basis of sophisticated scientific knowledge.

So science, of course, has some relevance to ethics. But science cannot make a value judgment. Science, by itself, cannot make a value judgment or a judgment about meaning. Is something meaningful? Does it matter? Was this experience that I had, or this relationship I was involved in, meaningful? I feel that it mattered, but did it actually matter? Those are not scientific questions.

The upshot of this is that physicalism cannot support meaning or values. Value and meaning are not properties that science can investigate. They are not properties that the senses can reveal, with or without scientific instruments. Philosophers have several ideas about how we know things have value or meaning. I won't try to summarize these ideas here. The important thing is that if we are strict physicalists, then we cannot believe in anything besides what the senses can directly or indirectly verify. Hence we cannot believe in meaning or values. A physicalist who believes in meaning and values is not a strict physicalist, but is letting in something beyond the scope of physicalism. (Some philosophers will want to argue with me on this, and will claim that values may be physical properties of some sort and still be real values. I will answer that even if values have a physical origin, this property of having value is not itself within the scope of the physical. No scientific study could confirm that a value is a physical property.)

This is why physicalism pushes us toward a pessimistic outlook. If we adopt physicalism, then we can pretend that there are values; we can act as if there were values, for practical purposes. But we cannot believe that things really, objectively have value. To believe this is to accept that there are properties outside the scope of the physical. The same is true for the belief that anything matters.

Some people have said humans are so small compared to the universe that we do not matter. I've heard it said that we are unnoticeably small compared to the Sun, so we don't matter. (One actually hears these things from time to time.) So the Sun is my moral arbiter now? The ancient Egyptian religion had quite a high estimate of the Sun. The adherents of that religion regarded the Sun as a god. If the Sun were a conscious god, then the Sun's opinion of us might matter. But most moderns (and not only physicalists) think of the Sun as a ball of hot gas. The Sun is my moral arbiter? I don't think so! Unless you're a member of a religion that worships the Sun as a god, you better be careful saying that we don't matter just because we're smaller than the Sun! Certainly no loyal physicalist should say such a thing.

Our scientific knowledge of things tells us that we are small compared to the universe as a whole. This does *not* imply that we don't matter. The very idea that small things don't matter is stupid. We're large compared to atoms and quarks. We're small compared to planets and galaxies. We're somewhere in the middle range of size. In fact, philosophers use the word "middle-sized" to describe objects of our general size scale. But the silly idea that our smallness relative to the universe implies our unimportance still floats around like a virus.

One of the things that's wrong with the so-called scientific worldview, besides its

physicalism, is the idea of the insignificance of humanity. People say that when we learned the Earth was not at the center of the universe, we learned we were not important. The view that humanity mattered broke down, and people started to question whether it was important.

If people did question their own worth, they were wrong! The modern view of the universe, with Earth relatively tiny and displaced from the center, cannot possibly lessen the importance of humanity in the cosmos.

One notable feature of the scientific view of the physical universe (I mean the real scientific view, not the so-called scientific worldview) is the removal of humanity from the geometric center of the universe. This began with the Copernican revolution —the acceptance of the fact that the Earth is not the center of the universe, but that the Sun is the center around which the Earth revolves. Later scientists extended this by discovering that the Sun goes around the center of our galaxy, and that our galaxy is only one of many, and so on. This progressive removal of humanity from the geometric center of the universe has been going on for centuries. It has been said that this is one of the factors that led to the collapse of the view that humanity matters. People seem to feel that if we're not at the geometric center of the cosmos, then we are not important. We're just off on a little dust mote in the corner somewhere in the universe. Or so the thinking goes.

Some people did feel this way. The Copernican revolution in cosmology did make some people feel this way. It made people feel as if the human race were unimportant. This reaction was partly the fault of the religion of the time. Religious leaders had been teaching, for far too long, that we are at the physical center of the universe — that the Earth is the center around which everything goes. That old idea, from the old pre-Copernican astronomy, got incorporated into people's view of the world, and got mixed up with religion. People confused

this idea with religion; they felt it was part of their religion. And so when that view collapsed, religion seemed to be collapsing too. In those centuries, the idea of a meaningful universe was firmly tied to religion — so the meaning of life seemed to collapse too. Actually, the discovery that we're not at the geometric center of the universe should have absolutely nothing to do with how we feel about our importance. Why is it such a big deal to be at the geometric center of the universe? Why, for that matter, is it important to be at the geometric center of anything? Is the person who's in the center of a room always the most important person in the room? Or is the person up on the stage always the most important one? In a group, is the leader always the one at the physical center of the group? I'm not talking about the figurative "center," but the literal geometric center. The answer to the last three questions is "no." The importance or stature of a person has nothing to do with their being at the geometric center of anything! So why we should think we're unimportant, just because we're not in the center of the universe? Unfortunately, not everyone reasoned like this when the Copernican worldview appeared. Some people did start to think the human race was something unimportant and accidental. As if it mattered to be in the geometric center of the universe!

The idea that what's in the geometric center is what really matters is a foolish, superstitious idea. It reminds me of the mentality of a classroom show-off — the person who is able to make himself the center of attention, and to make others go around him, and who thinks he's the important one because of this. The idea that the one in the geometric center is more important sounds like a show-off's or bully's idea of what's important.

You don't have to be on center stage to be important.

According to the standard scientific conception of the physical universe, planets

are big rock formations or gas balls, and stars are gas balls. Astrophysicists do not believe that these large objects are conscious. Some commentators on science have pointed out that despite our small size, *we humans are the conscious observers!* We, along with some other animals (and possibly some extraterrestrial life forms if there are any), are the only ones who know what's going on. We are the conscious observers. As far as conscious life is concerned, everything else is dead, dead, dead! And out of all living things known to us, only humans are intelligent enough to begin to understand how the universe works.

The human race is damn special.

Size has nothing to do with importance. One hears it said that we are unimportant because we are small compared to the universe. That idea has sinister implications. Could the idea that only big things matter have something to do with the backward attitude that if I'm bigger then I'm the boss? That's what it sounds like to me! When people say, "Oh, humanity is just so small in the universe, what does it matter," I always think, "Small in what sense? Physically small?" If you think that physically small means subordinate, then you're getting dangerously close to some very nasty ideas about society. It seems to me that the idea that we are unimportant because we're small is just a kind of bad-attitude belief. I just don't see how anyone who thinks could believe that!

Two notable features of the scientific worldview are physicalism and the removal of humanity from the geometric center of the universe. The removal from the geometric center really makes no difference at all. It has no significance at all for whether we matter, or for whether our affairs matter. Physicalism is a different story. Physicalism, if taken literally, would mean that we don't matter. It would mean there's nothing there but meat, because values, significance, mattering and meaning are not physical. (By "meaning," of course, I mean whether things

matter. I'm not talking about "meaning" in the sense of the interpretation of words or symbols.) Meaning, mattering, and values are not within the scope of science, and therefore are not, strictly speaking, physical. Now when I say they're not physical, that doesn't mean they're supernatural. But I do mean they're beyond the scope of science. If you believe in values or meaning, then you believe there exists something beyond the scope of science — features of reality that are beyond the scope of science. And if you believe we can know, at least sometimes and perhaps uncertainly, about values and meaning, then you're admitting that there is a knowledge, *already in the possession of the human race*, that goes beyond science.

So far I've talked a lot about the scientific worldview. The scientific worldview involves physicalism. It also involves this idea of a very large universe in which humanity is small. The scientific worldview also involves the idea of evolution — that everything in the physical universe is the result of evolution. I've written elsewhere about the whole evolution vs. creation brouhaha.[48] I won't try to summarize all that here, except to say that I believe in evolution. What I want to say here is that evolution has no bearing whatsoever on the meaningfulness or value of human existence. Evolution has absolutely nothing to do with whether we matter, whether our actions matter, or whether our lives have any meaning. The mere fact that we came from less complicated animals does not mean that we matter any the less!

I've heard religious people say that if we evolved from lower animals, then it would be permissible for us to act like lower animals. Where do they get that conclusion? According to evolutionary biology, dogs evolved from fish. But does that mean that a dog has to swim underwater or lay eggs? (I know the mental picture of a dog laying eggs on the ocean floor may seem funny — would

[48] Mostly in unpublished writings.

it scratch afterwards? But the fact that some people still deny evolution is not funny at all.) The fact that fish evolved into dogs doesn't mean dogs are fish, or that dogs should act like fish. The fact that A evolved into B doesn't mean that B is A, or that B should act like A. The fact that we evolved from earlier primates doesn't mean that we are earlier primates, or that we should act like monkeys! It doesn't even mean we have the *right* to act like monkeys! It doesn't mean that it's normal or good for us to act like a monkey. Dogs are dogs, fish are fish, monkeys are monkeys, and we are we! And we have our own way of doing things.

Evolution does not equate us to anything simpler or more primitive than what we are. We are what we are, regardless of where we came from. And the facts about our anatomy, our behavior, our tendencies, what's good and bad for us — these facts are true for us as we are now, regardless of where we (and these facts) came from. As long as we are what we are, things will have the same meaning and value as they do now. Where we came from doesn't change the significance of what we are now!

The idea that evolution undermines human values is silly. Also, evolution says essentially nothing about the ultimate nature of human persons. Evolution can explain our biological features — why we are the shape we are, why we have the parts and functions that we have, and so forth. It can even explain a lot about our minds and behavior. But the question of whether there's anything in the human person that is not physical, or whether the self is just the body — evolution can tell us exactly nothing about these things. These are philosophical questions, not scientific ones.

Since I mentioned the idea of a nonphysical self, I should confront the issue of immortal souls. I'm not going to take sides on the question of the existence of

immortal souls. Many skeptics regard this idea as too outrageous to discuss; they equate it to supernaturalism, ghosts, and all sorts of other disreputable things. Actually, the idea of an immortal soul, in itself, is not scientifically testable. It is a philosophical idea, not a scientific one. The discovery by neuroscientists of physical foundations for the mind does not rule out this idea, as some have claimed. I argued this point in my book *From Brain to Cosmos;* I won't try to re-argue it here. For now, let me just say that evolutionary biology has almost no bearing on the idea of an immortal soul. Some religious people think evolution rules out the immortal soul. Most of these same people believe in God. Now I'd like to ask them: If there is a God, then if we came from apes, couldn't God have given us immortal souls? Or maybe apes have immortal souls. How do we know? Maybe the soul evolves in parallel with the body. How do we know? The question of whether there's an immortal soul has absolutely nothing to do with biological evolution.

I've heard it said that if we evolved from lower forms of life and ultimately from inanimate matter, then there would be nothing spiritual in us. That's baloney! That statement presupposes two things. First, it supposes that something spiritual couldn't have gotten into us as we went along — that God couldn't have put it in, that it couldn't have evolved naturally from something simpler, and that it couldn't have come in somehow from the surroundings. (Maybe there were souls to begin with, and maybe they took up residence in us when we became intelligent, reflective beings. Who knows?) I'm not suggesting that any of these possibilities are true. I am only suggesting that we can't rule them out based on science alone. Evolution doesn't exclude any these possibilities. Second, the statement that evolution rules out the immortal soul presupposes that there is no immortal soul in lower creatures — and nothing in lower creatures that could have developed later into an immortal soul. So that would imply a very strong view about the absence of spirit (or of certain kinds of spirit) in nature.

This is just a side issue. I was discussing evolution; I didn't mean to get sidetracked into the controversial subject of immortal souls. My point is that evolution implies a lot less than people claim. Evolution does not imply that there's no God. Evolution does not imply that there are no objective values, or that the world is meaningless. Evolution does not imply that people are animals, can act like animals, or should act like animals. People are animals in the biologists' sense of the word — but evolution doesn't imply that people are equivalent to simpler animals. The human race is something special.

Evolution tells us very little about the big questions of philosophy and religion. The question "Where did we come from?" is a question that evolution can answer. Evolution can tell us how humans started and developed. And the question of how that happened is one of the big, age-old questions. It's a good thing that evolution can answer that question. But most of the so-called big questions about our existence can't be answered at all by evolution. Most of these questions are philosophical, not scientific.

Elsewhere I've written about evolution and design. I won't repeat all those arguments here. My point here is that evolution is part of the so-called scientific worldview (and also part of real science), but evolution doesn't provide any support for the pessimism of that worldview. Evolution really tells us very little about the big questions. Evolution is not a pessimistic idea. The idea of evolution should not lead people toward any kind of pessimism. No one should start to think they're an ape just because evolution is true. And certainly no one should start believing they are nothing but meat, or nothing but chemicals, just because evolution is true. (For that matter, no one should believe an ape is just meat or just chemicals!)

That is what I have to say about evolution for now. It's time to return to my main subject, the cult of meaninglessness in the twentieth century. The so-called scientific worldview lies at the heart of the culture of meaninglessness. The scientific worldview started growing a few centuries back. I won't go into all the details of the history, but the important events included the coming of the Copernican view of the physical cosmos, the arrival of the Enlightenment with its tendency to use science to combat religious superstition, and the rise of evolutionary thinking. All these changes happened, and led to a widespread feeling that there was nothing to the human spirit. People started to think religion was bogus, and that there were no other ideas capable of taking the place of religion as an affirmer of the meaning of existence. This is the root of the pessimism that underlies the so-called scientific worldview. Not just the idea that religion is bogus, but the idea that there is nothing to people besides what science can study. And that is why the so-called scientific worldview is profoundly pessimistic.

The view that there is nothing except what science can study, and that everything science can't study is either doubtful, imaginary, or completely unreal — this is what is called the scientific worldview. This worldview is wrong! It's simply wrong. If there are any values at all, then physicalism cannot be the complete truth. If you believe that what the Nazis did was wrong, then you cannot also consistently believe in physicalism. If people have value, then actions like murder have disvalue. Murder has a large negative value, or disvalue — it's *bad*, it's evil; it's not just "evil in my opinion," it's actually evil. If you recognize that, then you believe implicitly that there are such things as objective values — and then you are not a physicalist. No matter how badly you want to be a physicalist, you are not quite a physicalist. You believe in nonphysical features of the world. You don't necessarily believe in spirits or anything of that sort. But if you believe in values, then you believe in something that isn't physical! You believe that

people and actions can have properties (moral properties) that lie beyond the scope of the physical. There seem to be a lot of secular humanists out there who say things like, "We believe in the physicalistic worldview, but we also believe in the reality of ethical values." That's an inconsistent position.[49] To be consistent, secular humanism must either fail to be humanistic or fail to be physicalist. They can't have it both ways. If you think you're a completely "secular" humanist, think again. The only way you can be a secular humanist — that is, put a high value on people and also hold a physicalistic worldview, which is what "secular" usually signifies — is to keep the two pieces of your belief system in airtight compartments. You don't dare look at them together — because physicalism implies antihumanism.

Of course, you could still consistently be a "secular" humanist if you don't take "secular" to imply acceptance of the scientific worldview. To many people, "secular" just means non-religious. That, I think, is the standard meaning of the word "secular." You could be a true secular humanist if you believed in a non-physicalistic picture of reality (which allows for humanism), but just didn't have anything to do with organized religion. I would call that secular. To me, the word "secular" means devoid of organized religion, or having no attachment to organized religion. It doesn't necessarily mean skeptical of everything beyond the physical — though often it is used that way. Some of the noted philosophers were "secular" in this sense, but believed in God at the same time. Spinoza, for example, believed in an impersonal conception of God, and in a lawful universe. He didn't believe in a separate spiritual universe; he believed that mind and matter were two sides of the same coin. His worldview was both spiritual and rational. I wouldn't call Spinoza a humanist — he was too pessimistic about human nature to qualify for that title. But if you accept a philosophical

[49] The following argument is essentially the one in my essay "Why Secular Humanism Can't Be Scientific."

worldview that is both rational and spiritual, then you could be a secular humanist in the true sense of the word. On the other hand, if you believe in a worldview that's physicalistic, that is restricted to what scientists know, then you cannot also believe *consistently* in values, or that anything matters. You cannot be secular in that particular way, and also be a humanist.

I'm not going to talk in any depth about secular humanism. I've dealt with that topic in some of my writings.[50] This was just another digression. But these digressions all are relevant to my subject. The subject is the cult — or culture, if you prefer — of meaninglessness in the twentieth century.

Now, the so-called scientific worldview grew up through various stages. There was the Copernican revolution, there was the Enlightenment, and there was the evolutionary revolution. Scientific methods grew and started to produce all kinds of good results for human life — all kinds of useful inventions and cures for diseases. And science eliminated a lot of superstition. Science relieved many people from primitive forms of religious belief that hold people in fear. For example, science helped to debunk the hideous belief that epidemic disease was a miraculous punishment from God. Science eliminated a lot of grotesque nonsense from human life. It shed light into a lot of really dark corners that needed light. But I'm not belittling science in any way when I say that if you extend science beyond its limits and pretend that it's a *complete* view of reality, *then you go into darkness again.* If you believe that science is the only knowledge, then you're cutting off everything that makes things matter. You cannot have values and believe that our existence is meaningful, and also believe that only the things that science can make judgments about are real.

The scientific worldview grew. With it grew its central idea that only the world

[50] "Why Secular Humanism Can't Be Scientific"

revealed by science is reality, and that everything else is imagination. The growth of this mistake wasn't entirely the fault of scientists. A lot of scientists believed in things beyond science. Part of the impetus for the scientific worldview came, not from science, but from the decay of rationalist philosophy. But regardless of its sources, the scientific worldview grew, and created a suspicion in the public mind that nothing matters and that people aren't much. Even those who didn't believe in physicalism began to feel this suspicion. There are a lot of people today who believe in evolution, and who also hold some belief — derived either from religion or from their own conscience — that people are more than just meat. And yet, these people are uncomfortable, because they are haunted by doubts: Doesn't the theory of evolution say that we're just meat? Doesn't the modern view of astronomy imply that we're insignificant in the universe?

There are a lot of people out there who believe in values, but who are uneasy because of the scientific worldview. Even if they are religious or embrace some ethical philosophy that has values as strong as those of a religion, even if they believe fully in human values of some kind, they still are uncomfortable, and they still doubt, because they think, Hasn't science gotten us beyond the belief that we matter?

The idea that science has gotten us beyond thinking of ourselves as important is a common idea in the West. That idea has pervaded Western thinking for a long time.

Another aspect of the so-called scientific worldview is the idea that the human mind, or at least the conscious mind, can be explained away. For example, there is Freud. Some people regard Freud as being unscientific, but still, he's part of the general "scientific" trend of thought. Freud said we actually aren't rational beings, and we actually aren't good beings — we've got all kinds of junk in the

cellars of our minds, and that is what really controls us. Freud also taught that religion is an illusion. He came along and said these things, and seemed to have debunked free will and human nature. And then the behaviorists came along. They also mounted an attack against human nature, and claimed that people are essentially robots. Some of them even denied that people are conscious. And some people deny that today! One sometimes hears philosophers of mind deny that there is such a thing as "first-person character" or "conscious phenomenology" or "intentional states" or the like — and sometimes what they (or their followers) really mean is that no one is conscious, at least not in the full sense of the word "conscious."[51]

In my opinion, the belief that consciousness doesn't exist would be dismissed as crackpot if it were not held by people with academic credentials. Saying that people aren't conscious is even sillier than saying the Earth is flat. To show that the Earth isn't flat, you have to go out and make some observations of the Earth. At very least, you have to stand on a cliff and look at the ocean, or sail a boat. You can even look at an airline schedule, and say "Hmm! I wonder why all these airline routes work. I wonder why they don't give incorrect outcomes, since they depend on the assumption of a round Earth." To prove the Earth isn't flat, you at least have to make some observations of the world outside yourself. But to prove that you are conscious is a simpler matter. Just pinch yourself, OK?[52] Behaviorists, pinch yourselves! Wake up! Wake up to the fact that you're awake!

I think the real motive for this denial of consciousness is the fact that consciousness is hard for science to understand. Will science ever understand

[51] For exposure and criticism of these denials of consciousness, see Searle, *The Rediscovery of the Mind*, especially the earlier chapters in that book.

[52] I owe this suggestion to John Searle, who (in a brilliantly funny passage) asked whether one might rebut the denial of consciousness by pinching the followers of that view or perhaps oneself. (*The Rediscovery of the Mind*, p. 8.)

consciousness? Or is philosophy also necessary? That is a topic too big to take up here. But regardless of the final answers, consciousness has proven to be very hard for science to explain. Those who are committed to the view that science is the only important knowledge feel they have to do away with consciousness. Another motive stems from the fact that a lot of mystical and religious things have been said about consciousness. Most religions believe in the immortality of the self; mystics of all denominations experiment with altered states of consciousness. Hence, people who don't like spirituality of any kind are desperate to get rid of the concept of consciousness — so they try to pretend there is no such thing as consciousness. They make the most foolish statement in the world, because they want to believe that there is nothing beyond science. They want so badly to believe this that they have to get anything that seems mysterious out of the way. If they *really* had confidence in science, they would say, "Well, consciousness is real, so we will assume that science is going to explain it someday." That assumption might or might not be correct, but at least it would show their confidence in science. I think the behaviorists' denial of consciousness shows that behaviorists don't have sufficient confidence in science. They don't have as much confidence as they claim to have in scientific methods.

But I digress again.

Science *seems* to have made humanity small. It seems to have made humanity into mere animals. It seems to have made humanity into robots. And it seems to have made humanity into something merely physical — into meat, or into chemicals. *Seems, seems, seems!* Actually, science cannot possibly make any of these reductions of human nature. Modern cosmology does not show that humanity is insignificant. Evolution does not show that humanity is like any other animal species, or is soulless. Science, by itself, does not endorse physicalism. And neither psychology nor neuroscience has turned us into

anything like robots. I've written and talked about this last point elsewhere, so I won't pursue it in detail here.[53] For now, let me just restate my conclusions from elsewhere: Psychology and neuroscience cannot possibly debunk free will. They cannot debunk the idea that some of our choices are truly our own. They cannot debunk the fact that we are conscious. They cannot debunk the fact that we have mental states. They cannot debunk the fact that we sometimes are rational, though undoubtedly sometimes we are not rational — every fiction writer knows that. People are sometimes rational, sometimes free, and sometimes conscious. Arguing for these conclusions is a large task, which, as I said, I have taken up elsewhere.

What I'm talking about now is the culture of meaninglessness in the twentieth century. Modern science *seemed* to knock the pins out from under human nature. It created a *suspicion*, even among those didn't accept the worldview, and even among those who didn't know much about it, that people are nothing. It created a feeling that the world itself is nothing, and that nothing matters. The scientific worldview contains a number of ideas, some actually derived from science, some not. The ideas that are legitimately scientific, like evolution, neuroscience, and modern astronomy — do not debunk human nature at all. They don't shed any negative light on human nature. The ideas in the scientific worldview that denigrate human nature do not come from science itself, but from philosophical interpretations of science. The main problem area is physicalism, which is not a scientific belief — it's a philosophical conviction that cannot be justified scientifically. Physicalism is a part of the so-called scientific worldview, but it's not part of science. Science has not proven it — and can never prove it, regardless of what science discovers in the future. It just isn't an idea that admits of scientific confirmation.

[53] See my paper, "Yes, We Have Conscious Will," and also the talk "New Ideas about Free Will" in the collection you are now reading.

Many people do not know all this! To many people, possibly most, it seems as if human nature is undermined by science — that science says we really are nothing, or are not very important. This suspicion has infested Western thought for the last few centuries. And in the twentieth century, it came to some kind of a peak. The fact that organized religion lost its credibility with many people contributed to this suspicion. Today, people are faced with two choices. If they want answers to the big questions, they have to buy into the scientific worldview, or they have to buy into a dogmatic religion. Those are the only two readily available choices. There is no strong system of thought today that offers a non-dogmatic, rational perspective with room for meaning and values. Philosophy has to provide such a perspective. But nowadays, all of our beliefs that things matter, and that people matter, seem to be undermined by the scientific worldview. Many people keep the two conflicting sets of ideas in different mental boxes. In one box is the scientific worldview; in the other box is the idea that things matter — an idea you could call "humanistic" in the best sense of that word. People keep these two sets of ideas in separate boxes, and remain in doubt about what the scientists are really telling us about ourselves. Some people just go over to the scientific worldview with its physicalism, and wallow in it. We call these people "secular humanists," "skeptics," and so forth. Actually they're not skeptics. They're believers in their own scientifically unprovable convictions. But some people don't choose the scientific worldview. Instead, they reject the scientific worldview *and science with it*. This is an important point. Science *seems* to be undermining human values. For this reason, people who cannot stomach the undermining of human values — those who know that humans are more than meat, and that the Nazis were objectively wrong — often feel forced into a position of rejecting science. They embrace dogmatic religion instead. Today there are a lot of people around who don't believe in evolution. Some of them are just religious fanatics. But they aren't all fanatics, and they aren't all simpletons. Some of them refuse to believe in evolution because they feel that if they did believe in evolution, they

would have to believe that people are just meat, or that people are just lower animals, or something like that. They feel that if they accepted evolution, they would have to believe that we're monkeys — or worse yet, that we're just meat, or perhaps just primordial soup that's been shaken up a bit. Some people cling to outdated, unscientific, erroneous ideas like creationism, just because they are afraid of the consequences of believing in the scientific worldview — and even of believing in science itself. Some people reject evolution, and other correct findings of science, because they're concerned about the impact of these findings on human values.

The scientific worldview tends to push people in two directions. Some feel they have to reject the scientific worldview *and science* in order to maintain humanistic values. Others feel that they cannot maintain humanistic values in the face of scientific fact; these become "scientific materialists" and so-called skeptics. In my opinion, the religious fundamentalism that afflicts the planet today is largely the fruit of the scientific worldview. The scientific worldview sticks people with a choice: either annihilate yourself, stop believing in yourself, stop thinking anything matters, and (in effect) give up and die — or else cling to religion, whatever religion is within reach, even if it's the seven-day-creation kind of stuff. The scientific worldview forces people into a position where they feel they have to reject science to maintain any kind of belief in values and meaning. As long as people believe that evolution makes you a monkey, they are going to have to reject evolution or else believe people are monkeys. I think a lot of the anti-evolutionism we're seeing today comes from this fear of science — not from religious faith alone. I think there are a lot of people who don't really care about the literalness of the Genesis story, but who refuse to believe in evolution because they think it makes monkeys out of us. And I think the so-called scientific worldview drives people into that position. It faces people with a choice of rejecting human values or rejecting science.

There is no need to make this choice! There is no conflict between science and human values. To keep the two compatible, all you have to do is accept the facts and established theories of science, while refusing to buy into the so-called scientific worldview. Accept science, including evolution, modern astronomy and the rest — but reject physicalism. Reject the philosophical views of human nature that say that we have no free will, reason, or consciousness. Reject the scientifically unprovable philosophical commitments that lead to meaninglessness. Adopt the opposite philosophical commitments, and say, "Yes, I'm a person! I'm free! I'm conscious! It doesn't matter what I evolved from, I'm not a monkey! I'm more than just chemicals (and the monkey was more than just chemicals, too)! It doesn't matter how my brain works, I still have free will!" Take the philosophical positions needed to support human values. I think those positions are rationally defensible, quite apart from the question of whether they support human values.

It's possible to take the philosophical positions that would best support human values, and to do so without denying one single fact or established theory of science. The scientific worldview, as it grew over the last few centuries, created an atmosphere of meaninglessness. It created a feeling that since dogmatic religion has been knocked out from under us, there's nothing left. The scientific worldview created the perception that we now live in a meaningless, senseless universe in which we're out of place — in which we're just dust, something incidental. And this attitude of meaninglessness has pervaded philosophy for the last few centuries. Thus, we get movements like existentialism, which is really an antiscientific movement but is based on the idea that we're confronted with a meaningless universe. Not all kinds of existentialism are like this; I'm talking about the most common kinds. We're confronted with a meaningless universe; we find ourselves in this horrifying meaningless universe. Now what do we do?

The existentialist answer: Make a choice! Make a choice! — a choice for which there's no real basis. That's existentialism, at least in some of its main forms. And existentialism grew out of the atmosphere or milieu of meaninglessness that developed as a result of the scientific worldview. Ultimately, existentialism grew out of people's misinterpretation of science. And religious fundamentalism has a variety of causes, but it developed largely as a reaction against the so-called scientific worldview.

What can be done about this situation?

The first thing we need to do is reject physicalism. We must admit that the world is more than just the physical world. This does not require us to believe in anything ghostly, or in anything reminiscent of superstition. Nor does it require us to embrace any dogmatic beliefs whatsoever. Instead of resorting to dogmatic belief systems, we should explore reason-based philosophies that offer alternatives to physicalism. There are various philosophies like this. I will name two as examples.

The personal idealism of George Holmes Howison is an important philosophy of this kind. Personal idealism offers a world picture in which persons are ultimately real and important. Howison was one of the main proponents of this view. Significantly, Martin Luther King, Jr. was a personal idealist, and Dr. King's vision of human dignity was based on personal idealism.[54]

My second example is a much older philosophy — Platonism. Today we hear a lot about the excesses of Platonism. We hear that Platonism was too mystical, that Plato's political philosophy was wrongheaded, and so forth. In some philosophical circles, "Platonist" seems to be a swear word. But if we stick to

[54] Martin Luther King, "My Pilgrimage to Nonviolence," p. 480.

Plato's theory of reality instead of his politics, and if we avoid the excesses of some later Platonic thinkers, we find that Platonism remains a promising philosophy after all these centuries. Platonism is a philosophy that allows for more than one kind of reality; it has room for the physical and the spiritual alike. The best known Platonistic doctrine is that there are abstract objects, like properties, relations, and mathematical objects, as well as concrete physical objects. I've written and talked a lot about abstract objects elsewhere,[55] so I won't discuss them here. The study of abstract objects can shed light on the place of spiritual values in the physical world.

Either of these two philosophies can provide a view of existence that is at once rational, spiritual and ethical. I am not singling out these two philosophies alone as worthy of further study. A survey of the history of philosophy will reveal other candidates.

We need to explore philosophies like these. We also need to develop new philosophies that are even more adequate, logically and ethically, than the old philosophies. We need to renew the quest for an understanding of meaning — an understanding that is compatible with reason and science.

I think it is possible to overcome the cult of meaninglessness that characterized twentieth century thought. If we have the will and the desire, we can make the twenty-first century into the Century of Meaning. What we need to do is reject physicalism and other pessimistic interpretations of science. This is where our task begins. To replace these pessimistic interpretations, we need to develop optimistic philosophies that encompass science and human values on an equal

[55] Elsewhere in this collection, and also in my paper "Getting Realistic about Nominalism." For the bearing of these ideas on our view of human nature, see my papers "Platonizing the Abstract Self" and "I Think, Therefore I Am an Abstraction," and also my web essay "Restoring the Foundations of Human Dignity."

footing. That does not mean so-called secular humanism, in which belief in the scientific worldview is combined with human values that contradict that worldview. (If secular humanists prayed, they might say "Please, God who doesn't exist, let science and ethics be compatible.") That is not what I mean by a philosophy encompassing science and human values. Not just believing in a meaningless, senseless universe of meat and mud, and then trying hard to believe in values at the same time. What I have in mind is taking a new look at certain philosophies — the ones that postulate a meaningful or spiritual universe without requiring us to believe anything antirational or antiscientific. No postmodernism. No religious fundamentalism. No existentialism. No New Age uncritical thinking. (I haven't said much about New Age thought, but much of it is based on uncritical belief in anything that's weird. There are a few New Age ideas that are just good sense, like the idea that preserving the environment is important.) I have in mind a worldview that's scientific and rational but spiritual, like the worldviews of Howison, or Plato at his best, or Leibniz — I could name others. We need to get beyond the philosophy of meaninglessness. And the philosophy of meaninglessness really is the philosophy of *scientism* — the belief that science is the only valid form of knowledge, or that everything important can and should be studied through scientific methods alone.

Noe everything can be studied through scientific methods! There are important philosophical questions that can't be approached that way. Scientism supposes that everything can be studied by scientific methods — that if you can't study something that way, you have to assume the thing is unreal or pointless. We need to get beyond scientism and beyond physicalism. The only practical way to do that is to study, reexamine, and adapt for our own use the rational spiritual philosophies of the past — and to try to develop new philosophies of the same kind.

We need to clarify the difference between science itself, and the philosophical flotsam and jetsam that has traveled with science — like the silly idea that evolution proves life has no meaning. We need to decouple science from anti-humanism. We need to tell the world that anti-humanism does not follow from science.

The cult of meaninglessness in the twentieth century developed from the so-called scientific worldview. Philosophical movements that preach meaninglessness, like existentialism, or that reject science, like postmodernism and religious fundamentalism, really are outgrowths of the scientific worldview. They are either reactions against the scientific worldview, or further elaborations of it. Postmodernism is a special case: it is both an elaboration of the scientific worldview and a reaction against that view. Postmodernists tend to believe that truth is relative — that there is no absolute truth. It is hard to avoid falling into that belief once you have accepted the "scientific" view that the human brain is nothing but a pointless machine with no free will. How can such a machine ever really determine that it has the truth? Would "truth" really be an attainable goal for such a machine? Or would the concept of "truth" lack all significance for it? Postmodernism also seems to have absorbed some other ideas from the scientific worldview — like the idea that people or their minds are not truly real, and the idea of extreme reductionism (when postmodernism explain things away as social constructs). Postmodernism also is a reaction against science. This is evident in the postmodern claim that science is inherently racist and sexist, and in the claim that other "narratives" about the observed physical world are as good as the scientifically verified ones.

To surpass the cult of meaninglessness, we must advance beyond the so-called scientific worldview. To do this, we do not need to reject science, or any of the findings of science. To overcome the so-called scientific worldview, all we have

to do is reject philosophical interpretations of science that disallow the reality of humanistic values. And the best way to do that is to revive, revitalize and resuscitate the great rational spiritual philosophies of the twentieth and earlier centuries. I mentioned Howison, Plato and Leibniz. There are many others: Mary Calkins and Borden Bowne come to mind. We need to start new debates about these spiritual philosophies that are part of the human heritage — the spiritual philosophies based on *reason*, as an alternative to the so-called scientific world view. And we need to develop our own new philosophical ideas.

The cult of meaninglessness can be overcome only by philosophies of meaning. This overcoming begins when we reject the idea that science supports philosophies of meaninglessness. Once we have made that move, we are on our way to a rational culture of meaning. But it will not be enough merely to recognize that science does not prove meaninglessness, and to assert that things matter. To understand *why* things matter, we need new philosophies.

I propose that the thinkers of the twenty-first century reject scientism and physicalism, and begin a search for philosophies that can encompass both scientific fact and human values in a robust, full-bodied way. Not the secular humanist way of waving a magic wand and hoping that the two are reconciled, but the rational way of understanding the ontological foundations of values and meaning. Think about what kind of universe we might live in, explore multiple possibilities for the nature of reality, and investigate views of reality that allow for all the scientific facts to be true and also allow human values to be real.

Elsewhere I have argued that if you believe in the reality of abstract objects, then many things about human values and the human spirit begin to make sense and be

rational.[56] This is one example of a possible way to approach the task at hand. There are other ways also. Whichever way we take, we need to develop a new worldview big enough to accommodate everything that we know is true. And we should boldly assert that human values are real. That doesn't mean that we have to know exactly what the true values are, or that we have to agree on every single idea about values. It's difficult to figure out anything final about questions of values. But we need to respect our scientific knowledge and our nonscientific knowledge; fully admit the possibility of nonscientific knowledge; and then develop new philosophies, bigger than physicalism, that can accommodate anything we know. We can take the first step toward this simply by admitting that there are other kinds of knowledge besides science! Until we admit that, it will be difficult to construct philosophies that accommodate multiple kinds of knowledge, and even harder to find cause to do so. First we need to admit that there are other kinds of knowledge besides science. I've talked and written elsewhere about the existence of multiple kinds of knowledge.[57] To overcome the cult of meaninglessness, we need to admit that there is a spectrum of different kinds of knowledge, and that science is only one of these kinds.

The cult of meaninglessness began with the conviction that anything unknowable to science is either unreal or unimportant. The cult of meaninglessness will end when we fully abandon that conviction, and admit that values are as much a part of reality as are physical objects. There is more than one kind of knowledge. Science is only one kind. It is an extremely valuable kind, but we can know about things in other ways too. Recognizing that fact does not make us irrational, silly, superstitious or dogmatic. It only makes us wiser.

Once we admit that there is more than one kind of knowledge, and allow

[56] See my papers "Platonizing the Abstract Self" and "I Think, Therefore I Am an Abstraction," and also my web essay "Restoring the Foundations of Human Dignity."
[57] In *From Brain to Cosmos*, in *Poetry's Secret Truth*, and in the present collection.

ourselves to explore as many of these kinds as we can, there will be no further basis for a culture of meaninglessness based on a misunderstanding of science. And once we have overcome that culture of meaninglessness, we will be able to go forward into the twenty-first century, and other centuries to come, in a truly human manner.

# Selected Publications by the Author

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M. F. Sharlow, “Chemical Elements and the Problem of Universals,” *Foundations of Chemistry*, vol. 8, pp. 225-242 (2006).

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## Books and ebooks:

Please see Dr. Sharlow's website for updated information on his available books and ebooks. (Currently his website is at http://www.eskimo.com/~msharlow.) The following list may change.

Sharlow, Mark F. *God, Son of Quark: How the Universe of Modern Science Gets Its Soul.* Privately published, 2006.

Sharlow, Mark F. *Poetry's Secret Truth: From the Beauty of Words to the Knowledge of Spirit.* Tulsa, OK: EbookoMatic (http://www.ebookomatic.com), 2004.

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[*Note:* The following preprints and web essays by Mark F. Sharlow were available through the author's website, http://www.eskimo.com/~msharlow, at the time this document was prepared. At least one of them is available in the PhilSci Archive, whose home page is located at http://philsci-archive.pitt.edu .]

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