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Scientism and Philosophy

by Lise Charlebois

Thesis presented to the Department of Philosophy
of the University of Ottawa as partial fulfilment of
the requirements of the degree of Master of Philosophy

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0-612-26309-6

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Introduction.

The charge of scientism is appearing more frequently in recent academic journals, and in many contexts. It has been levelled against the founders of American sociology, who thought that sociology should model itself after the natural sciences. The developers of "systems theory" in political science are also accused of scientism because they want to apply the "theoretical and manipulative achievements and the mechanistic assumptions and procedures of the 'hard' physical sciences" to the traditional concerns of political science. Scientism is thought to involve the question of whether or not "the social and physical sciences are to be seen as similar on epistemological and methodological grounds". It is also thought to involve the mistaken idea that recourse to experimental method is always applicable and infallible. Again, scientism has been linked to evolutionary biology, structuralism, capitalism, modernity, and analytic philosophy. Those accused of being scientific include Karl Marx, Sigmund Freud and W.O. Quine. Hilary Putnam has called scientism one of the most dangerous

contemporary intellectual tendencies, and Peter Strawson says that the aim of philosophy is to abjure scientism.¹

What is scientism, exactly? It is tempting to want to answer that question, but we can't. There is no one essential property that all cases of scientism share in, such that *that* would be what scientism *is*; scientism means a variety of things. That does not mean, however, that we can't say anything about it. We can say that the charge of scientism is most always a bad thing; it is an accusation. We can also say that scientism is closely linked to science, hence *scientism*. In that respect, it very often refers to a misapplication of science, e.g., the misapplication of the methods of physics to the social sciences. It can also refer to an unreasonable faith in science, or the presupposition that science can answer any question. However one conceives of it, scientism certainly seems to constitute an important problem.

Conceptions of scientism differ among philosophers. In the following three chapters I will present three philosophical views on scientism and suggestions as to how it can be overcome. I will begin by presenting the view of scientism as the overvaluation of science offered by Tom Sorell in *Scientism: An Infatuation with Science*. Sorell's investigation is limited to scientism as it occurs in philosophy, in particular to 'scientific

¹ All references excepting the one to Putnam were found in a search for the word 'scientism' in the Philosopher's Index. The sources include: Robert Bannister, *Sociology and Scientism: The American Quest for Objectivity, 1880-1940* (1987); Jill McCalla, *An Examination of the Scientific Mode of Enquiry in Politics with Special Reference to Systems Theory in the Works of Easton, Almond, Kaplan, Deutsch, Garland, Hamden* (1991); Robert Nadeau, "Popper, Hayek et la question du scientisme" and "Contre le scientisme: Pour l'ouverture d'un nouveau front"

conceptions' of philosophy. He argues that positivism is to a great degree scientific because it overvalues scientific explanations of phenomena to the detriment of other ways of explaining. Scientism, according to Sorell, can be overcome by a metaphysical framework in which the contributions of the humanities as well as those of science are both justified as essential to human development and flourishing. To do this, philosophers act as mediators between the various disciplines, justifying and promoting each discipline's virtues to those in different disciplines. I shall examine whether or not science is, indeed, overvalued, and whether Sorell's proposed solution could help in overcoming scientism.

Contrary to Sorell, Hilary Putnam sees metaphysics as being at the root of the problem of scientism, not as being part of its solution. Scientism involves answering metaphysical questions such as "What is truth?" or "What is real?" or "What is objective" with the following answer: What science tells us. There are two levels to Putnam's criticism. First, he believes that *any* answer to such questions will be incoherent. We cannot, once and for all, answer "What is truth?" because there is no one essential property that all cases of truth must share. Furthermore, we can't really make sense of questions such as "what is real?". Real *what?* we might want to say. Second, Putnam's criticism of scientism shows how the scientific answer to those questions are incoherent. The idea that science, and only science, discovers truths is important, but incoherent. While science can, indeed provide us with truths, e.g., a table is made up of space-points, it makes no sense to say that this is more true than the ordinary claim that a table is made

of solid pine. The scientific thinker will think that the scientific description is somehow more about the real table than ordinary descriptions, because it describes what the table is *in itself*. Putnam will argue that the concept of a table as it is *in itself* is incoherent. However we come to describe objects in the world, or the truths that we say in our lives, we do so from within a context, and with a purpose in mind. Not all contexts or purposes are scientific. Scientism inflates perfectly ordinary notions that we use in our lives, notions such as truth, reality and knowledge, and holds them hostage to scientific language. The result is a loss of respect for the un-scientific uses of those words. Words such as truth, objectivity and reality as they are used in ordinary English, tend to be thought of as being lacking in some sense; lacking in absoluteness, in universality. We tend to want our words to have absolute meanings because we constantly have science before our eyes, and science deals with that which is universal. We want to imitate science, physics in particular, which we take as the paradigmatic science, in all areas of knowledge. If physics can have universal laws which underlie phenomena, then there probably are such hidden laws in other things as well, such as concepts or meanings. The scientific philosopher thus looks for the absolute meaning of Truth, or Science, or Objectivity, as though he will find the law that underlies all particular uses of the words. As Putnam will point out, there are no absolute meanings, not because we have not found them yet, but because meanings come from the way in which we use words, and we use words differently in different contexts. Scientism, then, is one way of participating in the

on-going metaphysical discussion, a discussion which, according to Putnam, philosophers need to overcome.

Sorell and Putnam tend to focus on how scientism manifests itself in philosophy. In the third chapter, I will turn my attention to two philosophers who show how scientism is manifest outside philosophy. Both Warren Goldfarb and Ian Hacking focus on examples of scientism in science. Warren Goldfarb is concerned to clarify what Wittgenstein meant when he tried to show that there were no physical states or process in the head which were responsible for intentional notions such as understanding or remembering. In other words, there is nothing one could point to in the head which would constitute the understanding or the remembering. Goldfarb defends this view against objections that might be made by a neuroscientist. Within that discussion, Goldfarb refers to an example of scientism in which it is claimed that a brainwave has been found which seems to be responsible for updating and maintaining memory. I shall focus almost exclusively on this one point. It will become clear that the scientific claims being made about the state or process responsible for remembering or recalling have very little science to support them.

Hacking is also interested in showing that scientific claims can turn out to be scientific. In *Rewriting the Soul—Multiple Personality and the Sciences of Memory*, he looks at what is being claimed about the etiology of multiple personality disorder. In particular, he is interested in the notion of memory being used in the diagnosis and treatment of multiplicity. He is not convinced that memory can be something about

which we can have scientific knowledge. He thinks of memory, or remembering, more in terms of 'thinking' about the past, and there is no one way to think about the past. In his view, memory should not be thought of as a camcorder which faithfully reproduces events in a determinate past. According to Hacking, we constantly recreate and modify the past when we redescribe our memories of it. Whereas Putnam challenges scientism by showing that we can have a multiplicity of true descriptions of a table, for example, so Hacking challenges it by arguing that there is a variety of ways to describe the past. It is difficult to imagine what science can say about something as indeterminate as the way we remember. And yet, the experts in the multiple personality field claim many things about that process. The danger implicit in a scientized notion of memory lies in the assumption that there is one right way to think about the past, and it is up to others, scientific experts, for example psychologists, therapists and clinicians, to tell us what that way is.

Goldfarb and Hacking do not only share an interest in scientized conceptions of intentional states such as remembering. They also share a certain method. They ask questions--*many* questions. Some are answered, some are rhetorical, and some point to the fact that there can be no answer, despite the so-called scientific answers being provided in the examples. Their aim in asking such questions is to show that sometimes scientific claims are not scientific at all. The kind of scientism they are concerned with occurs when it is presumed that a phenomena is open to scientific investigation, when in fact, it is not. This, I shall suggest, is the most useful notion of scientism than those of Sorell and Putnam. It is this presumption that science can and should be applied

anywhere which leads one to overvalue science to the detriment of other ways of learning, which is Sorell's view of scientism. As well, it seems to underlie Putnam's conception of scientific metaphysics, in that scientific metaphysicians seek to justify the presumption that science is applicable everywhere. But the most important reason for favouring the approach to scientism taken by Goldfarb and Hacking is that they concentrate on real cases of scientism, and provide us with a way of identifying such cases, and of criticizing them.

Chapter 1

Scientism manifests itself in a wide variety of ways, but one feature common many cases of scientism seems to be an overvaluation of science. According to Tom Sorell, we overvalue science when we believe that scientific knowledge is better than other kinds of knowledge. Scientism is "the belief that science, especially natural science, is much the most valuable part of human learning...because it is much the most authoritative, or serious, or beneficial" (Sorell: 1). Sorell believes that the overvaluation of science and its methods affects the relative importance attributed to traditionally non-scientific disciplines. Often the scientific method will be applied to these disciplines, and in some cases an attempt will be made to completely reduce these disciplines to a science. The implications can be serious. If science is thought to be the most valuable part of a culture, the arts and humanities might not be deemed worthy of support, and indeed may barely survive at all. For Sorell, all areas of learning need to be appreciated as "complementary means of human improvement" (Sorell: 98). By impeding human flourishing, scientism jeopardizes a society's proper development.

Sorell is particularly concerned with scientism as it affects philosophy. He believes scientism is manifest in the scientific conception of philosophy. Specifically, Sorell worries that scientific philosophy adversely affects a more traditional approach to philosophy, either by denigrating its value, or by attempting to reduce its questions to

scientific ones. If adhering to the scientific conception of philosophy leads one to dismiss traditional philosophical questions simply because they are unscientific and therefore unimportant, then one could be accused of scientism. If a scientific philosopher believes that an answer to a philosophical question needs to be scientifically verifiable, or requires empirical evidence to support it, then he has set up science as the standard to which all kinds of answers must live up to. Sorell wants to challenge such scientific standards for philosophical questions and answers. The way to accomplish that, he says, is to show that even when some philosophical questions are cut down to scientific size, there nonetheless remain other kinds of questions. There are more things for philosophy to do than preoccupy itself with questions of science.

We can detect three ways in which scientism manifests itself according to Sorell. The first involves using the word 'science' as an honorific term. The second is in the assumption that traditionally non-scientific areas of knowledge can (or should) benefit from applying the methods of the natural sciences. This can lead to the reduction of a discipline to natural science. The third way, which underlies the previous two, involves the overvaluation of rationality and objectivity, intellectual notions associated with science, to the detriment of other notions associated with the arts, such as creativity and imagination. In the following sections I will discuss these three points as well as Sorell's proposed solution to the problem of scientism. Does Sorell's solution address the problem as he formulates it?

1. 'Science' as an Honorific Term

The word 'science' is powerful. It is thought to confer legitimacy and importance on that to which it is attached, and it has been added on to a wide variety of disciplines. Politics was changed to political *science* in most universities. Today's business student learns management *science* rather than the art of management. Sometimes such changes are made to indicate more of a focus on methodological, statistical or economical analysis, these being considered scientific subjects. At other times, use of the word 'science' is more than a little suspicious. The president of the Social Sciences and Humanities Research Council of Canada (SSHRC), for example, speaks of the "human sciences" to encompass both the social sciences and the humanities¹. What kind of science are the humanities expected to live up to, and why?

Sometimes the word 'science' is very obviously tacked on to something as an honorific term, like in 'creation science' or the Church of Scientology, or when Jo-Jo and her psychic friends claim to offer glimpses into the future over the telephone, based on the 'scientific study' of the placement of the stars. These examples are perhaps not too serious. They are nonetheless a good indication of just how susceptible many people are to claims of scientificity. Sorell mentions this kind of scientism only in passing; he does not take it seriously. In fact, surprisingly, Sorell does not think that scientism, i.e., the

¹ *Shaping Our Future: A National Conference on Graduate Research and Studies in the Social Sciences and Humanities, Conference Proceedings*, November 5-7, 1994, Ottawa, Ontario, Social Sciences and Humanities Research Council of Canada. In her welcoming remarks, Ms. Lynn Penrod, President of SSHRC refers to graduate students in the social sciences and in the humanities as "human science graduates" and as "human scientists" (p. 7-8).

overvaluation of science, really constitutes a problem at all outside philosophy. He thinks that these kinds of examples are indicative of a lack of respect for genuine science, rather than an overvaluation of science. In other words, such examples have little if anything to do with an overvaluation of science, and everything to do with a misuse of the term 'science'. According to Sorell, such cases could actually use a little scientism as an antidote. Sorell writes,

outside philosophy scientism sometimes has the useful effect of bolstering up an appreciation of, and respect for, science in the face of anti-scientific and pseudo-scientific ideas" (Sorell: 2).

An overvaluation of science can actually be beneficial, if it can "reduce the influence of anti-science or pseudoscience" (Sorell: 2). As an example, Sorell points to a scientific Darwinian who overvalues science (Sorell does not make clear what that means), but who nonetheless does a good deed if he is able to convince a supporter of creation 'science' that Darwinism "is scientifically superior to creation science", thereby persuading that person to accept "a branch of genuine science" rather than the pseudo-science he adhered to (Sorell: 2). Of course, no one would disagree with wanting to overcome pseudo-science. But Sorell makes a grave mistake. He writes as though all cases of scientism outside philosophy are just like these unimportant examples. Because he holds this, he can claim that scientism outside philosophy does not constitute an important problem. But he is dismissing the problem of pseudo-science much too quickly. While I do not

take too seriously pseudo-scientific claims in astrology, ufology, or numerology², there are other more problematic examples of pseudo-science³. Sorell uses the distinction between pseudo-science and *genuine* science as though it were clear, and as though it were a matter of degree (Darwinism is "scientifically superior"). If scientism, that is, the overvaluation of science, rests on the assumption that it is, indeed, *genuine* science that is being overvalued, then Sorell should be clear on how he distinguishes between genuine science and pseudo-science. What does it mean to *overvalue* *genuine* science? What does it mean for a Darwinian to *overvalue* science (assuming Darwinism is genuine science, as Sorell seems to think)?

Sorell's claim that scientism outside philosophy is unimportant seems inconsistent with his definition of scientism. It is difficult to see how he can claim that (1) scientism is not an important problem outside philosophy and (2) scientism is the overvaluation of science to the detriment of *other areas of learning*, for surely philosophy constitutes only *one* other area of learning. What about literature, history or politics? Have these not been affected by the overvaluation of science? If scientism really can adversely affect human flourishing, then it would seem that it is a serious problem in *and* outside

² That may be a mistake, considering that such methods have been appealed to by important politicians in their decision-making: The Right Honourable William Lyon MacKenzie King spoke to his deceased mother through a crystal ball, and former B.C. Premier Bill Van der Zant believes in numerology.

³ c.f. Andrew Lugg, "Bunkum, Flim-Flam and Quackery: Pseudoscience as a Philosophical Problem", *Dialectica* 41 (1987), pp. 221-230 and "Pseudoscience as Nonsense", *Methodology and Science*, 25 (1992) pp. 91-101. See also A.A. Derkesen, "The Seven Sins of Pseudo-Science", *Journal of General Philosophy of Science*, 24 (1993), pp. 17-42 and Andrew Lugg's reply, "Pseudoscience as Structurally Flawed Practice: A Reply to A.A. Derkesen", *Journal for General Philosophy of Science* 26 (1995), pp. 323-326.

philosophy; for surely philosophy is not alone in its responsibility for a society's development. Sorell's lack of attention to this matter is especially surprising given his proposed solution to the problem of scientism. As we will see, part of his solution consists in having philosophers justify and promote all disciplines such that a presumed lack of respect between artists and scientists, for example, will be overcome. But if that is to be a solution to the problem of scientism, then scientism *does* have to have an impact on disciplines outside philosophy. I will say more about this later. For now, let's turn to Sorell's notion of scientism as involving the overvaluation of the scientific method.

2. *The Overvaluation of the Scientific Method*

The word 'science' gets bandied about because it is thought to confer legitimacy to a topic or field of investigation. It is thought to do so because we tend to believe that natural science is successful and progressive, mainly due to its objective method. It is thus not surprising that some people should want the scientific method applied to virtually every domain of inquiry. But to apply the "method" of natural science to "non-scientific" areas implies three things: first, that there is such a thing as a single "method" to natural science that can be applied (I shall criticize this in the next chapter); second, that these non-scientific areas are in need of scientific explanation; and third, that this method science can be applied to all subject matters. Let me begin by considering a few examples of how the so-called 'scientific method' has been applied to non-scientific subject matters.

Religion is certainly considered by many to be beyond the realm of science. Yet, appeals to scientific explanation and the scientific method as a way of investigating religious phenomena are very popular. In the past twenty years, slightly over one third of recipients of the Templeton Prize for Progress in Religion (the equivalent to the Nobel Prize), were awarded for works dealing with science and religion.⁴ There are no doubt many interesting things to say about the relationship between science and religion. Some of the winning projects set out to compare and contrast religion and natural science, and others seek to reconcile the two. But many of these winning projects are concerned with applying science to religion. For example, Prof. Thomas F. Torrance was awarded the prize in 1978 for his attempt to "evidence God through *scientific* reasoning" (*my emphasis*). In 1985, Sir Alister Hardy won the prize for his work which engages in

⁴ 1978, 1980, 1985, 1986, 1987, 1989, 1990. *Awakening from Nihilism—the 1994 Templeton Prize Awarded to Michael Novak*, Derek Cross and Brian Anderson, editors "Templeton Prize Winners, 1973-1993 p.13-20). 1978: Professor Thomas F. Torrance "was one of the first religious thinkers to win the respect of both theologians and scientists for his work on the relationship between science and religion. His revelations on the rationality of the universe attempt to evidence God through scientific reasoning" (p.15); 1980: Professor Ralph Wendell Burhoe, founder and former editor of *Zygon, Journal of Religion and Science* is "regarded as one of the world's most informed voices in understanding the differences and similarities of theology and science" (p.15); 1985: recipient of the annual Templeton Prize: Sir Alister Hardy who "gained prominence for his empirical studies that—for the first time—applied scientific methods to the investigation of religious experience. Sir Alister spent his life attempting to show God's centrality in all parts of human existence, eventually gathering massive evidence indicating that religious experience is, indeed, a vital part of the human makeup.": 1986: Rev. Dr. James McCord "spent his professional life investigating the relationship between science and religion through his studies of the nature of reality" (p. 17); 1987: Rev. Professor Stanley L. Jaki, Benedictine monk and professor of Astrophysics has provided guidance on "questions of science and theology"; 1989: Joint recipient, Prof. Carl Friedrich von Weizsacker explored the "inter-relationships of physics, cosmology, and theology" he has been credited "with being at the forefront of the reconciliation between religion and natural science"; 1990: Joint Prof. L. Charles Birch, visiting prof. of genetics at Berkeley, and prof. of biology and the Univ. of Sydney, "blazing new paths into questions of science and faith" became the "first natural scientist to address a World Council of Churches assembly".

"empirical studies" that apply the "scientific method" to "religious experience" in an attempt to "show God's centrality in all parts of human existence".

Religion has traditionally been the keeper of the soul. But today, the soul itself is the subject matter of science. In *Rewriting the Soul: Multiple Personality and the Sciences of Memory*, Ian Hacking traces the history of how the traditional notion of the soul has been replaced by a scientific notion of memory. This new conception of memory is thought to be the key to one's motives, behaviour and character, all of which used to be thought of as belonging to the soul. I shall examine in detail aspects of the phenomenon of the scientized memory in chapter three. For our purposes here it is enough to show the influence of science on such traditionally unscientific subject matters as religion, and the soul.

Philosophy has also been scientized, and that is Sorell's main concern. Sorell finds the source of the overvaluation of science in the philosophy of the seventeenth century. Philosophers including Bacon and Descartes were classifying kinds of knowledge according to whether they were scientific or not. This was nothing new. Philosophers have been classifying kinds of knowledge for as long as there has been philosophy. What was new was the judgement imposed on those non-scientific disciplines. They were deemed as "second-class subjects with limited scope". Bacon and Descartes, says Sorell, "overdo their enthusiasm for the new science, either by denigrating subjects which do not submit to its methods, or by pretending that there are no such subjects--that everything can be understood scientifically" (Sorell: 37).

Sorell sees this as a precursor of the more recent version of scientism manifested in scientific empiricism. Sorell focusses on the scientific empiricists of Vienna who were part of the Unity of Science Movement. These included Carnap, Reichenbach, Neurath and others members of the Vienna Circle. If this movement had a slogan, it might read something like: "There is no question whose answer is in principle unattainable by science."⁵ Sorell claims the main project was to unify the sciences, in order to eliminate any categorial distinction between the physical sciences and the social sciences. The model for unity was physics, meaning that the methods of the physical sciences were to be deployed in other sciences, and even in the humanities (Sorell: 6).

One important goal of the Unity of Science Movement was to eliminate what they considered to be metaphysics in philosophy. Scientific empiricists, and the Vienna Circle in particular, wanted to purge philosophy of speculation and non-empirical questions, which they termed "metaphysics". Metaphysical questions were thought to be pseudo-questions, not about anything and certainly not answerable. In "The Elimination of Metaphysics Through Logical Analysis of Language", Carnap writes the following:

In saying that the so-called statements of metaphysics are *meaningless*, we intend this word in its strictest sense [...] In the strict sense [...] a sequence of words is *meaningless* if it does not, within a specified language, constitute a statement. It may happen that such a sequence of words looks like a statement at first glance; in that case we call it a *pseudo-statement*. Our thesis now, is that logical analysis reveals the alleged statements of metaphysics to be pseudo-statements [...] metaphysics in its entirety consists of such pseudo-statements. (Carnap: 61)

⁵ Sorell p. 6 quoting Carnap, note 14 p. 179

One way of overcoming metaphysics, according to Neurath, was to promote the language of physicalism.

But how does the elimination of metaphysics proceed in practice? Men are induced to give up senseless sentences and freed from metaphysics. But must this always remain so? Must everyone in turn go through metaphysics as through a childhood disease—perhaps the earlier he gets it, the less dangerous it is—to be led back to unified science? No. *Every child can in principle learn to apply the language of physicalism correctly from the outset.*⁶

Similar kinds of reductive projects are being promoted by more contemporary figures in philosophy who now promote naturalism. Naturalism, Sorell avers, is in direct conflict with metaphysics. It is a reaction against the presumption of an *a priori* investigation into questions on which empirical evidence has a clear bearing. In other words, naturalism believes that metaphysics has no place answering those questions which science is perfectly capable of answering. In fact, some forms of naturalism involve the total reduction of philosophical questions to scientific ones, thereby leaving no room for metaphysics at all.

The idea that science is, or can be, unified is not in and of itself scientific, according to Sorell. It becomes scientific when it is conjoined with a statement about the value of a subject which does not fit into the unified science. Scientism occurs when "some subject is claimed to lack scientific status and therefore to be of doubtful value because it is hard to see how it fits in with the body of established science" (Sorell, p.9).

⁶ Sorell, p. 10, quoting Neurath, 'Unified Science and Psychology' in McGuinness, p. 9 (note 24, p. 180)

Similarly, statements about the benefits of science are only scientific if accompanied by claims about how much less beneficial non-scientific subjects are as compared to scientific subjects.

What is crucial to scientism is not the identification of something as scientific or unscientific but the thought that the scientific is much more valuable than the non-scientific, or the thought that the non-scientific is of negligible value. (Sorell: 9)

Scientism, for Sorell, is thus about a clash of values. Scientific philosophers are guilty of scientism only if they comment on the value of other subject matters. Thus, scientific philosophers who believe that metaphysics ought to be eradicated are scientific. But part of the positivist program, as we have seen, is precisely to rid philosophy of metaphysics. It obviously does not value metaphysics; positivists will not grant that metaphysics is an area of learning at all. It is asking too much of positivists to have them value that which they see as detrimental. It would be like asking Sorell to value scientism, despite his project of trying to overcome it. What Sorell needs to do is show why positivism is wrong in wanting to rid philosophy of metaphysics.

If we grant Sorell's point that scientism is a problem of undervaluing other areas of learning, what, then, is the solution? It is not surprising that the solution, according to Sorell, is to increase the respect and value people have for all disciplines. For instance, we need to convince the naturalist that there are philosophical questions left untouched by naturalism, and that there are other questions which it answers badly. In other words, we need to show that philosophy amounts to more than can be captured by the scientific

conception of philosophy, and that any attempt to reduce it to naturalism will fail because philosophy on the whole still has something to do, even granting that some of its central questions may reduce to scientific ones.

For Sorell, scientism is a problem of the overvaluation of science to the detriment of other parts of learning. If there is an overvaluation of science in philosophy, then other parts of learning, presumably other parts of philosophy, are being neglected or dismissed. In fact, in his conclusion Sorell writes that the task in overcoming scientism in philosophy (naturalism) "is not to show that much of culture apart from science is valuable, but only that much remains for *philosophy* to do when some of its central questions are cut down to the size of scientific ones" (Sorell: 177).

This solution, however, begs the question. The scientific philosopher could object that there *are* no questions beyond the grasp of science. He could object that what Sorell thinks are questions are just metaphysical pseudo-questions. The criteria for being a question, he might continue, is precisely that it can be answered, and if it can be answered, then such an answer can be shown to be true or false. If it can be shown to be true or false, then the question is a scientific one. In other words, the scientific philosopher can deny that there is anything else for philosophy to do. Sorell needs to provide us with examples of such questions. But Sorell fails to do that. In fact, all he says is that we need metaphysics to overcome scientism, so there is a role for metaphysics after all.

Sorell claims that in order to save philosophy from scientism, we need a metaphysical structure which will restore a balance between the sciences and the arts and humanities. In other words, to combat scientism in philosophy we need metaphysics, but that is precisely what the scientific philosopher denies. Sorell would have done better to have shown that the Unity of Science Movement, which sets out to dismiss metaphysics due to its emphasis on the *a priori* rather than the *a posteriori*, actually makes a very important *a priori* assumption: that empiricism alone can provide knowledge, and questions on which the empirical can have no bearing are meaningless. As Hilary Putnam puts the point, "metaphysics--especially empiricist metaphysics--frequently appears disguised as the rejection of metaphysics" (Words and Life: 265).

Sorell does not try to show that positivists have their own metaphysics. He merely points to the fact that since some traditional metaphysical questions cannot be answered by science, philosophy must be more than what the scientific philosopher believes philosophy amounts to. Implicit in this is the further thought that since such metaphysical questions are essential to human development, they should not be undervalued. But all of this is merely stated, not argued for.

3. *The Overvaluation of Scientific Rationality*

When philosophers distinguish scientific knowledge from other kinds of knowledge, there is often a corresponding division made regarding the mind. It is often

claimed that there are faculties for science, and faculties for the arts. If science is thought to be superior, then so are the faculties that permit us to do science. Scientific rationality is thought to be *the* way of obtaining truth and objectivity. Philosophers impressed with the superiority of the sciences "tailor their conception of the mind to what they believe suits the mind to science." (Sorell: 24) These comments are very general, but they convey an important and long-standing theme in the philosophy of science to this day. The overvaluation of *scientific* rationality, to the detriment of other faculties, such as creativity and imagination is another manifestation of scientism.

The idea that science can be inclusive, the related idea that *scientific reasoning is a master key to all sorts of intellectual and practical problems*--these ideas are enduring elements of scientific thinking. (Sorell: 40, my emphasis).

Such an endeavour also has its roots in seventeenth century philosophy, where Bacon, for example, "subordinates the faculties which give rise to non-scientific subjects - memory and imagination - to reason" (Sorell: 37). Many contemporary philosophers, epistemologists and philosophers of science in particular, spend their lives justifying the superiority of reason, or scientific rationality in particular. The result of these distinctions is an overemphasis on forms of knowledge that, according to Sorell, enable human beings to do more, not to feel more. Virtue is associated with the "science-based mechanical arts" as opposed to the fine arts, and science is thus overvalued to the detriment of other parts of learning in the wider culture.

Sorell suggests two ways to overcome this form of scientism. One is to "revalue science and reason downwards", the other is to "revalue upwards other faculties" (Sorell p. 41). Sorell promotes the latter, by emphasizing the importance of creativity and imagination. Sorell is right in wanting to promote a multiplicity of uses of the intellect. The mistake he makes is to assume that reason is exclusive to science and that creativity and imagination are exclusive to the areas of learning which are non-scientific. He is right in not wanting to denigrate "science and reason" but wrong in lumping them together. A better approach would be to show not that reason is overvalued, but that reason is not exclusive to science. Scientists reason, they are creative and they are imaginative. So are artists, secretaries, medical doctors, philosophers, CEO's, child-care workers and poets. Sorell's emphasis on promoting creativity as necessary to human development is an honourable enterprise, but it is a misguided way to overcome scientism--misguided in that it promotes the myth that reason and creativity are mutually exclusive.

Sorell's emphasis is on how scientism manifests itself in philosophy. If he focuses on philosophy in particular, it is because he believes that philosophy has the tools required to overcome scientism, both as it manifests itself in philosophy and in the general culture. The problem with the scientific conception of philosophy is that it undervalues the precise tools which would help to overcome scientism. Philosophy has "the resources...for justifying many different uses of the intellect", (Sorell: 127) but the scientific conception of philosophy concentrates on the justification of scientific

rationality to the exclusion of other ways of thinking, which is the root of scientism in general. Thus, what is required to overcome scientism, according to Sorell, is a metaphysics in which all legitimate intellectual enterprises are valued equally. Such a metaphysical system is to be provided by philosophers, and *that* constitutes the role for philosophers that is ignored or dismissed by the scientific conception of philosophy.

Sorell grants that there are differences between the humanities and the sciences but these differences should be celebrated rather than reduced (Sorell: 116). They should be promoted by the philosopher in such a way as to make scientists more understanding and accepting of the arts and humanities, and those involved in the arts and humanities more understanding and respectful of science. The point is to *mediate* between the two parts of learning, and that task falls on philosophers because "philosophy....is able to show what method the sciences--inaccessible and accessible alike--might have in common, and how their subject matters might be related to one another and to the humanities" (Sorell: 112). Philosophy can act as an "honest broker" "connecting the inaccessible sciences with the common culture" and "revealing distortions in the impressions that sciences and the arts have of one another" (Sorell: 113). The philosopher should ensure that all these pursuits, scientific and artistic, "are seen to provide understanding and all are acknowledged to tax the intellect in different ways" (Sorell: 112).

Such mediation, Sorell suggests, can be achieved through a metaphysical system not unlike Kant's, which justifies all areas of learning.

A framework is needed that enables one to recognize the considerable value of science alongside the considerable value of many other parts of learning. Fortunately, a framework of this kind exists, though not in an entirely satisfactory form. Kant has a theory about the arts, sciences and religion that implies that all are means of developing a moral culture. (Sorell: 1)

Sorell's solution, then, is for philosophers to work on a metaphysical framework which justifies all uses of the intellect, and all disciplines. Once that framework is in place, the philosopher needs to promote it. That will educate people about other disciplines, and will create a respect between people of different disciplines. Since all areas of knowledge are to be valued as "means of developing a moral culture", a metaphysical framework that promotes these areas is required in order to have a moral culture.

We need to go over this slowly. There are differences between the arts and the sciences. That much is clear. These differences need to be justified by the philosopher so that artists can be more respectful of science, and scientists can be more respectful of artists. Is there a problem between scientists and artists? Don't they respect each other? Don't scientists read literature? Do artists really disrespect physicists? It is not at all obvious that there is any problem between scientists and artists in the world. But let us suppose that there is. According to Sorell, it is up to the philosopher to promote a respect for all areas of learning. Why? Because philosophy has the tools to justify, for example, the differences between the arts and the sciences, and it can also show what the sciences

and the arts have in common. Philosophy can provide a theory about all areas of learning and that theory can show that they are all means of developing a moral culture. Now, the question arises: does that mean that the artist and the scientist must read philosophy in order to respect each other? How, exactly, is the philosopher going to "mediate" between the artist and the scientist? Is he going to meet them in person or is he going to write a book about it, that all will have to read? I am not being frivolous. I am curious to know how a philosophical theory would trickle down to the real scientists and artists who apparently show a lack of respect for one another's disciplines. It is a question that needs to be asked of Sorell, because if a philosophical theory is the solution to overcoming scientism, then it would be very important for everyone concerned to find out about the theory.

We are presuming that there is a lack of respect between artists and scientists. We will also presume that a metaphysical framework is found that can justify the differences between them and promote such differences as being worthy of respect. What if everyone involved has been influenced by philosophers such that they do show respect for all areas of learning. How does that help in overcoming scientism? Presumably, science would no longer be overvalued, and other areas of learning would be valued equally. But scientism was not an important problem outside philosophy, according to Sorell. Outside philosophy, there is pseudo-science and anti-science, but not an overvaluation of science. It is in philosophy that we have a "pro-scientific atmosphere". It is *philosophers* that need to see that all areas of learning are important to the

development of a moral culture, not artists and scientists. It is the proponents of the scientific conception of philosophy who need to be convinced of the value of these other disciplines, for they are the ones who overvalue science to the detriment of other parts of learning.

Sorell's "solution" is thus not likely to be of much help. If what scientific philosophers denigrate is metaphysics as a way of doing philosophy, they are not likely to be convinced, as Sorell would have it, that metaphysics is to be valued, for that is precisely what they deny. Sorell's solution assumes what it sets out to show. It assumes that metaphysics is valuable, and it then uses metaphysics, in the form of a metaphysical framework, to show that metaphysics is valuable. How do we convince a philosopher who presumably undervalues metaphysical theories in philosophy that a metaphysical framework is required in order to show that metaphysics is valuable?

Sorell assumes that metaphysics is worth saving, but he never tells us why. He does, indirectly, tell us that metaphysics is required in order to overcome scientism, and that scientism needs to be overcome because it denigrates metaphysics. Is this a vicious circle? Yes and no. It is if scientism is a problem limited to philosophy, because then metaphysics becomes the means to achieve the end, which is to save metaphysics. But it need not be circular if scientism is a problem outside philosophy. If scientism is overvaluing science to the detriment of the arts or humanities, then the metaphysical framework that Sorell promotes would be a means towards the ends of justifying the arts and humanities in general. But as we have seen, Sorell is very confused on this point,

admitting on the one hand that scientism is not an important problem outside philosophy, and on the other, providing a solution which presupposes that scientism *is* important outside philosophy.

The one thing that is very clear in Sorell, is that he believes that metaphysics is worth saving. He believes that metaphysics is important in philosophy, and furthermore, that metaphysical solutions to problems can have important effects outside philosophy. What Sorell never considers is that metaphysics might be the *source* of scientism, rather than its antidote. Those philosophers he accuses of overvaluing science to the detriment of other areas of learning might do so because they engage in metaphysics themselves, despite their claims to be ridding philosophy of metaphysics. Sorell would have done better to show us whether that is the case. Then he might have provided us with a reason to be convinced of the importance of metaphysics.

Chapter Two

Sorell's view is that scientism in philosophy is manifest when the scientific conception of philosophy is overvalued to the detriment of other philosophical approaches. Metaphysical philosophy in particular, in his view, is important and worth promoting. For Hilary Putnam, by contrast, this is totally wrong. The scientific conception of philosophy cannot be set over and against metaphysics, because it *is* a kind of metaphysics. And metaphysics cannot be the solution to the problem, because metaphysics *is* the problem. Metaphysics doesn't need saving; it needs overcoming.

Scientism for Putnam is one particular kind of metaphysics—a materialist metaphysics. And while he criticizes materialism in particular, his most important goal is to show why metaphysics in general needs to be overcome. Putnam thus indirectly (and unwittingly) provides a critique Sorell's conception of, and solution to, scientism. If Putnam is right about the need to overcome metaphysics, then scientism in philosophy as Sorell conceives it, that is, the overvaluation of scientific philosophy *to the detriment of metaphysics*, will no longer seem to be an important problem. And Sorell's solution to the problem, a metaphysical solution, will certainly seem inappropriate.

But what is metaphysics, and why does it need overcoming? What is the relation between metaphysics and scientism? If metaphysics needs overcoming, how can that be achieved? These are the questions I shall be concerned with in this chapter.

1. Scientism and Metaphysics

Putnam alludes to scientism in almost everything he has written in the last twenty years. In the preface to his most recent collection of papers, *Words & Life*, Putnam writes that if there were one single unifying theme to all the papers, "it may well be the attack on a certain set of prejudices—prejudices which pretend to be 'scientific', but which confuse respect for science with uncritical acceptance of a materialist ideology" (*Words and Life*: vi). Metaphysical materialism is the "dominant contemporary form of scientism". Indeed, he even goes so far as to suggest that scientism is "one of the most dangerous contemporary intellectual tendencies". (*Realism and Reason*: 211). When Putnam talks about scientism, he usually means materialism. But materialism is not the only form of scientism. Putnam calls scientific any kind of reductionism, not just one that reduces everything to the physical. For instance, relativism is a form of scientism, because it reduces rationality to what is culturally acceptable. "That rationality is defined by an ideal computer program is a scientific theory inspired by the exact sciences; that it is simply defined by the local cultural norms is a scientific theory inspired by anthropology" (*Reason, Truth and History*: 126)

Before I examine the specifics of Putnam's discussion of metaphysical materialism, it is important, as he says, to "distinguish one's position from other positions" (*Sense, Nonsense and the Senses*: 456). Putnam's general project is to "search for a middle way between reactionary metaphysics and irresponsible relativism" (*Sense, Nonsense and the Senses*: 447). He is particularly concerned with discussing realism, not the metaphysical realism promoted by materialists, but rather what he calls "ordinary realism", "common-sense realism" and more recently, "natural realism" in his writings. Putnam claims that both metaphysical realism and relativism jettison our common-sense notion of reality (as well as those of truth and objectivity). The metaphysical realist attempts to turn our ordinary notion of reality in to an absolute, i.e., it tries to say what reality is for all time, independent of point of view. The relativist reacts to the failure of the former, and declares that one cannot objectively know reality at all—and hence all is relative. Putnam promotes what he calls a return to a "deliberate naiveté" about reality, or a return to "natural realism" (*Words and Life*: 284), a move which he claims is essential if philosophy is to be informative. Putnam's goal is to show both that metaphysical accounts of truth and reality have proved disastrous, and more importantly, that such a failure does not mean there is no such thing as truth and reality. Putnam writes, "If, as I believe, there is a way to do justice to our sense that knowledge claims are responsible to reality without recoiling into metaphysical fantasy, then it is important that we find that way" (*Sense, Nonsense and the Senses*: 446). We do have an ordinary notion of reality, and that notion is built into our linguistic practices.

Putnam's criticism of scientism, for the most part, is a criticism of metaphysics in general. Metaphysics is concerned with questions such as: "What is the nature of reality?" or "What is truth?". Scientism answers such questions with: "What science tells us". Putnam wants to show that such questions cannot be answered in any meaningful way.¹ We shall see why later. Putnam's arguments against scientism tend to be levelled against metaphysics in general, that is, against the mistaken idea that we *can* provide answers to such questions, once and for all.

Putnam's arguments against scientism are offered from two perspectives. The first shows how metaphysics in general tends to elevate language by taking words out of their proper context and universalizing their meanings. When metaphysicians ask "What is truth?", for example, they tend to want an answer that will cover all instances of truth. They assume that truth is one thing such that an answer to the question is possible in the form "Truth is x". Putnam argues that the meaning of words cannot be fixed in such a way. In "On Truth" (*Words & Life*: 315-329), Putnam writes that some philosophers, including Popper and Quine, claim that Alfred Tarski solved the classical problem of truth when he defined a predicate which is coextensive with the predicate "is true". While Putnam does not deny that a properly defined truth predicate is coextensive with "is true", at least in a language where there are no vague sentences, he points to the fact

¹ Until his most recent work Putnam answered this question. Truth was, essentially, a property—a *substantive* property. But in "Sense, Nonsense and the senses, he has since abandoned this position on truth (see p. 500-501, especially footnote no. 34).

that such a predicate "is defined in a way that makes no reference to *speakers* or to *uses of the words*" (*Words & Life*:318). And the *meaning* of a word, comes from the speakers understanding and use of the word. It cannot be found independently of the ways in which the word is used. If we want to know what 'truth' is, then we have to look at how we actually use the word 'truth' in our lives. Moreover, we will see that 'truth' means a variety of things, depending on the context within which it is used. We cannot reduce truth to the form 'truth is x'.

Putnam also argues against scientism from a second perspective. When the metaphysician asks: "What is truth?", "What is objectivity?", "What is reality?", or "What is a fact?", he often seeks to emulate the physicist in answering these questions. He does so by assuming that there is something hidden in the structure of truth that needs to be explored. It is assumed, for example, that all instances of truth share in one underlying structure, a law of sorts, that can be expressed in terms of a formula, or a definition. The metaphysician takes it upon himself to find that underlying structure. He tends to reduce phenomena, or notions of truth, reality, and objectivity, to a law that applies to all cases of truth, objectivity, and so on, just as the laws of gravity apply to all objects. The metaphysician sets out to explain language and meaning the way the physicist sets out to explain natural phenomena.

a) *Metaphysics and language*

The metaphysician, according to Putnam, hijacks language from its contexts and assigns, or seeks to assign, fixed universal meanings to words. "One tends to think that the meaning of a word is a property shared by all the things denoted by the word", but "there is no one property common to all the things to which the word correctly applies" (Sense, Nonsense and the Senses: 449). One of the most important words being elevated by metaphysicians is the word "science". Sorell claimed that scientism involved the overvaluation of science, and the overvaluation of scientific rationality. The metaphysician might ask: "What, exactly, is *science*, such that it is being overvalued?". The metaphysical answer will most likely take the form of "science is *this* or *that*." But according to Putnam, science is no one thing. There is no essential property that all sciences must have, nor need there be any one single scientific method.

In "The Diversity of the Sciences" (*Words & Life*: 463-480), Putnam suggests that any single account of scientific theories will fail to encompass all of the ways in which science actually works. Putnam shows this by focussing on the idea of "a scientific theory". He shows that "scientific theories are of different types" (*Words & Life*: 478). He shows that one single account of a scientific theory will not 'fit' all scientific examples. Positivist accounts 'fit' quantum mechanics relatively well, but not Darwinian evolution, whereas 'inference to the best explanation' accounts of scientific method 'fit' Darwinian evolution but not quantum mechanics.

I have to ask why on earth we should expect the sciences to have more than a family resemblance to one another? They all share a common heritage, in that they owe allegiance to a minimum of empiricism (they "put questions to Nature"; they are conducted in a fallibilistic spirit; and so on); they frequently depend on very careful observation and/or experimentation (...); and they interact strongly with other disciplines recognized to be "sciences." But there is no set of "essential" properties that all the sciences have in common. (*Words & Life*: 471)

Putnam's point is to have us see that any account of how science works will not 'fit' all the ways in which science actually does work. In other words, providing a single account of how science works will not reflect the variety of ways in which science is actually done. This idea is not new. Karl Popper and Friedrich Hayek had both argued against "physicalists" like Neurath, who claimed that the social sciences needed to emulate the method of the natural sciences. Thinking that there is such a single method, and thinking that it can be applied to all sciences is scientistic in two ways. First, it assumes that all phenomena are *natural* phenomena. Hayek in particular argued that things such as institutions, political systems, languages, nations and societies were not fixed "natural units" like neurons and soundwaves, but were intentional systems requiring different scientific methods. Second, and more importantly, is the assumption that what one takes to be the method of the natural sciences is indeed the method used by practicing scientists. Popper writes:

The term 'scientism' meant originally 'the slavish imitation of the method and language of (natural) science', especially by social scientists: it was introduced in this sense by Hayek in his "Scientism and the Study of Society" (...). In *The Poverty of Historicism*, p. 105, I suggested its use as a

name for the aping of what is widely *mistaken* for the method of science; and Hayek now agrees (...) that the methods actually practised by natural scientists are different from 'what most of them told us...and urged the representatives of other disciplines to imitate')". (Popper, *Objective Knowledge*, p. 185)

According to Putnam, metaphysicians are scientistic because they think that questions like "What is science?" or "What is truth?" can be answered. It is a mistake to assume that there is some one universal property that can account for something being a science, or being true. If we look at the variety of things we call science, for example, physics, biology, chemistry, we see that there are different models being used for different purposes, such that no one model covers all instances of scientific explanation. Even if we were to take one kind of science as paradigmatic, e.g., physics, we would find that even within physics there are different models being used.² What we take to be physics might not correspond with the way physics is actually done. This is why Putnam speaks of scientism as involving taking physics as one's metaphysics, i.e., setting up

² The Discovery Network recently aired a documentary on the most recent approach to physics. The fairly recent discovery of the Mandelbrot Set and fractal geometry (an extension of Euclidian geometry which allows for fuzziness) has provided many mathematicians and physicists with the tools to redescribe reality in a different way. Three mathematicians being interviewed for the documentary recently declared that all of reality could now be described in terms of a very simple formula: $Z=z^2+c$. Furthermore, they declared that this formula would change the face of future physics. The point here is that even physics, the paradigmatic science, has different methods and approaches. Thus, even the scientific realist, who might believe that physics is the only way to achieve truly objective knowledge about the nature of reality will have to admit that there are *many* ways of describing, depending on which kind of physics one adopts. What is especially interesting, is that this new physics is already deemed applicable to all other sorts of phenomena. The mathematicians speculated about how the Mandelbrot Set could be applied to such issues as the determinism/freedom debate, Jung's collective unconscious (a collective way of seeing patterns represented in the set), and questioned whether the brain, which has specific faculties for shape and colour, might not have one for fractal geometry. A simple mathematical formula is being called the source of nature. This kind of reduction of phenomena to mathematics is a good example of scientism. "Colours of Infinity" aired on the Discovery Channel on March 24, 1996. It was a production of A New Moon and Gordan Films, 1995.

physics as the ultimate context within which all questions can be answered. And even if what we took to be physics did in fact correspond to the way physics is actually done in a particular context by real physicists, then we have to ask why *that* should be the paradigm, rather than some other way of proceeding in physics or in any other science, and why we should assume that such a paradigm is applicable in other contexts.

b) Physics as Metaphysics

Scientism occurs when physics is taken to be one's metaphysics and regarded as the paradigm for knowledge, objectivity, and truth. Whatever philosophical notions are used to justify physics and its methods, are exported elsewhere to justify other areas of knowledge. Why should physics in particular be chosen as the paradigm of knowledge (assuming we want a paradigm)? The answer that is usually given is that physics is objective, mathematical, progressive, it has universal laws, and the knowledge it provides is as certain as we can get. Physics gets at the underlying causes of things. Although we might *see* the sun rise, we learned long ago in science class that motion is relative. We might explain how a picture fell off the table without appealing to the laws of gravity, but we know those laws were at work, that they were the underlying cause of the picture falling. So physics has the wonderful advantage of providing us with knowledge about the hidden, causal structures underlying all phenomena. This knowledge, according to the scientifically minded philosopher, is genuine knowledge, because it is about that which is truly objective and universal; it is dictated by the facts, rather than beliefs or

needs. Since those underlying structures can also be formalized, it would seem to follow that if we want truth and objectivity in areas of learning outside science, we should look for the hidden underlying structure of phenomena, i.e., we should reduce the phenomena until we arrive at a formalized *law* underlying it. To summarize, scientific thinking takes physics to be fundamental, to be formalizable, to be a model of objective knowledge, and to be the paradigm of philosophy (and other disciplines). Scientific metaphysicians tend to seek the hidden structures of other phenomena, thereby emulating the physicist. They seek the underlying cause, or the underlying law behind *words* and *concepts*. The question "What is truth?" means "What underlying law makes something true?" or "What mechanism underlies all instances of truth?"

Putnam thinks the best example of this sort of scientific metaphysics is contemporary scientific realism. I will therefore briefly summarize scientific realism as Putnam characterizes it, before turning to his criticisms of it.

2. *Metaphysical Realism*

Realism in general, for Putnam, is a philosophical doctrine that assumes two things. First, that "the world consists of a fixed totality of mind-independent objects" (*Realism with a Human Face*: 30), i.e., that objects in the world, rocks and trees, neurons and electrons, exist independently of human minds. Second, it holds that we can have knowledge about those objects in the world and that "there is exactly one true and complete description of the way the world is...[and] truth involves some sort of

correspondence" (*Realism with a Human Face*: 30). Realism, then, holds that knowledge claims are responsible to a mind-independent reality; true statements made about the world correspond to that world.

Realism is a response to other metaphysical doctrines that want to deny that there is any such thing as a mind-independent reality, and to claim, rather, that everything is mind-dependent (idealism). It is also an answer to those other kinds of metaphysics that deny that we can have any kind of objective knowledge since all knowledge claims are relative to historical, linguistic and cultural contexts, knowledge being what we come to believe, given our situation (relativism). In response to metaphysicians who deny that it makes any sense to speak of objects in the world which are totally independent of humans and language, the realist claims that *of course* there are objects in the world, and *of course* those objects are independent of minds. Rocks and trees exist whether or not there are any people on the planet. In response to metaphysicians who believe that all knowledge is relative to one's beliefs and values, the realist claims that *of course* there is such a thing as objective knowledge that is independent of our situation. Water is H₂O regardless of our culture and language and beliefs. Realism thus saves real objects in the world from idealists who might want to deny them, and it saves objective knowledge about those objects from relativists who might deny that we can have anything more than beliefs. So far, we have described what Putnam calls metaphysical realism, or Realism with a capital 'R'.

For Putnam, *scientific* realism is metaphysical realism with one additional premise. True knowledge about those objects in the mind-independent world come to us from science, and only science. While we might describe an object in the world in different ways (think of the various ways in which we can describe water), the truly objective description, the description of the object as it is *in itself*, is the scientific one (in this case, H₂O). Putnam compares the scientific realist to the seducer in an old-fashioned melodrama, who promises the innocent maiden that he will save common sense from the enemy—philosophers (among his examples are Idealists, Kantians, Pragmatists) who want to take it away. But in the end, "the Scientific Realist breaks the news that what the Maiden is going to get *isn't* her ice cubes and tables and chairs. In fact, all there *really* is ... is what 'finished science' will say there is" (*The Many Faces of Realism*: 4). For the scientific realist, then, "finished science" is thought to be the only context within which one can truly describe objects in the world. "What is true?"—what science tells us. "What is objective?"—what science tells us. "What is real?"—what science tells us. Other kinds of knowledge are relative or subjective.

This is a very powerful idea. It implies that non-scientific descriptions of objects are not true, and that they are lacking in certain respects. And this seems to be right. After all, water *can* be described in terms of H₂O, and no one can dispute that description. We might disagree about the particular shade of blue of the water, or about whether the water is too cold to swim in, but we can't say that it isn't composed of H₂O. I shall return to this later.

Scientific realism, as Putnam understands it, is a particular kind of metaphysical realism, which assumes that science is that which provides us with true knowledge about those objects in the mind-independent world. In fact, Putnam believes that scientific realism is the only kind of metaphysical realism with clout today, which is why he tends to use metaphysical realism, scientific realism and Realism as synonyms. Some disagree with this move. In "On Realism, Relativism, and Putnam", Hugo Meynell points out that not all metaphysical realists are scientific realists (Meynell: 341). For Meynell, Putnam mistakenly sees scientism as the only kind of metaphysical realism, and because scientism is wrong, Putnam concludes that metaphysical realism is wrong. (Meynell: 335). If Putnam's arguments were only against scientific realism, then Meynell's objection would be important. However, Putnam's arguments tend to be levelled against metaphysical realism in general. Scientific realism is but one example of such realism. Thus, even if Meynell is right and Putnam mistakenly assumes that the only kind of metaphysical realism with clout today is scientific realism, this simply points to a mistaken generalization on Putnam's part. It does not affect his arguments against Realism in general, and scientific realism as a manifestation of that Realism.

We said that there was something to the idea that the true description of a water, for example, was the scientific one. It is, after all, the one description that no one could dispute and it is universal, i.e., water is not only H₂O in Canada, but everywhere. All others descriptions seem to be subject to perspective, or point of view. Water *is* composed of H₂O, and that is truly an objective description. Putnam does not deny that

science gives us information about the world. All he denies is that the scientific description is "all there *really* is". It is senseless to state that the scientific description of water is more *true*, more *objective* and is somehow more about *real* water than other descriptions. The scientific description is one of many true ones. He makes the point using a description of a room.

we may partly describe the contents of a room by saying that there is a chair in front of a desk, and partly describe the contents of the same room by saying that there are particles and fields of certain kinds present. But to ask which of these descriptions describes the room as it is "independent of perspective", or "in itself", is senseless. *Both* descriptions are descriptions of the room as it really is. In saying this, I am, of course, contesting a metaphysical claim which many philosophers...wish to make about modern science, namely that science, and science alone, describes the world "as it is independent of language". (*Reading Putnam: 243*)

Putnam is pointing to two mistakes made by the scientific realist. The first mistake is to think that the scientific description of phenomena is always applicable. While a scientific description might always be *available*, that does not mean that it is always *applicable*.

Picture yourself trying to sell your kitchen table over the telephone to someone responding to your advertisement in the newspaper. Imagine his reaction when you begin to describe the table in terms of particles and fields. To fix the context in advance, that is, to assume that the scientific context will always be applicable can lead to absurdities.

The second mistake is to think that it makes any sense to speak of the scientific description (or any other kind) as being more *true* or more *objective*, or somehow about an object *in itself*. To speak in this way is to succumb to "the dream of a description of physical reality as it is apart from observers, a description which is objective in the sense

of being 'from no particular point of view'" (*Realism with a Human Face*: 11). According to Putnam, it demands that we achieve an "Archimedean point", that we be able to get out of our skins, so to speak, in order to reach the objective plateau where there are no 'interferences' such as culture, history or language. Putnam calls this the God's Eye View, and says that it is an impossible perspective to achieve (*Realism with a Human Face*: 17). According to this picture, we have a "fixed set of 'language-independent' objects...and a fixed 'relation' between terms and their extensions" (*Realism with a Human Face*: 27). But we are always in a context when we speak about the world, so how are we to make sense of the notion that we can speak about the world from no particular point of view? (*Realism with a Human Face*: 11). The notion that we can somehow see that scientific language maps onto the world better than ordinary language, for example, makes no sense. We cannot ask whether scientific descriptions are more true or more objective than other kinds of description. What we *can* ask, is whether a scientific description is applicable. We can ask, for example, whether or not the scientific description of the table is better or worse than another kind of description in a given context, e.g., selling the table.³

This last paragraph summarizes what is at the heart of Putnam's objection to metaphysical realism and to scientific realism (and therefore to scientism). Putnam sets

³ Even if we were willing to grant that physics is the only way to obtain objective knowledge about reality there would still be the question of *which* physics to employ as the way to truth and objectivity. See previous footnote.

out to show that the notion that we can have an "external" world, that is, a mind-independent reality, about which we can speak and have knowledge (scientific or otherwise) is incoherent; for we cannot describe "physical reality as it is apart from observers, a description which is objective in the sense of being 'from no particular point of view'" (Meynell: 331). The "enterprise of providing a foundation for Being and Knowledge—a successful description of the Furniture of the World or of the Canons of Justification—are enterprises that have disastrously failed" (*Realism with a Human Face*: 19). For the "elements of what we call 'language' or 'mind' penetrate so deeply into what we call 'reality' that the very project of representing ourselves as being 'mappers' of something 'language-independent' is fatally compromised from the very start...Realism is an impossible attempt to view the world from Nowhere" (*Realism with a Human Face*: 28).

Putnam is trying to bring out the scientific thinker's fundamental error. We cannot get beyond our concepts and language when describing objects in the world. Even if our point is to discover what is real, what we count as real will come from within the conceptual picture that we are using. In less philosophical terms, we can ask: Which truly describes the table, the scientific description in terms of space-points, or my description of it as being a solid pine, lightly stained dining room table? As we have seen, that will depend on the context within which we ask the question. The former will be a ridiculous description when trying to sell a table, the latter ridiculous in a laboratory.

Two objections can be made. First, while the scientific description might not be any more true than other descriptions, there is, nonetheless a *real* table being described, and that object is mind-independent. Thus, there *is* sense to be made of a mind-independent reality, and realism is *not* incoherent. The second objection goes in the opposite direction. It consists in agreeing with Putnam that no one description is more true, or gets at the object independent of perspective. All descriptions occur within a perspective, a context, and so all descriptions are relative. Truths about the table are relative. There can be no knowledge about a table, or, if there is "knowledge", it is relative, not objective. Putnam thus provides us with an argument for relativism.

Putnam is fond of saying that when faced with a philosophical dichotomy, such as the one being presented here: either Realism or Relativism, one should show how both sides misrepresent what we actually do. In doing so, however, one should not jettison the ordinary concepts we use in our lives. In other words, from the fact that Realism misrepresents our practices, it does not follow that the ordinary conception of 'reality' is not a good one. Similarly, from the fact that Relativism misrepresents what we do, it does not follow that our ordinary understanding of what it means for something to be relative to something else is not good. Meynell suggests that when presented with the dichotomy, either Realism or Relativism, Putnam sets out to find a middle ground between the two, a project which, according to him, is bound to fail because there is "no consistent stopping-place between a thoroughgoing realism and a full-blown relativism" (Meynell: 331). There may very well indeed not be a stopping place between the two.

But that is not where Putnam aims to stop. Putnam's goal is not to find an alternative to two metaphysical systems. His goal is to show that (1) we don't need either Realism or Relativism because both misrepresent our practices; but that (2) we nonetheless have ordinary notions of reality and relativity which are indispensable to our linguistic practices, and these should not, and cannot, be jettisoned just because metaphysical accounts of them have failed. If Putnam is out to find a "stopping-place", I suggest that it is between relativism, in the ordinary sense, that is, in the sense in which we understand that descriptions are relative to a purpose and a context, and realism, in the ordinary sense, that is, the sense in which we understand that when we talk about trees and stars, *there really are* trees and stars. Putnam wants to show that these notions do play an important role in our lives, and he wants to show this by pointing to our actual practices, rather than accounting for them in a scientific way.

3. *Natural Realism*

Metaphysical realism and relativism set out to account for our ordinary intuitions about reality and relativity. Putnam agrees with the metaphysical realist who claims that there are real objects in the world such as trees and stars, and he agrees that those objects would exist whether or not human beings ever came to be. *Descriptions* of those objects, however, are relative to a conceptual scheme and to a context. There is no sense to privileging one kind of description over another as being more true of the world. Putnam will thus agree with the relativist who says that our descriptions of objects in the world

are relative to a conceptual scheme. Given a conceptual scheme, however, there are true and false claims about those objects, there are better and worse descriptions, and there are objective and subjective perspectives with regard to those claims and those objects. Our claims about the world "reach all the way" to those objects (*Words & Life*: 277). When we speak of objects in the world, we do, in fact, speak about real things.

Putnam, then, is both a realist and a relativist. He is a realist in the ordinary sense. Just because metaphysics has failed to account for reality, that does not mean that we do not have a useful concept of reality in our lives. Putnam is also a relativist in that he holds that what we say, we say in a context. These forms of realism and relativism are, however, extremely innocuous. Putnam does not hold *any* metaphysical 'ism', realism or relativism. The realism and relativism he advocates is the realism and relativism which is interwoven in the linguistic practices of the "common man".

Putnam advocates a return to what he calls "a pre-philosophical naiveté". This involves recapturing the words that have been elevated by metaphysicians, and looking at how they are actually used in our lives. Although words such as 'truth' or 'objectivity' have been assigned various metaphysical meanings by philosophers, this does not mean that those words do not have meaning. Nor does it mean that using the word 'true' is merely paying a compliment to our sentences (as Rorty would have it). Putnam argues against the notion that 'truth' and 'objectivity' lose their meaning when they lose their metaphysical grounding. There is such a thing as truth, and there is such a thing as objectivity, even though there is no single, fixed, universal meaning to any of those

words. Overcoming metaphysics does not require getting rid of ordinary concepts. It means looking to our actual practices, seeing what we in fact do, and seeing what role these concepts play in our lives. The metaphysical urge to absolutize perfectly ordinary words like 'true' and 'reality' create the impression that our ordinary uses of the words are somehow deficient. Putnam believes we need to overcome this idea of absoluteness. We need to stop being held hostage to an incoherent notion of absoluteness that makes what we actually do seem lacking in some way. Metaphysics in general, and scientism in particular, has obscured our view of what we actually do, and perpetuates the mistaken notion that language as we use it, and commonsense as we use it, and the garden-variety objects that we live with are somehow deficient. Putnam writes, "Informative philosophizing has to descend to a more 'local' and less 'global' level" (*Sense, Nonsense and the Senses*: 478). We need to recapture the words the metaphysicians have hijacked, and we need to overcome the idea that if the words were put back in their original homes, they would lack a certain punch that they needed. We need to overcome the narcissism involved in the scientific view that we can have absolute knowledge, and that anything short of that is deficient. If we overcome that, then we will also overcome the scientific notion that science is the way to such absolute knowledge.

4. The Realist Picture

We can begin to see what Putnam means by the "natural realism of the common man" once we make the move to a more 'local' level, that is, once we start talking about

words as they are actually used in our lives. Putnam's position is not to provide us with a metaphysical account of truth or reality, for that would be to misunderstand our actual linguistic practices. Words such as 'true' and 'reality' are used in our lives, but there is no one essential property that all uses have such that an account of that property could be given. What he wants to show is that these 'non-realist' accounts of truth do not take into account the realism that seems to underlie our use of the word 'true'. When I say "I ate cereal for breakfast this morning", that will be true if indeed, I did eat cereal for breakfast. The truth of what I say in this case does not rest solely with my imagination, or my memories, or my warranted or justified belief, but on the facts themselves. It will be true if the event took place *in the world*. True statements about the world *are* about the world. That is what Putnam means by commonsense realism. There is an ordinary realism that underlies our use of the word "true"—our *ordinary* use of the word, not the metaphysical use of the word. When we want to know whether a statement or a description is right or wrong, true or false, we check it against things and events, not against beliefs, and not against what peers might think, as the relativist might say. As Putnam writes, paraphrasing Wittgenstein, our words don't stop short of the facts but reach all the way to them.

5. *Pictures and Metaphysics*

I have characterized Putnam as wanting to show that metaphysical realism (and scientism) and relativism do not reflect our actual practices. But Putnam does not throw

out the baby with the bathwater. Just because these metaphysical schools of thought have failed to account for our ordinary intuitions about reality and relativity, that does not mean that we do not have such intuitions. Putnam is particularly concerned with showing that we do have a "commonsense", non-scientistic intuition about reality, and that intuition is manifest in our use of the word "true". Putnam thus saves the baby.

A question might be raised at this point. Does metaphysical realism fail to account for truth because it doesn't look to our practices, or does it fail because such an account is impossible to provide? In other words, couldn't there be an account of truth that *does* look to our practices? Is metaphysical realism problematic because it attempts to provide an account of truth, or because it fails to do so? Some of Putnam's comments seem to suggest that the problem lies in thinking that an account can be given, and other comments seem to suggest that an account *can* be given, as long as it reflects our practices. We saw how Putnam argued against the notion that we can provide an account of how science works. We can't do it because there are different ways of doing science, and no one account will reflect that variety. Similarly, an account of how truth works will fail to reflect the various ways in which we use the word "true". And yet, Putnam seems to provide us with an account for truth. While his account differs from the metaphysical realist's account by looking to our practices, he nonetheless sees an underlying realism to our linguistic practices. In fact, this is how Putnam saves our ordinary notion of reality from the metaphysical notion; it is by pointing out that we do have an ordinary notion of reality that underlies our linguistic practices. But is that the

case? Is there an underlying realism to our practice of saying true things? When I say "Unicorns have only one horn" or "If the Expos win the World Series I will be ecstatic", am I assuming such a realism? Is there really some one thing, like an underlying realist structure, that these statements have in common? And if there is, then what kind of "realism" underlies them?

I raise these questions to show that it is not clear that Putnam is merely pointing to our practices. He seems to want to justify our practices, or at least account for them. Or still worse, he seems to be trying to use our practices for the purposes of justifying realism. But our practices don't justify anything--they just are. Putnam is fond of claiming that he is not engaging in metaphysics, but is rather pointing to the pictures that underlie our practices. Pictures, he says, are ways of seeing things, and are not the way the world is. In fact, one of the problems with metaphysics is that it confuses a picture for the way the world really is (*Realism with a Human Face*: 40). That might very well be the case. That would mean that the picture of reality Putnam sees as underlying our linguistic practices is just a way of seeing those practices, and not the way the world really is. If that is the case, then how can such a picture be used as a justification for the "natural realism" of the "common man"? How can Putnam save realism by pointing to a realist *picture*, which by all accounts, cannot be confused with the way the world really is? Either a notion of realism does underlie our linguistic practices, or it doesn't. Putnam believes it does, and that is why he is a realist. But if there is an underlying realism to

our linguistic practices, then it is not merely a picture, or a way of looking at those practices. Indeed, Putnam seems to be promoting some form of scientism himself.

Putnam writes, "There are pictures and pictures" (*Words & Life*: 276). He justifies the realist picture by referring to Wittgenstein, who claims that some pictures are at the root of all our thinking. What Putnam seems to be suggesting is that the realist picture *must* be accepted because it is at the root of all our thinking. We are left with no choice but to be realists. It is precisely when we think we have no choice that metaphysics has crept in.

I am suggesting that Putnam's more recent thoughts on realism and truth are sometimes indistinguishable from the metaphysical and scientific versions of truth and reality he criticizes, despite his insistence on the need to overcome metaphysics, and despite the vernacular terms such as "natural" realism or "commonsense" realism". Putnam says that metaphysics is often couched in a critique of metaphysics. He meant it to apply to the Positivists, but it may also be applicable to him.

Concluding Remarks

What does all of this mean for Putnam's critique of scientism? His critique still stands. Scientism can involve an inflated notion of science, of realism, of truth and of objectivity, and it would be up to the critic to show that is the case in particular examples. Putnam is right in referring us back to the way science is actually done, and the way we actually use the words "true" and "objective". If anyone were to claim that something

must be the case, we should be on guard. Unfortunately, the word "must" does not always appear explicitly, and actual cases of scientific thinking tend not to include declarations of what truth or objectivity amounts to. In order to identify whether claims or projects are scientific or not, we need to examine intelligently and critically the evidence for the claims being made, and the practices involved in the projects. We would do better to set aside the question of whether or not there is an underlying picture to our practices and whether or not a picture is being misapplied. What we need to focus on is the value of the claims being made. If we find they are confused, unclear, mistaken or false, then we can investigate why that is the case. It might turn out that there *is* an underlying picture being used, and we might be able to show that such a picture cannot be used in this particular case. That, however, should be a conclusion, not a premise.

Chapter Three

Philosophy has been thought both to have an important role in overcoming scientism and to be at the root of it. Sorell tells us that to overcome the overvaluation of science that creates an imbalance in society, it is to philosophy that we must turn. Philosophy, he says, can provide a metaphysics in which all areas of learning are justified and promoted as necessary to human flourishing. Putnam, on the other hand, suggests that metaphysics is the root of scientism. If science is overvalued, it is because we have mistaken metaphysical notions of what science is and what it can do. Our tendency to think of scientific descriptions as being the only true and objective descriptions of phenomena is in large part due to materialist metaphysics, which confuses a respect for science with materialist ideology. Putnam suggests that to overcome scientism, we need first to overcome the urge to do metaphysics, and abandon materialist metaphysics in particular.

This emphasis on scientism and philosophy might lead one to believe that scientism is only a problem in philosophy. In this chapter I hope to show that that is not the case. Warren Goldfarb and Ian Hacking are two contemporary philosophers who have dealt with the problem of scientism in similar ways. In fact, they both show how scientism can manifest itself even within science. But how can the scientific be scientific? Aren't they mutually exclusive? Weren't we concerned with *distinguishing*

genuine science or appeals to it from scientism? We still are. What Goldfarb and Hacking both point to are concrete examples of scientism presented under the guise of science. They study examples in which it is *claimed* that scientific knowledge has been uncovered, when in fact, it has not. However, they are not merely pointing to examples of error, falsehood, or sloppy applications of method. They are questioning whether there can be scientific knowledge at all about the particular issues in question. Goldfarb pays particular attention to the notion of inner mental states or processes and the idea that they can be responsible for manifestations of understanding and remembering. Although Goldfarb focusses on the understanding in his article, he provides a specific example of a scientific investigation into the mental process which is responsible for 'remembering', and it is this example I will study. Hacking wonders why we take for granted that memory is something about which we can have scientific knowledge. He wonders why it has come to seem inevitable that science should provide us with knowledge about memory and personal identity. He examines the 'scientific' claims being made about the nature of memory in multiple personality disorder. While Goldfarb looks at the presumed link between memory and mental representations, Hacking looks at the presumed causal link between memories of the past and present experiences.

Sorell suggested that the role of the philosopher was to metaphysically justify all areas of knowledge. Putnam suggests that the philosopher needs to overcome his tendency to do metaphysics. If we do not do metaphysics, what are we supposed to do? What is philosophy without metaphysics? Goldfarb and Hacking provide us with

examples of what it is philosophers can do. They can be critical. They can read carefully. They can examine the assumptions and make them clear. These two philosophers share a similar method. It is a very simple method. They ask questions—many questions. I say the method is simple, but I in no way mean to suggest that applying it is easy. The questions they ask are intelligent, and they arise by being very attentive to, and critical of, the claims being made. Hacking and Goldfarb are not expounding their own theory of memory, nor are they suggesting that we need one. To the contrary, they concentrate on the variety of things we might count as a manifestation of remembering in our lives, and they ask us to keep that in mind when we are faced with scientific claims about how memory works.

1. "Mental Tuning Forks" (Goldfarb)

Wittgenstein questions whether intentional mental notions such as understanding or remembering should be thought of as mental states or processes. The picture Wittgenstein attacks is both very powerful and popular. It is that when we remember something there is a corresponding state or process of remembering going on in the brain or in the mind which is somehow responsible for remembering. If I had trouble remembering John's name when I met him on the street, presumably my brain or mind would be in a different state from the state it would be in had I remembered it. The key idea is that for every manifestation of remembering, there is some brain state or a mental state that is responsible for that manifestation.

The definite state of understanding that Wittgenstein wants to deny is meant to be the state that, in and of itself, in some way determines everything that counts as a manifestation of that understanding. (Goldfarb: 114)

To show this, Goldfarb introduces an example of scientific claims about just such a state. Goldfarb is struck by an article that appeared in the *Los Angeles Times*¹ in which it is claimed that people with perfect pitch--the ability to "tell a B from a B-flat about as easily as most people distinguish red from pink"--have "mental tuning forks" in their heads that allows them to identify sounds without having to "fetch some standard from long-term memory to make that judgement" (*LA Times*). Those without perfect pitch (99% of the population), it is claimed, have to reach into "long-term memory to compare what they heard to some remembered standard". This *LA Times* piece was based on a research paper that appeared in the journal *Science*. We have to read carefully through the actual article that appeared in *Science*, to see what is being claimed.

a) *Absolute Pitch*

The following is quoted directly from the *Science* article.

"People with Absolute Pitch Process Tones Without Producing a P300

Abstract. The P300 is a positive-going component of the event-related potential. In subjects with absolute, or "perfect," pitch, the P300 elicited by the less frequent of two auditory probes is small or absent. In these subjects, visual probes elicit a normal P300. These results support the view of P300 as a manifestation of the updating of working memory.

¹ "Mental Tuning Forks Noted in Perfect Pitch", *Los Angeles Times*, March 25, 1985.

Some individuals can name the tones produced by a large variety of musical instruments. People with this "perfect" or "absolute" pitch (AP) are able to label correctly upward of 50 different pitches (1), although they do not have superior auditory discrimination skills (1). The weight of the evidence suggests that individuals with AP have access to a set of internal "standards" that allows them to fetch the name of a tone without comparing the representation of the tone they have just heard with a recently fetched representation of a standard (2). If so, those with AP may not need to maintain, or update, in their working memory the representations of infrequently occurring events.

(...)

It is plausible to interpret these data as providing additional support for the hypothesis that the P300 is a manifestation of processing activities that are involved in the maintenance of representations of external events over relatively brief time periods. The collection of such representations is referred to as "working memory". Several accounts of the AP phenomenon suggest that subjects with this skill have access to permanently resident representations of the tones, so that they do not need, as the rest of us do, to fetch and compare representations for novel stimuli (11). Our data are consistent with the interpretation that the P300 is a manifestation of such comparison".²

The basic assumption is that we have a mental state or process of recognition going on in the brain that determines the manifestation of recognition, i.e., I remember because my brain is in a specific state or undergoing a specific process. For those of us who do not have perfect pitch, the process of recognizing and identifying a sound involves the following: we hear a sound, and to identify that sound, we go into our memory (where representations of past sounds are stored), and fetch representations of

² Mark Klein, Michael G. H. Coles, Emanuel Donchin, "People with Absolute Pitch Process Tones without Producing a P300", *Science* 223 (March 23, 1984): 1306-09.

old sounds and compare them with the new one. The P300 brainwave is somehow correlated with fetching and comparing representations in "working memory". Those who have perfect pitch can identify a sound without the P300 being present, so it looks as though they do not have to fetch and compare the sound they hear with representations of previous sounds. So how can they recognize and identify the sound they hear? They have access to "permanently resident representations of tones", a "set of internal 'standards'", or "mental tuning forks".

It looks as though the P300 is somehow responsible for the fetching and comparing. But surely even with a mental tuning fork, one has to fetch and compare? Otherwise, how does one know which fork to pick? Maybe it is just being claimed that the P300 is present when fetching and comparing the new sound with old sounds in *memory*. If that is the case, then those with perfect pitch can still fetch and compare, but they would be comparing the new sound with the forks, rather than with old sounds in memory. The researchers, however, are not too clear on this issue. They write that those with perfect pitch "do not need, as the rest of us do, to *fetch* and *compare* representations for novel stimuli" because they have "access to a set of internal 'standards'". Those 'standards', however, allow them "to *fetch* the name of a tone without comparing the representation of the tone they have just heard with a recently fetched representation of a standard" (223). They can fetch the right tone, and although they don't have to compare it with a representation in memory, don't they still have to compare it with their internal standard? If the P300 is somehow responsible for fetching and comparing between a new

sound and old sounds in memory, what does the fetching and comparing between the new sound and the "internal standard"? They seem to suggest that the internal standard is what *replaces* the P300 in those who have perfect pitch (since the only evidence for postulating such a standard is the *absence* of the P300). But how can a standard *fetch and compare*? A standard is that with which something fetched *is* compared--not something that *does* the fetching and comparing.

b) *Representing and Representation*

In trying to figure out how all of the fetching and comparing works, we might have overlooked an even more confusing element in the example--that which is *being* fetched and compared. It is not sounds that are being fetched and compared, but *representations* of sounds. Both those with and without perfect pitch have this much in common: sounds cause mental representations, and the ability to represent and store sounds accounts for the ability to recognize them. The subjects were asked to identify a sound. Do they identify the sound, or the mental representation of the sound? Do they compare the sound, or the representation of the sound, with the representations of sounds either in memory or in the "standard"? When someone does not successfully identify the sound, is it because the P300 fetched the wrong representation in memory, or is it because the P300 failed in the act of comparing the two representations, or did the sound cause the wrong representation in the first place? When they do identify the sound correctly, is it the sound they are identifying, or the representation of the sound that it caused?

For those who do not have perfect pitch, the P300 compares the *representation* of the new sound with other *representations* of sounds stored in memory. Of course, the P300 has to somehow keep the new representation separate from the rest—otherwise it will not know what it is supposed to be comparing. In other words, the new representation has to be held up against every other representation, so that the comparison can go on, just as we might keep a sample of tissue in our hand when comparing it to other pieces of tissue on a table. We have to assume that the P300 can keep the new and old representations separate to achieve comparisons. We are told that the old representations are in "working memory", so that might be the way the new and old are kept separate. How does the P300 know where representations of sounds are kept? It has to know not to pick old representations of sights, after all. When it does find them, how does the P300 know what to compare *for*? If we were asked to compare five apples, we need to ask: compare them for what? size? colour? Maybe the P300 compares exclusively for pitch or tone, rather than amplitude. Is there another brainwave to compare amplitude? How does the actual comparison take place? Does the P300 compare the new representation with *every single old representation*? Does it stop when it gets the right one? How does it know that it gets the right one? Does it go through each one eliminating those representations that do not even come close, to keep only a select few that do come close, and then go through the comparison with these ones until

it gets it right? But the most crucial question of all: when it does manage to pick the right representation from memory, how does that cause the manifestation of recognition? Does the P300 somehow contact the area of the brain responsible for the words "B flat"?

c) *Science or Scientism?*

A similar battery of questions can be asked of the process involving the internal standard. What do all of these questions point to? They point to the fact that in the end, we are not being provided with much information. In fact, nothing is being said. And yet, this is masquerading as *science*. This is a clear example of scientific thinking—of a presumption of scientificity without the scientific evidence or clarity of thought required of a true scientific claim. What is being presented under the guise of science is nothing more than a powerful picture of how the identification of sounds *must* work; it *must* involve a mental process. That is not science, but scientism.

The original idea was that there is a mental state or process which *determines* the manifestation of recognition. However, that mental process *assumes* the manifestation it sets out to explain. The P300 compares representations, it recognizes the right one, and fetches it. But that amounts to a *manifestation* of recognition. So the process responsible for the manifestation presupposes the manifestation. Let's look at an example to make this clear. A song is playing on the radio, which seems familiar. I concentrate on it for just a few seconds, and then I recognize it as the first song I ever danced to. The explanation for my recognizing the song *as the first one I danced to* presumably will go

something like this: a representation of what I was hearing (a representation for each sound? for each lyric?) was formed (by some other process) and some process in my brain, including the P300 brainwave, fetched a memory of my first dance, which includes the memory of the song, and compared it with the new representation. It was the same, so I recognized the song as the one I first danced to. Instead of just saying that I recognized the song, the explanation is that my brain somehow recognized the right memory that goes with the song. The process of recognition was not *explained*, it was rephrased in terms of internal processes. Recognition was not explained, because we are no closer to knowing how my brain recognized *that* memory as the one that goes with the song. How could we explain that the right memory was fetched by a physical process without invoking some kind of recognition of that memory as being the right one? And even if there was some kind of explanation without appealing to recognition, how would we know that *that* particular process *is the recognition*? It is difficult to imagine how anything like this could amount to empirical science.

If we were to eliminate all talk about the brainwave *comparing* and *fetching* and *recognizing*, what are we left with? Precious little. "If you eliminate all the mental notions, what are you left with by way of the data? What you have left to do the science on is very little indeed" (118). In other words, there is very little, if any, scientific data to support the view that there is a mental process of recognition responsible for the manifestation of recognition. Yet, if we don't eliminate the mental notions, then we are presupposing what we claim to be discovering.

There is a difference between people who have perfect pitch and those who do not. But should we assume that there need be a corresponding difference in the brains of those who do and those who do not? Russell once expressed the opinion that there must be a difference in the brain of someone who knows French and someone who does not. When asked what he thought of Russell's opinion, Wittgenstein replied the following:

There was an idea that Newtonian mechanics **MUST** explain everything; and that it must be founded on principles that, so to say, would be sensible laws for a Creator to make (Laws of Minimum This, or Conservation of That). Why this idea? 'Because everything pointed to it.' Everything? No, only everything that they concentrated on. So it isn't (as Lord Russell might say) that *everything* points to the existence of a trace of French in the brain; only everything of the things that fill his mental vision." (*Wittgenstein's Lectures on Philosophical Psychology*, 1946-1947, p. 101, as quoted in Bouveresse: 88)

I raise this because one of the authors of the research study on perfect pitch was surprised to learn that philosophers questioned whether or not memory could be an object of scientific knowledge, i.e., that it could be explained scientifically in terms of physical processes. Prof. Emanuel Donchin writes:

Memory, it would seem to me, is almost by definition a change in the organism which allows traces of the past to affect current, and future, behavior. One can study memory as a biological topic, seeking to elucidate the nature of the physical changes in the brain, and in its organization, by which the representations of the past are encoded, stored and retrieved. One can focus, as a cognitive psychologist, on the functional characteristics of the memory by examining retrieval as a function of the nature of the events encoded, and the circumstances during the creation, and maintenance, of the "engrams". [private correspondence]

One first defines memory in terms of physical representations, and remembering or

recognizing in terms of organic/biological processes, and then claims to *discover* such processes. But as Goldfarb pointed out, there is no scientific data to support such a discovery. What there is, is the guiding notion that there must be such a process, and once one believes that, then what little scientific evidence there is will be thought to support the picture one set out to prove.

One might be convinced that the claims being made in this particular study of perfect pitch are scientific because they can't be thought through with any clarity. But one might nonetheless object that it does not follow that the *project* of looking for such states is wrong. One might argue that it isn't an example of scientism, but just bad or primitive science. To say this, one has to ignore the import of the questions being raised of the example. What is at issue is not whether this or that particular scientific project is good or bad, but whether there can be science at all, i.e., whether any such project amounts to scientism. We have to ask ourselves whether it makes any sense to say that there is an internal process responsible for recognition, for example. If we think there are such processes, we have to ask ourselves *why* we think that, and based on what *evidence*. In the perfect pitch example, the evidence to support the hypothesis that the P300 is the brainwave responsible for maintaining and updating "working memory" is that there is a *lack* of P300 activity in those with perfect pitch. In other words, the P300 is responsible for identifying sounds in those who have P300 activity, and it isn't in those who don't. But since there *must* be some process responsible for identifying sounds, those who lack P300 activity *must* have some other process to account for it, hence the "internal

standards". The "evidence" might lead one to believe that the P300 *cannot* be responsible for updating memory because some people lack it. But the assumption is that the P300 *must* be responsible for updating memory; and those who lack it *must not* update memory--they *must* use a different process.

Putnam pointed out that the scientific thinker has physics as his paradigm of knowledge, and confuses a respect for science with materialist ideology. Goldfarb concurs.

One has to undermine a picture of the mental apparatus at the start, and emphasize the intricacy, connectedness, and nonuniformity of our practices of ascription, so as to make clear how different this is from the case of mechanisms in the physical world. The scientific objector always has examples from the physical sciences in mind. We discovered the internal constitution of ammonia, after all; what we discovered was not an "accompaniment" of ammonia, whatever that would mean. To this we ought respond: understanding is not like ammonia. Wittgenstein's investigations are meant to bring us to see how different the cases are. The surroundings that make "What is ammonia" a question, the same question as "What is the structure of ammonia" are absent for "What is the understanding of 'table'," or worse yet, "What is the structure of the understanding of 'table'". Wittgenstein's aim is to get us to reflect on differences that make the latter question so peculiar. (121)

At this point, the scientific objector has one more card to play. If it is true that we cannot reduce manifestations of behaviour to physical descriptions of brain states, that does not preclude another science, such as psychology, from making progress in explaining such "hidden" states. There are, after all, plenty of such "hidden" states in psychology, including subconscious and repressed memories. Ian Hacking looks at what

psychology says about the "hidden" structure of memory, and his criticisms of that particular way to "scientize memory" are similar to Goldfarb's criticisms. It is to that case that we now turn.

2. The Scientized Soul (Hacking)

Goldfarb criticized a scientific approach to identifying a hidden structure, an underlying mental process or mental state, which would be responsible for manifestations of remembering. Hacking criticizes the scientific approach to identifying a hidden structure of memory in the mind which is thought to be responsible for certain types of behaviour and personality disorders. Hacking investigates what it means to say that a psychological disorder is caused by memory. He also looks at what it means to say that memory is the key to intervention in such disorders. What conception of memory is required in order for it to do that kind of work, and in order for it to be considered an object of scientific knowledge?

Hacking's *Rewriting the Soul* presents the history of multiple personality disorder, paying particular attention to what kind of conditions need to be in place so that today's mental health experts can diagnose such a disorder. Hacking asks pointed questions about the diagnosis, the cause and the treatment of the disorder. Hacking's point is not to take a stand as to whether or not multiple personality disorder is a real disorder, or whether people so afflicted actually do manifest several personalities, or whether the treatment works. His main purpose is to show that the diagnosis of this disorder can only

arise when sciences of memory are in place. In other words, such a diagnosis can only be made when memory is thought to be an object of scientific knowledge. It might seem odd to question whether or not memory can be an object of scientific knowledge. Surely there *are* scientific experiments conducted on people's ability to recall, for example. What, then, does Hacking mean? 'Memory' can mean many things. It can refer to the ability to recall, like when we say of someone that he has a great memory for peoples' names. But memory can also mean something more akin to what we traditionally call the soul.

We might refer to this kind of memory when we speak of memory as being essential to our characters, our identities, our personalities. Chateaubriand reflected on the importance of memory in our lives.

What should we be without memory? We should forget our friendships, our loves, our pleasures, our work; the genius would be unable to collect his thoughts; the most ardent lover would lose his tenderness if he could remember nothing. Our existence would be reduced to the successive moments of a perpetually fading present; there would no longer be any past. Poor creatures that we are, our life is so vain that it is nothing but a reflection of our memory. (Chateaubriand, *Mémoires d'Outre-Tombe*, chapter 3 quoted in *Memory*, Mary Warnock: 97)

Memory as seen in this light is not the sort of thing that laboratories can test. The ability to recall, however, is something that is measurable, and it is something to which statistics can be applied. The kind of memory that science purports to investigate is often confused with the kind of memory Chateaubriand describes, such that what is being investigated is often considered to be essential to matters of personality and identity. When so-called personality disorders are thought to be caused by repressed memory, and when the

treatment for such disorders is thought to involve recapturing such memories, it often seems as though they are referring to the kind of memory Chateaubriand speaks of. But what kind of science investigates that? And how is it that such things as personality and character came to be thought of in terms of a science of memory?

a) *The Sciences of Memory*

There are numerous sciences which investigate memory. Hacking lists five: (1) neurological studies of the location of different types of memory; (2) experimental studies of recall; (3) psychodynamics of memory; all of which began in the nineteenth century; (4) studies in cell biology, and (5) computer modelling of memory, which are more contemporary. (199) So when Hacking asks whether memory can be the object of scientific knowledge, the answer seems obvious: yes. In fact, we have *five* sciences of memory.

But let us be reminded here of Goldfarb's point. The study of the P300 brainwave was an example of scientific research into the mechanism responsible for updating and maintaining memory. In fact, it fits perfectly in the second kind of science of memory listed by Hacking--experimental studies of recall. However, if Goldfarb is right, it is scientific; there is very little science being done in the example. According to Goldfarb, that is no accident. The notion of mental states or processes corresponding to manifestations of behaviour is confused, as we have seen. How, then, could we know what to count as evidence for such mental states? Putnam might say that the example

looked at by Goldfarb was on of scientism; that it involved much more metaphysics than science. He might say that the researchers had a metaphysical view of what recognition *must be*--a material process--and that it should hardly be surprising that such researchers would look for and find a brainwave responsible it.

Hacking makes a similar point as that made by Goldfarb, about the third kind of science of memory, the psychodynamics of memory, by which he means "the study of memory in terms of observed or conjectured psychological processes and forces" (199). Hacking chooses to focus on one particular example of a psychological disorder in which these "psychological process and forces" are manifest. Hacking studies the relatively recent phenomenon of *multiple personality disorder*. He examines closely its diagnosis and its treatment, and suggests that both are scientistic in that they rest on a questionable notion of a 'scientized memory'.

I cannot address all of the interesting points Hacking raises in his book, so I limit myself to two, both of which deal with the etiology of the disorder. My first point will be to highlight the scientism involved in what is being called the *cause* of multiple personality disorder. As with Goldfarb's example, we will see that there is no scientific evidence to support the claim that multiplicity is a coping mechanism brought about a traumatic event, whereby memories of that event are repressed.

i) Cause

Science tends to speak of causes and interventions. A cause for multiplicity was discovered (quite recently), and once the cause was established, so too were the methods

of intervention. The current theory says that multiple personalities are caused by psychological trauma due to child abuse, that in turn creates a loss of memory. The multiple is created to cope with the trauma. This is presented not only as fact, but as very certain fact. In 1989, Richard Loewenstein, then president of the International Society for the Study of Multiple Personality and Dissociation, stated: "Never in the history of psychiatry have we ever come to know so well the specific etiology of a major illness, its natural course, its treatment" (Hacking: 81). What exactly is it that is known so well? Is this a scientific or a scientific claim?

It is thought that when the adult diagnosed as being multiple was a child, she created multiples as a coping mechanism to deal with psychological trauma. What is essential to this theory is that the coping mechanism of the child is the cause of multiplicity in adulthood. Frank Putnam, the author of *Diagnosis and Treatment of Multiple Personality Disorder* (1989), considered to be the best book in the field, offers "a developmental *model* of multiple personality" (Hacking: 87, my emphasis) which could explain how such splitting occurs in children. The model offers a plausible story about multiplicity, but unfortunately, there is no scientific evidence to support it. Putnam says that "the evidence suggests that we are all born with the potential for multiple personalities and over the course of normal development we more or less succeed in consolidating an integrated sense of self" (Hacking: 87), but as Hacking points out, what is being counted as scientific evidence is nothing more than a story of childhood development. Is this a case an example of scientism, or of hasty generalization? It is

scientific if we can't tell what could count as evidence for or against the claim. Although Putnam hasn't provided us with evidence, that doesn't mean that there isn't any. We need to investigate further.

Frank Putnam's story of childhood development is, nonetheless, attractive, despite the lack of evidence to support it. What does it mean to say we are all born with the *potential* for becoming multiples? According to Putnam, children (1) have the ability to "consolidate self and identity"; (2) they have a normal "propensity...to enter into a...dissociative state"; and (3) they have the ability to fantasize. A child who suffers a traumatic experience might fail at (1), and become pathological at (2) and (3). In other words, the child might enter into a dissociative state and fantasize in order to escape the trauma. This may be the only way the child can deal with the trauma. "It becomes maladaptive, however, in an adult world that stresses continuity of memory, behaviour, and sense of self" (Frank Putnam as quoted by Hacking: 88).³

Hacking suggests that this explanation is scientific, because no scientific evidence for his model is available. Hacking points to three possibilities that might have counted as evidence, but even these are scientific. First, child abuse and childhood trauma might have "specific psychiatric sequelae in adulthood" (Hacking: 89). Unfortunately, "there is very little agreed stable and specific knowledge about such effects" (Hacking: chapter

³ Hacking points out how Putnam's "hedges" his discussion with qualifiers such as "it is easy to speculate", "one can easily conceive of" and "one can postulate", all of which were omitted in a book published the next year by other psychologists who refer to Putnam. Hacking writes: "Within one year speculation and postulation had come to be cited as fact" (p. 88)

four). Second, clinical evidence might come to bear on the model. Putnam writes that the connection between the child and the adult multiple "is obvious to any clinician who has worked with several cases". But "connection" does not mean causation. Furthermore, Hacking points out that when the patients come to describe their dissociation in ways that conform to the picture the therapist has of the disorder, "there is reason to worry that the process of therapy and healing concretizes a story into fact" (Hacking: 90). A third type of evidence would consist in studying multiplicity as it occurs in children. According to Putnam's model, it would be much easier to treat childhood multiples, for they would not be as concretized as adult multiples. The problem is that there is no such disorder, according the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV), authorized by the American Psychiatric Association. There was a campaign to include it in the 1994 version, but it was not accepted, although there is a reference acknowledging the possibility of such a disorder. (Hacking: 90) Of course, just because it has not made the book, does not mean it is not a disorder. The search is on for child multiples. Some studies have been done, and unfortunately, even if there are child multiples, they cannot be used as evidence to support Putnam's model.

Hacking looks at two studies that concentrate on children. Jane, aged nine, would not eat and was very aggressive. When asked by her therapist whether she had been abused, she replied no, but she "played knowingly with anatomically correct dolls and came to speak of a Bad Sister who did bad things" (Hacking: 91). The therapist told Jane a story about a girl who had developed another personality, and the next day Jane

identified with this, and then her behaviour changed for the better. In the second example, the therapists did the opposite. "Sally Brown" exhibited switching and other dissociative behaviour, and had been often diagnosed with multiple personality disorder, but could not be treated. She was sent to other therapists, who hold that "the usual process of confirming a diagnosis of child multiple personality strongly reinforces dissociation" (Hacking: 91). They discouraged it, and she quickly lost the ability to dissociate.

What do these examples show? They might support Putnam's model by showing that child multiplicity is the same disorder, but is more easily treated because it has not had time to become pathological, the way it would in an adult. Or, they might point to the fact that child multiplicity is not at all the same thing as adult multiplicity. If that is the case, then the "specific etiology" of the disorder, as being caused by "splitting in childhood as a coping response" (Hacking: 93) is undermined. The main point is that in either case, we cannot look to child multiplicity as counting as evidence that childhood trauma causes adult multiplicity. The three examples of what could count as evidence to support Putnam's model have all failed to do so. But we might object here that we do not require evidence for a model--a model is a way of seeing, it does not purport to be scientific fact. That is true. But Loewenstein's claim bears repeating. "Never in the history of psychiatry have we ever come to *know* so well the specific etiology of a major illness, its natural course, its treatment" (my emphasis). No etiology of the illness was found at all. Is this is a clear case of scientism? Obviously the claims are masquerading

as science, but without any evidence whatsoever to support them. But as we have seen, if we know what could possibly count as evidence, even though such evidence has not been found, then such claims can only be called premature, or hasty, but not necessarily scientific. However, when we focus on what it means to say that multiplicity is *caused* by memories of the past, then we come to see that there be scientism involved after all.

Hacking writes,

I suggest that we have not found any ordinary etiology of this illness. We should not think of multiplicity as being strictly caused by child abuse. It is rather that the multiple finds or sees the cause of her condition in what she comes to remember about her childhood, and is thereby helped. This is passed off as a specific etiology, but what is happening is more extraordinary than that. It is a way of explaining oneself, not by *recovering* the past, but by *redescribing* it, *rethinking* it, *refeeling* it. (Hacking: 94, my emphasis).

Hacking says that "there is a tendency (a) to define the concept "MPD"...in terms of early childhood trauma, and (b) to state, as if it were a discovery, that multiple personality is caused by childhood trauma" (Hacking: 82). This is the same kind of scientism we found in Goldfarb's example. One first defined memory as being a physical process in the brain, and then claimed to have "discovered" that physical process. The scientism involved consists in confusing the story we tell about how memory works, or about how understanding manifests itself, with a scientific discovery.

ii) Treatment

The claims being made about the treatment of multiple personality disorder are as scientific as those being made about its cause. The therapy involves *recovering* those

memories with the help of the one who has diagnosed the disorder. The multiple is being guided to recover specific memories, because the diagnosis *requires* that the multiple have such memories. In other words, the diagnosis is not made because the multiple has memories of child abuse; rather, those memories are what she is diagnosed as having, such that once the diagnosis is made, then the therapist must bring the patient to "recover" those memories. What happens, then, is that the therapist will guide the multiple in recovering these memories, knowing what to look for. I am not suggesting that the multiple does not have memories of child abuse. Rather, I am suggesting that those memories will be redescribed in terms offered by the therapist in a scientific fashion-- that is, in terms of being the cause of the multiple's present condition.

The events as described, which the multiple in therapy comes to feel as the cause of her illness, did not produce her present state. Instead, redescriptions of the past are caused by the present. Nevertheless, the patient feels that events as newly described *do* produce her present state. (Hacking: 94)

The assumption made by those who believe that we can recover memories is that "either certain events occurred, and were experienced, or they did not and were not. The past itself is determinate" (Hacking: 246). A true memory is about something that really happened, and a false one is made up. "The objects to be remembered are definite and determinate, a reality prior to memory". Surely Hacking does not question this assumption? After all, I *do* have real memories of real events all the time. Just this morning I forgot where I had put my copy of *Rewriting the Soul*, and then I remembered

that I had left it out on the balcony. It was *true*, because it *was* on the balcony. Of course the past is determinate in this sense. That was the very idea that Hilary Putnam wanted to save from metaphysical realism and metaphysical relativism. Our claims are responsible to reality and so are our memories; they do not stop short of it. However, Hacking does not deny that most of our memories are accurate, and he certainly would not be shocked by the fact that I was able to recall where I had left my book. What he is concerned with, however, is to show that the past might not be as determinate as we think. Sometimes our present situation influences how we remember events in the past. We might redescribe past events once we have acquired new ways of thinking and new concepts.

Hacking uses as an example the phenomenon of child abuse. Child abuse is a modern concept. Although children have probably always been mistreated in some form or another, nothing in history compares to today's concept of "child abuse". Take for instance the notion that sexual contact of any form with someone less than sixteen (or fourteen or whatever the age is set at) is now considered to be child abuse. Now let's go back in history. Hacking goes back to year 1802, when Alexander Mackenzie, the first European to navigate the Mackenzie River, then aged forty-eight, married a fourteen-year-old girl. Mackenzie has recently been accused of being a child abuser *and* a child molester.⁴ But Mackenzie did not break any law, nor did he do anything that was out of the ordinary for 1802. Can we retroactively apply the new concept of child abuse to his

⁴ Joan Barfoot reviewing *Caesars of the Wilderness* by Peter Newman, *New York Times Book Review*, 20 December 1987, 9, as appears in Hacking, p. 242.

actions? Hacking's point is not to decide such questions. It is to raise the issue of the indeterminacy of the past.

We do not reproduce in memory a sequence of events that we have experienced. Instead we rearrange and modify elements that we remember into something that makes sense, or, sometimes, that has just enough structure to be puzzling or even incoherent.... We touch up, supplement, delete, combine, interpret, shade. (Hacking: 247).

We still have a notion of the past as being fixed to a certain extent, at least of being something capable of being recorded by a camcorder in the sky. Mackenzie did, after all, marry the girl—that is not in question. The question is a matter of apt description for the action. Was he just having marital sexual relations with a spouse or was he sexually molesting a child? The latter description can only come about once the modern notion of child abuse has been created. *That* is Hacking's point. A multiple can only describe herself as a multiple when helped along by therapists who believe there is such a thing as being a multiple; when there is a specific etiology to being a multiple. But as we have seen, there is very little scientific evidence to support the proposed etiology. The so-called scientific claims about having discovered how memory works and how it can be described are scientific.

When we remember what we did, or what other people did, we may also rethink, redescribe, and refeel the past. These redescriptions may be perfectly true of the past; that is, they are truths that we now assert about the past. And yet, paradoxically, they may not have been true in the past, that is, not truths about intentional actions that made sense when the actions were performed. That is why I say that the past is revised retroactively. I do not mean only that we change our opinions about what was done, but that in a certain logical sense what was done itself is modified. (Hacking: 250).

There are a variety of ways in which we come to redescribe the past. How can we have a "science" of something that is so nonuniform? Some memories come alive when we have a story to tell about them, but others come to us in a "flash", like a scene. Sometimes we describe and redescribe the past through memories, and other times we just "see" the past in a memory flash. There are a variety of ways of remembering. Hacking thinks it might be useful to think about remembering as being akin to thinking, or storytelling (Hacking: 250). We think about the past in different ways, and we remember it in different ways. Nonetheless, "one becomes good at recalling the critical part of one's past when one acquires the skill to cast it into a coherent narrative." (Hacking: 256). Hacking is not espousing the theory that everything is narrative (Hacking: 251). What he is suggesting is that it is scientistic to claim that there is one way to remember the past, and that science can tell us what that way is.

Hacking writes that "there is no canonical way to think about the past". In our daily, normal lives, we constantly redescribe the past according to the present. The present gives the past context. This is not meant as a theory of how we remember; it is simply to state the way in which we talk about the past. But the point with the sciences of memory is that they want to find the cause, in terms of psychological states, of our present condition *in* those memories, rather than look at how the present affects those memories. Hacking wants to deny the scientistic picture of memories as being static, as being recorded by a giant camcorder in the sky, as being *facts* which can then *cause*

behaviour, or psychological pain. Just as Hilary Putnam had written that it is scientific to think that we could have "One True Scientific Description" of a table, so it is scientific to think that we can have "One True Scientific Description" of remembering. But that is something the multiple's therapist might want to say. She might want to say that she knows for certain that the multiple is repressing a memory which is the cause of her disorder. The multiple will have to come to agree, if she is to be treated.

As soon as the experimenter manages to persuade the subject to share his "axiomatic" conviction that an explanation is necessary and that it can only be this one, there is no great difficulty in getting him to accept even the least plausible and most extravagant interpretations. (Bouveresse: 102)

Hacking's point is to emphasize that while we may all indeed frame the past from within the present, the scientific therapist will claim to have *discovered* the correct description of behaviour or motives, as though it were hidden in the mind somewhere waiting to be found. The therapist claims to have found the *cause* of the present in the past.

Wittgenstein writes that "If you are led by psycho-analysis to say that really you thought so and so, or that really your motive was so and so, this is not a matter of discovery, but of persuasion. In a different way you could have been persuaded of something different." (Wittgenstein, Lectures & Conversations: 24). Persuasion is not science; persuasion masquerading as science is scientism.

The psychoanalyst claims to be doing *science*. He claims to be discovering, not persuading. "[T]he mistake of psychoanalysis is essentially to believe that it is [a science]. Its mistake is not necessarily to use persuasion the way it does, but rather to

refuse to recognize that this is essentially what it is doing and to underestimate the considerable dangers this use involves." (Bouveresse: 125)

Hacking raises important questions about memory, questions which suggest that the scientific claims about memory he has looked at are in fact scientific. Like Goldfarb, Hacking has taken one example (from psychology) and has shown it to be seriously lacking in scientific data, despite the many claims of scientificity by the "experts" in the field. Not only does Hacking's investigation point to the lack of scientific data, as did Goldfarb's example, but he raises the question as to whether there *can* be scientific data at all. His questions about what it means to say that we remember the past raises issues about the indeterminacy of the past and the variety of ways in which we do, in fact, remember. We are left to wonder what could possibly constitute the discovery of a specific etiology of a psychological memory disorder. It is in this sense that the example is scientific. It is assumed that the psychodynamics of memory can provide scientific knowledge about memory, and that such knowledge can inform us about what it means to have an integrated personality. This assumption might arise from the fact that other kinds of sciences of memory, for example those that study one's ability to recall information, are in place. But there are different ways to conceive of memory. As we have seen, some conceive of memory as being brain states and processes, which presumably can be tested, observed, and measured. But the psychodynamics of memory don't seem to use this conception of memory. Rather, it claims to talk about memory in the way in which we might talk about memory as being essential to one's character and one's personality. It

has not been shown that *that* conception of memory is open to scientific investigation. It has not been shown that what it is, exactly, that science would be testing and measuring, in this case. Goldfarb questions the notion that a mental process can be responsible for the manifestation of recalling. A scientific study which claims to provide information about such a mental process will be certainly be of interest. But as we have seen, once we read the study very carefully, we find that no information is actually being provided. Hacking's example is similar. He wonders what it means to say that memories can be the cause of a personality disorder, and that recovering such memories (as opposed to simply remembering them or redescribing them) could be its treatment. His interest is piqued when scientific claims are being made about issues of remembering and forgetting. He chooses to focus on the one disorder whose specific etiology, cause and treatment is known better than any other disorder in psychiatric history, or so it is claimed. But when we look closely at the claims being made, we see that no scientific information is actually being provided, and that speaking of "discovering" and "recovering" memories is suspect.. And yet, people continue to be diagnosed with, and treated for, this disorder. This scientized conception of memory has real effects on real people with real problems.

b) The Science of Morality

Hacking makes a more general point about the consequences of scientism in our lives. Scientism of the sort that is manifest in the sciences of memory, specifically in the psychologization of memory, can have serious moral implications. The important point

about *psychologized memory*, as Hacking calls it, is that it goes to the heart of morality. What used to be part of moral discourse is now part of scientific discourse. A person's soul, traditionally thought of as being intimately linked to one's character, personality, morals and responsibility, has been scientized and psychologized. We no longer have a soul; we have a psyche. We are no longer responsible for our souls. Mental health experts, have taken over. They are the diagnosticians, therapists, and guardians of our psychological states. Socrates' advice to the man who wants to live a good life was: "Know thyself". Today, the advice comes not from priests, or parents or friends, but from mental health specialists; the advice is: "Seek therapy to help overcome your psychological pain". This is no exaggeration. The sign in front of the Clark Institute in Toronto, Canada's leading mental health facility, reads: "One in four Canadians suffers from mental illness". One in four is a shocking figure. But what it points to is not that we've all gone mad, but that almost any kind of behaviour is now psychologized. Does coffee keep you awake at night? You might suffer from "Caffeine Induced Sleep Disorder". Do you tend to challenge authority? Maybe you do not get along with your parents? You might be suffering from "Oppositional Defiant Disorder" or "Conduct Disorder" or "Anti-Social Personality Disorder", or maybe you are just you've just got "Parent-Child Relational Problems".⁵ All of these are official mental health disorders,

⁵ The codes as listed in the DSM IV are as follows: *Caffeine Induced Sleep Disorder*, code 292.89; *Oppositional Defiant Disorder*, code 313.81; *Conduct Disorder*, code 3112.8; *Anti Social Personality Disorder*, code 301.7; and *Parent Child Relational Problems*, code V61.20. These references were taken from a transcript of an episode of the documentary style television program W-5. The segment was entitled "Who's Normal", and it was televised on CTV, Jan 30 1996.

listed in the the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), authorized by the American Psychiatric Association, which sets the standard for North America, and which is widely used in Europe. The DSM IV, published in 1994, introduced seventy seven new disorders to the DSM III published in 1980. One of those is called "Minor Depressive Disorder": two weeks of general depression or lack of fun accompanied by fatigue or trouble concentrating. Who has not "suffered" this "mental illness" at some point in their lives? It makes the one in four ratio advertised by the Clark Institute seem quite *low*.

Surely, the sceptic will object, a bad mood or a bad spell is nothing more than that. Sometimes a cigar is just a cigar. That may be so, and Bouveresse notes even Freud admitted as much. "But the great novelty" writes Bouveresse, "is that from now on we need an expert to tell us when a cigar is truly nothing more than what it seems" (Bouveresse: 98). Our ordinary language and ordinary opinions seem deficient when there are "expert" opinions available. That was Putnam's point. Hacking and Goldfarb question what these "experts" are experts *at*. How has it come about that things like behaviour, motives, and memory, the things of the soul, are now the province of science and scientific experts? And why are we so willing to accept that there *can* be such experts?

a new science, a purported knowledge of memory, quite self-consciously was created in order to secularize the soul. Science had hitherto been excluded from study of the soul itself. The new sciences of memory came into being in order to conquer that resilient core of Western thought and

practice [...] When the family falls apart, when parents abuse their children, when incest obsesses the media, when one people tries to destroy another, we are concerned with defects of the soul. But we have learned how to replace the soul with knowledge, with science. (Hacking: 5)

The scientism manifest in the diagnosis and treatment of multiple personality disorder is similar to the kind of scientism Goldfarb was pointing to in his example. Both the multiple personality disorder example as well as the "tuning forks" example showed that putative scientific claims are in fact scientific. It is by examining the claims very closely, and teasing out their presuppositions that we can identify such cases of scientism, where what is at issue the question of the applicability of science.

Concluding Remarks

In his article, Goldfarb says that Wittgenstein was anti-scientistic, that is, he was "against the smug and unexamined assurance that what wants explanation is obvious, and that scientific tools are immediately applicable" (Goldfarb: 112). Only through "clarification of what the legitimate questions are can proper sense be made of the applicability of science. A scientific viewpoint ignores this need for clarification". In other words, we cannot just assume that science can explain everything, nor can we assume that science is always applicable. Hacking and Goldfarb provide us with examples in which scientific claims are being made, but that there is no scientific evidence to support those claims. In fact, they question whether science is applicable at all in each case, given the confused nature of what is thought to be in need of explanation. Can science investigate memory?

Not if it seeks to uncover an underlying mental state which would be responsible for manifestations of intentional actions such as understanding or remembering. Why not? Because we can't make sense of the very idea of a corresponding mental state, let alone know what would count as evidence for such a state. Nor can science investigate what it means to say that we might repress memories which need to be recovered in order to be treated for some disorder. Why not? Because we can't make sense of the notion that memories (repressed, forgotten, recovered or remembered), or the *lack* of memories, can *cause* specific behaviour. Nor can we make sense of the notion that there is *one way* of remembering. Sometimes memories are just remembered, sometimes they are described, and sometimes they are reworked and modified. Memory, it would seem, cannot be an object of scientific knowledge if the science is to do justice to our ordinary concept of memory and the variety of ways in which we remember and redescribe the past.

Conclusion

1. Scientism and Philosophy

Philosophy has been thought to be both at the root of the problem of scientism and the means for overcoming it. It has also been thought to be scientism's most important victim. Sorell saw the problem of scientism as being almost exclusive to philosophy. The reason scientism is detrimental to philosophy, according to Sorell, is that the scientific conception of philosophy virtually excludes all other approaches to philosophy, including metaphysics. Entire traditions of philosophical thought are undervalued, and are in danger of being lost. The solution to this problem is found precisely in one of those approaches to philosophy that is frowned upon by scientific philosophy—metaphysics. According to Sorell, a good metaphysical system in which all areas of learning and all faculties are justified is required to undermine the overvaluation of science.

Putnam, however, doesn't see the need for a metaphysical system justify all areas of learning. He would rather focus on how scientism arises in the first place, and show that it misrepresents our actual practices. If that were done, then there would be no need to metaphysically justify disciplines, as Sorell would have it. Philosophers, according to Putnam, need to overcome metaphysics, not promote it. They should criticize ideologies, which misrepresent our practices, as well as the metaphysical systems from which

scientism arises. In other words, metaphysics isn't the solution to scientism, it is essentially responsible for scientism.

The urge metaphysicians have to answer certain kinds of questions once and for all leads them to overlook or dismiss important differences as they occur in our practices. When metaphysicians seek to explain how science works, for instance, they might begin by looking to actual scientific practices, but they will look to them to find what it is they all have in common, and they will take *that* as constituting science. But what they forget, or dismiss as unimportant, are the differences in the ways of doing science. Those differences are as much a part of science as are the similarities. Even when they acknowledge the diversity of the sciences, they seem to look for the one essential thing common to the sciences. Why think that there *should* be one essential property to what we call science? The scientific metaphysician might answer: because science tells us that phenomena *can* be reduced to a general law or formula. As we have seen, water might very well be describable in many ways, but in the end, water is H₂O. Such reductions are successful in natural science, and it is thought that they might also be successful elsewhere. Scientific philosophers tend to reduce descriptions of such things as truth and reality to something akin to H₂O. They seek to reduce phenomena to a "law". If metaphysicians are concerned to find the nature of truth, they will attempt to reduce truth to the one thing that all examples of truth have in common, and they will call that "truth". Putnam points out that the meaning of "true" is understood in its use, and its use is varied. Even if there were one common factor to all uses of the word, why should that

common factor constitute the *meaning* of "true"? In seeking to find the nature of things such as truth, objectivity or reality, the metaphysician dismisses the variety of ways in which such concepts and words are actually used. The scientific thinker assumes that intentional states, meanings, as well as physical phenomena need be reduced in order to be understood. In making this assumption and then taking physics and its methods as being the only way to truly describe and explain the way things are, philosophers become scientific. Putnam is not only making the point that the things being explained by scientific philosophers are more varied than they allow for, but also that the approaches to describing and explaining also vary. Scientific philosophers assume that the scientific description is both the only true one, and always applicable. *That* misrepresents the variety of ways in which we actually describe and explain things, *even within science*. The role of the philosopher is not to emulate physics in other areas. According to Putnam, the philosopher should show how such projects misrepresent our practices. The philosopher should distinguish between better and worse ways of thinking about the world and our place in it.

2. *Scientism and Meaning*

Scientism is also closely linked to what philosophers call the problem of meaning. The scientific philosophers Sorell accuses of scientism denigrate metaphysics because metaphysical statements, according to many of them, including Carnap and Neurath, are meaningless. They assign various criteria of meaningfulness, and metaphysical

statements turn out not to fulfil those criteria. Putnam, like Sorell, tries to show the incoherence of certain metaphysical statements and beliefs, but not by first establishing criteria of meaningfulness. He tries to show the incoherence of scientism, which is one such metaphysical picture, by pointing to the various ways in which it does not do justice to our actual linguistic practices. It is not enough, he says, to simply point out that this or that picture is incoherent and dismiss it out of hand. One should rather show how the picture misrepresents our practices, so that we shall be in a better position to understand the attractiveness of the picture in the first place. Scientism is an attractive picture, which is why it carries so much weight. The examples provided by Goldfarb and Hacking show just how much weight scientism carries. The assumption that science is applicable to certain cases is so strongly believed, that even a lack of scientific evidence in support of certain so-called scientific claims is looked over.

3. *Scientism and Science*

Goldfarb and Hacking are both concerned with pointing out that what are provided by scientists as explanations can, in fact, not be scientific at all. This will sometimes occur because of an undue faith in the fact that science can or must be applicable, a faith that can override the fact that there is no evidence to support one's claims. Scientism involves more than faith in science; it involves a felt need for scientific explanation. It involves the notion that there *must* be a scientific explanation. That is often what is behind the lack of critical thinking in science and elsewhere. The scientific thinker simply *assumes*

that there is scientific evidence where there is none or assumes that scientific evidence will be found in the future where there is none available now. But to make that assumption is contrary to the empirical status of science itself. If asked why evidence will be found to support certain claims or projects, the scientific thinker's answer is often nothing more than an insistence on the fact that there *must* be. *That* is the root of scientism, and *that* is the root of ideology. The idea that something *must* be the case blinds one to what *is* the case. The theme of chapters two and three is that scientific explanations *need not* be available. Indeed, in the examples we have looked at scientific explanations *cannot* be available, due to the confused nature of what is supposed to be investigated.

Scientism, we might say, involves an important philosophical *must*. Science, it says, *must* be applicable. Everything *must* be open to scientific investigation; if not now, then in the future. As Goldfarb points out, this *must*, this *a priori* insistence on the applicability of science, is contrary to the empirical nature of science. Of course, to deny that science must be applicable is not to maintain that it cannot be applicable; that is to make the same mistake. If we can't assume that science is applicable in every case, neither can we assume that it is not. What, then, are we left with? The way in which to determine whether or not science is applicable or available, whether or not the claims being made are scientific or scientific, is to look at each case individually, as I have suggested Goldfarb and Hacking do.

4. *Scientism and Morality*

Scientism according to Sorell interferes with proper human development by undervaluing non-scientific areas of learning. All areas of learning are essential to human flourishing, and when an imbalance is created such that only science is valued, then moral development will be affected. Blind faith in anything is dangerous, but blind faith in science is particularly dangerous, especially when we look to scientific experts for help in matters of the soul. When we take for granted that science can explain anything, we might turn to science even with that which is most personal to us. Hacking showed the extent to which science has taken it upon itself to explain memory. While the study of physical brain processes accompanying memory may not have direct moral implications what Hacking calls *psychologized memory* does. Our memories of past actions and events are important to how we constantly redefine ourselves in order to meet current challenges. People know how to reflect on who they are and who they want to become. Sometimes we need others, whom we trust and respect, to help us along on our path to becoming fulfilled. But today, it is to scientific experts that many turn for advice on how to become an integrated person. The most personal thing, our very personality, is being judged and commented on by people who don't even know who we are. We normally do not accept a stranger's judgement on such matters, but if the stranger has science to back him or her, who could argue with that? Of course, Hacking's point is to question whether there *is* such a science, and whether there *can be* such a science. But what is truly significant is the willingness of so many to believe that science *can* help in such matters.

It is crucial not only to examine *whether or not* scientific explanations are applicable, but why we want them.

We have come full circle, of sorts. Sorell worried about the effects of scientism on human flourishing and proper cultural development. Hacking worries about the effects of scientism on human development, and the human soul. If anyone ever questioned the importance of consequences of scientism for our lives, the examples offered in the preceding chapters should help to show that there are, indeed, important consequences, not just on a society, but on individuals as well. Putnam was not wrong to warn that "scientism is one of the most dangerous contemporary intellectual tendencies". That is why we need the tools to identify and criticize actual cases of scientism.

We have seen three views of scientism, the last of which I believe is the most useful and the most important. Sorell's view of scientism as involving the overvaluation of scientism to the detriment of other areas of learning is too general and confused to help critique real cases of scientism as they occur. Putnam's discussion of scientism is more helpful. His comments on scientism as arising from metaphysical views of objectivity and truth are important, as is his plea to philosophers to look at our actual practices rather than engage in such metaphysical rhetoric. Goldfarb and Hacking provide us with examples of what Putnam might have had in mind. They look to actual cases of scientism as they arise, and they question the projects, the claims and the conclusions being drawn.

They *show* us how scientism can arise in practice, and they show us how it can be identified and criticized. That is the kind of work that needs to be done if we are to overcome scientism and its consequences.

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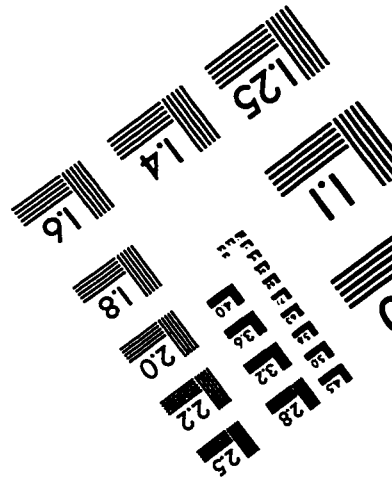
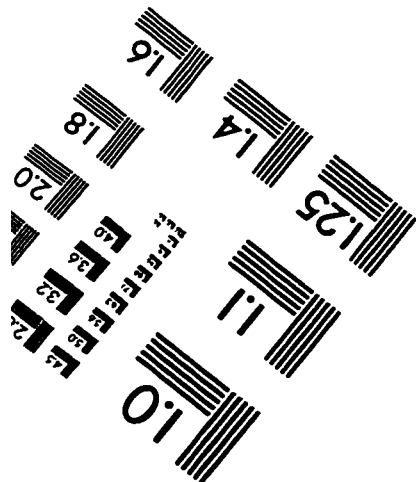
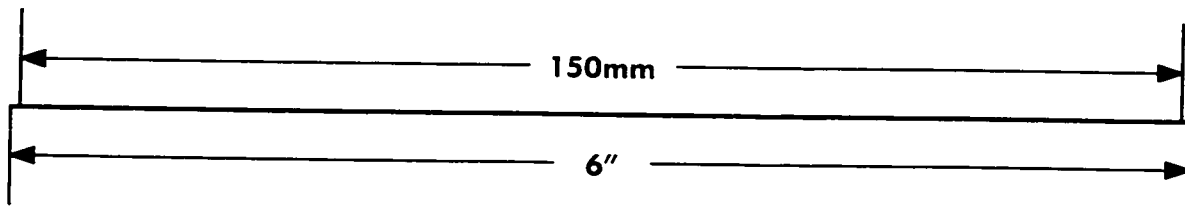
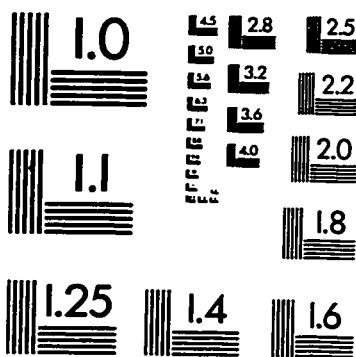
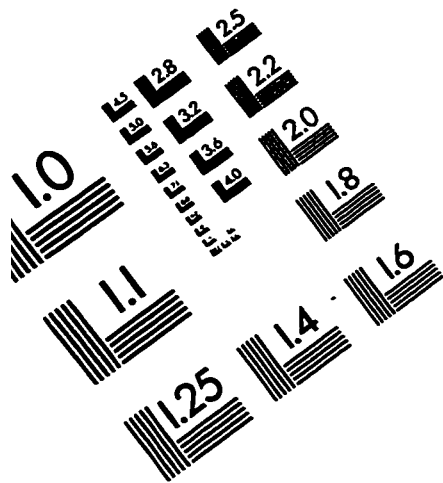
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