The Eyes Don't Have It: Fracturing the Scientific and Manifest Images

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ABSTRACT

Wilfrid Sellars famously argued that we find ourselves simultaneously presented with the scientific and manifest images and that the primary aim of philosophy is to reconcile the competing conceptions of ourselves and our place in the world they offer. I first argue that Sellars' own attempts at such a reconciliation must be judged a failure. I then go on to point out that Sellars has invited us to join him in idealizing and constructing the manifest and scientific images by conflating a number of importantly distinct contrasts between heterogeneous forms of representation we employ and to argue that we are better off declining this invitation. Recognizing the important differences between these contrasts does not simply obviate the problems of integrating, connecting, and reconciling the various sorts of representations we have of various parts of the world and our own place within it, but it reveals as misguided the notion that there is just a single, fundamental problem of such reconciliation to be solved. It also suggests a potentially far more promising starting point for trying to satisfy the fundamental ambition Sellars attributes to philosophical inquiry itself.

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> To be a naturalist is to see human beings as frail complexes of perishable tissue, and so part of the natural order. It is thus to refuse unexplained appeals to mind or spirit, and unexplained appeals to knowledge of a Platonic order of Forms or Norms; it is above all to refuse any appeal to a supernatural order. After that, the degrees of austerity that naturalism imposes can be variously interpreted: some philosophers are more relaxed than others about reconciling the world as we know it, "the manifest image", with the world as science tells us it is, "the scientific image". But we nearly all want to be naturalists and we all want a theory of ethics. So the problem is one of finding room for ethics, or of placing ethics within the disenchanted, non-ethical order which we inhabit, and of which we are a part.
> (Simon Blackburn, *Ruling Passions*, pp. 48–49)

1. Introduction: The Instrumentalist's Burden

Wilfrid Sellars' famous essay *Philosophy and the Scientific Image of Man* introduced the suggestive terminology of the "scientific" and "manifest" images, along with some tantalizing thoughts on the relationship between them and the prospects for their reconciliation, and Anglophone philosophy has not been quite the same since. There seems little question that Sellars managed to put his finger on *some* kind of opposition between competing conceptions of ourselves and our place in the world that continues to provoke and fascinate us, but it can be hard to understand precisely what Sellars' manifest and scientific images are supposed to be, and equally hard to understand what we are supposed to do with, for, or about them.

For a start, it might seem natural to expect the distinction to play a prominent role in our discussions of the status, role, and interpretation of scientific theories themselves. As the quotation above from Simon Blackburn reminds us, Sellars' famous distinction is usually thought to contrast "the

world as we know it" from our experience with "the world as science tells us it is". But just how to understand what it is that empirical science tells us about the world has been a contentious issue since at least the dawn of the modern scientific enterprise itself. Although the "scientific realist" view that our best scientific theories simply report how things stand in various otherwise inaccessible domains of nature remains widespread and extremely influential, a long-standing minority tradition has consistently raised challenges for any such realist view. Among other lines of concern, this contrarian minority sometimes points to the long historical record of empirically successful but ultimately abandoned scientific theories or to our repeated failure to even conceive of many scientifically serious theoretical alternatives also well-confirmed by the evidence available at any given time, and then asks why we should think that our own epistemic position is ultimately any different from that of our scientific predecessors.

Such opponents of scientific realism have sometimes suggested that instead of seeing even the most successful contemporary scientific theories as accurate descriptions of otherwise inaccessible domains of nature, we should understand them simply as conceptual tools or instruments that we can *use* to navigate our practical circumstances with lesser or greater (sometimes even astounding) degrees of success. But any such "instrumentalist" proposal faces quite a serious problem, for the intuitively appealing distinction between merely using a theory to navigate the world successfully and simply believing what it says becomes considerably murkier under closer inspection. First, one of the things we might use a theory to do is get information (and thus form beliefs) about remote and inaccessible parts or aspects of the world. Howard Stein elegantly makes this point against the claim that quantum mechanics is "merely" an instrument for predicting experimental outcomes, paraphrasing Eugene Wigner's remark that one also «uses quantum theory, for example, to calculate the density of aluminum» (1989, p. 49). Moreover, even simply making use of a theory to predict and intervene in the world around us seems to require that we believe at least *some* of what it says about the world – that about a quarter of the next generation really will exhibit the mutant phenotype, say, or that the boiling point of a pure solvent really will rise as we add more of a (non-volatile) solute to it. Nor can we say that to make use of a theory is simply to believe the claims it makes about so-called "observables", for what our theories say about observable parts of nature is thoroughly suffused with the terminology, conceptual apparatus, and implicit assumptions the theory

deploys in order to say anything at all. If we consider a specific claim about nature made in terms of some rejected past theory, such as "heating the red calx of mercury generates dephlogisticated air", we are not so much inclined to insist that (all) such claims were *false* as that "calx of mercury" and "dephlogisticated air" have turned out not to be the most useful conceptual categories with which to engage this part of nature. Likewise, if one or more of our own theories are ultimately discovered to be fundamentally mistaken, we will not want to say that all or even most of their claims about mutant phenotypes, pure solvents, tectonic plates, distant nebulae, or other perfectly observable entities were false so much as that "mutant phenotypes", "pure solvents", "nebulae" or "tectonic plates" have turned out not to be the most productive and powerful way(s) to think about phenomena in these domains after all. Even if we retain and repurpose the *names* used for entities in rejected scientific theories, as we have done in the case of, say, "atom" and "planet" but not "germ-plasm" or "ether", our conceptions or descriptions of the corresponding entities will be radically revised if our theories have been. Thus, thinking of the instrumental use of a theory as a matter of simply believing whatever that theory says about "observable" entities and processes will not allow us to answer this challenge for instrumentalism. We are still awaiting a fully satisfying articulation of the idea that our theories might simply be useful conceptual instruments *rather than* accurate descriptions of how things stand in the natural world.

It is in connection with such efforts to put meat on the bones of the instrumentalist idea that we might make use of one or more of our best scientific theories without simply believing what they say that Sellars' distinction between the manifest and scientific images seems to promise potentially invaluable assistance. It is at least facially plausible to suppose that it is open to us to withhold our credence from the image of the world offered to us in scientific theorizing while nonetheless using it to predict, intervene, and otherwise usefully guide our pragmatic engagement with the image of the world that arises in our experience.[1] In what follows, I will suggest that Sellars'

[1] Perhaps surprisingly, it seems that this suggestion was *not* intended by the title of Bas van Fraassen's extremely influential book *The Scientific Image*, notwithstanding Sellars' evident influence on that work and on van Fraassen's thinking more generally. In his Preface, van Fraassen writes "The title of this book is a phrase of Wilfrid Sellars's, who contrasts the scientific image of the world with the manifest image, the way the world appears in human observation. While I would deny the suggestion of a dichotomy, the phrase seemed apt" (1980 vii). For instrumentalists seeking to distinguish the image of some part of the world given to us by one or more of our best scientific

development of the distinction cannot actually satisfy the instrumentalist's burden in the way that this natural suggestion envisions, and indeed that his own efforts to reconcile the two images he describes must ultimately be judged a failure. But I will go on to argue that this failure comes about for instructive reasons that should lead us to rethink the distinction between the manifest and scientific images that he seeks to draw, what any convincing form of instrumentalism about scientific theories would look like, and even the broader ambitions that Sellars holds out for philosophy as a whole. The place to begin, however, is surely with Sellars' own account of how the need to draw the distinction between the manifest and scientific images arises in the first place.[2]

2. The Aim of Philosophy and Sellars' Ocular Turn

Philosophy and the Scientific Image of Man (all Sellars quotations are from this work) opens with one of the most famous one-liners in recent philosophical history: «The aim of philosophy, abstractly formulated, is to understand how things in the broadest possible sense of the term hang together in the broadest possible sense of the term» (p. 37). This claim is no mere rhetorical flourish, but instead announces the subject of the paper's main line of argument: the correct conception of what philosophy distinctively is and does. But Sellars goes on to elaborate this aim by making use of two recurring metaphors that are almost strikingly inequivalent. In the earliest stages of Sellars' discussion, the role of philosophy or philosophical activity is analogized to that of learning to "know one's way around" with respect to the world's wide variety of heterogeneous inhabitants, «not only "cabbages and kings", but numbers and duties, possibilities and finger snaps, aesthetic experience and death» (p. 37), of forming a sense of how the "bailiwick" of each special discipline or department of knowledge «fits into the countryside as a whole» (p. 38), and «com[ing] to know one's way around in the highway system as a whole» (p. 39). Almost immediately, however, the cultivation of such know-how is identified

theories from the image that appears in our experience, the dichotomy would seem to be the whole point.

[2] I make no effort in what follows to reconcile what Sellars says in *Philosophy and the Scientific Image of Man* with what he says elsewhere. Sellars is a complex figure and the various claims he makes in different texts are notoriously difficult to reconcile with one another. As will become clear, my primary concern is not with the exegesis of Sellars in any case, but with a fundamental lesson that I think can be gleaned from his attempt to introduce and delineate the manifest and scientific images in this seminal paper.

with "seeing all things together" and having one's "eye on the whole", initiating what I will ultimately suggest is a regrettable visual or ocular turn in Sellars' metaphorical conception of the central task of philosophy from which it never recovers.[3]

This transformation is cemented by Sellars' determined critique of the view that philosophical activity is a kind of "analysis", a notion he supplements with the further metaphor of attempting to bring a picture into focus. Even so supplemented, Sellars insists, the implied contrast of "analysis" with "synthesis" remains extremely misleading, for at least two reasons. First, it suggests that scientists are confused about the subject matters of their own disciplines until philosophy helps to clarify them, and second, it obscures the fact that «the unity of the reflective vision [of ourselves and our place in the world] is a task rather than an initial datum» (p. 40). The scientific and manifest images enter the story as part of Sellars' effort to elucidate this latter claim, for it is the difficulty of uniting or fusing these two images into a single coherent conception of ourselves and our place in the world that makes the unity of any such "reflective vision" an achievement which must be earned, rather than an "initial datum" we get for free (as implied by the language of analysis or the metaphor of bringing a picture into focus).

The challenge of achieving such a unified reflective vision arises, Sellars suggests, because we find ourselves simultaneously presented with «*two* pictures of essentially the same order of complexity, each of which purports to be a complete picture of man-in-the-world» (p. 40). Neither seems to require or even permit supplementation from the other, or from resources outside the image itself; they are, he later suggests, «two whole ways of seeing the sum of things» (p. 55). Because we find ourselves presented simultaneously with these competing and ostensibly complete scientific and manifest images of the world and our own place in it, he suggests, understanding how things hang together will involve much more than simply combining the two images into a panorama, as if they were generated by pointing a periscope in different directions: instead we will need to *reconcile* or *integrate* the two images, neither of which

[3] In the essay's second paragraph, Sellars makes a point of explicitly characterizing such "knowing one's way around" as a form of "knowing how" rather than "knowing that" (p. 37). This also seems a curious fit with Sellars' later turn to the ocular metaphor of seeing the task of philosophy as that of fusing two images into a stereoscopic vision, though he does insist that knowing how "at the level of characteristically human activity" presupposes a great deal of "knowledge that".

seems even to leave room for the other, into a single coherent conception of ourselves and our place in the world around us.

But having thus rejected the language of analysis, Sellars nonetheless proceeds to replace the metaphor of bringing a picture into focus with an equally visual or ocular conception of the fundamental task of philosophy which he proceeds to treat as simply identical to the cultivation of practical know-how with which he began: our task, he repeatedly insists, is to "fuse" the separate manifest and scientific images "into one vision" (p. 41) and to achieve a «stereoscopic vision, where two differing perspectives on a landscape are fused into one coherent experience» (p. 40)

It is by no means obvious that these two metaphors amount to the same thing. To be sure, the earlier philosophical imperative is to "know our way around" not in the unreflective way that the centipede knew how to walk *before* someone inquired how it managed to do so, but in «that reflective way which means that no intellectual holds are barred» (p. 37). But even such reflective and thoughtful knowing one's way around does not seem equivalent to having a simultaneous synoptic view of the surrounding territory: using a wide variety of tools and tricks to navigate an area (e.g., following the coastline by sight in a sailing vessel, following running water in order to consistently move downhill, maintaining your orientation towards a faraway object in order to travel in a single direction) and knowing how and even why each one works is just not the same thing as trying to fuse two different maps or pictures or other representations of an entire area into a single synoptic representation.[4] Nonetheless, Sellars' subsequent discussion proceeds to treat the latter metaphor as equivalent to the one with which he began, insisting that

> The philosopher, then, is confronted by two conceptions, equally public, equally nonarbitrary, of man-in-the-world, and he cannot shirk the attempt to see how they fall together into one stereoscopic view. (p. 41)

[4] Sellars uses a similar alternation of metaphors to characterize the specialist's sense of how the subject matter of her own department of knowledge fits into the "intellectual landscape" as a whole (e.g., pp. 38–40, *passim*.) as well as the philosopher's concern to know her way around that landscape and/or achieve a synoptic view of it. It is not always clear when Sellars means to refer to this philosophical ambition rather than that of knowing one's way around the various entities and relations actually making up the world itself (or indeed, whether he thinks these are genuinely distinct), but our primary concern will be with the latter in any case.

By this point Sellars' ocular or visual turn is complete. He never returns from the metaphor of stereoscopic vision to that of "knowing one's way around" the world and its inhabitants with which he began.[5]

3. Surveying the Images

What precisely, then, are these scientific and manifest images that prove so difficult to integrate or reconcile into a single "stereoscopic" view? We should not imagine that Sellars is proposing an atavistic picture on which the manifest image is somehow composed of sense data or isolated phenomenal experiences or some such and the scientific image represents the conceptual superstructure we use to navigate and anticipate such sense data. Such a picture would be implausibly attributed to Sellars (himself a famous critic of sense-data theories of knowledge and the "myth of the given" more generally) in any case, but he makes a point of rejecting any such view as an inadequate description of the manifest image itself: «whether or not the world as we encounter it in perception and self-awareness is ultimately real,» he insists, «it is surely incorrect [...] to say as some philosophers have said that the physical objects of the encountered world are "complexes of sensations"» (p. 51). Even more importantly, such an attribution would abjectly fail to make sense of Sellars' insistence that the manifest image no less than the scientific «purports to be [...] the *whole* truth about that which belongs to the image» (p. 57). Even if there were ultimately some sense to be made of the notion of a collection of raw sense data or atheoretical perceptual experiences, such a collection would not even purport to be and would not present itself phenomenologically as a complete picture of the world and our place within it.[6]

[5] Sellars later seems to suggest at one point (but only one, p. 55) that such "knowing one's way around" has been the task only of the "perennial tradition" in philosophy (which is in turn identified with exploration and development of the manifest image). If we take this suggestion seriously, however, it implausibly entails that Sellars' famous proposed aim for philosophy "to see how things in the broadest sense of the term hang together in the broadest sense of the term" also applies only to the perennial tradition and/or to philosophical activity as conducted within the manifest image (cf. p. 37). However that may be, I will ultimately suggest that the idea of coming to "know one's way around" offers a better guide for our efforts to integrate and reconcile the manifest and scientific images than any of the ocular or visual metaphors Sellars offers in its place, whether or not Sellars is himself switching horses at just this point.

[6] Nor does it seem that such a collection could be continually "refined" or "sophisticated" in the way Sellars describes below, so as to itself constitute a kind of "scientific image".

It might instead seem obvious from the language of "scientific" and "manifest" images alone that Sellars means to contrast the conception of man and his place in the world that we get from sophisticated scientific inquiry with the conception that appears instead in common sense, or that existed before the rise of modern science, or that is embodied in various "folk" theories concerning these matters. However, while Sellars does sometimes characterize the manifest image as "sophisticated common sense" (e.g., p. 57), he also clearly and emphatically denies that the contrast he has in mind «is that between a pre-scientific, uncritical, naïve conception of man-in-the-world, and a reflective, disciplined, critical – in short a scientific – conception,» nor is the manifest image that found in «an historical and bygone stage in the development of man's conception of the world and his place in it» (pp. 42–43). Instead, he says, «what I mean by the manifest image is a refinement or sophistication of what might be called the "original" image...» (p. 43). This sophisticated manifest image is "disciplined and critical", and it «makes use of those aspects of scientific method which might be lumped together under the heading "correlational induction"». Perhaps surprisingly, then, it is not the *scientific* character of the scientific image which distinguishes it from the manifest image, for «the manifest image is, in an appropriate sense, itself a scientific image» (p. 43).

Nonetheless, Sellars goes on to note that

> [t]here is... one type of scientific reasoning which it, by stipulation, does *not* include, namely that which involves the postulation of imperceptible entities, and principles pertaining to them, to explain the behavior of perceptible things. (p. 43)

He even goes so far as to claim that the scientific image «might be better called the "postulational" or "theoretical" image» (p. 43).[7] And Sellars later repeats that this is the fundamental difference between the two images even as he is careful to remind us that this is not at all the same as the difference between a scientific and unscientific conception:

> the contrast I have in mind is not that between an *unscientific* conception of man-in-the-world and a *scientific* one, but between that conception which limits itself to what correlational techniques can tell us about perceptible and introspectible events and that which postulates imperceptible objects and

[7] He then goes on to say «[b]ut, I believe, it will not be too misleading if I continue, for the most part, to use the former term» (p. 43). I am not sure history has borne out his confidence on this point.

events for the purpose of explaining correlations among perceptibles. (p. 56)

Sellars' view seems to be that our efforts to find correlations between perceptible and introspectible aspects of our experience has produced an increasingly sophisticated and refined version of the "original" image of ourselves and our place in the world, and this is to be usefully contrasted with a competing image generated from practices of scientific theorizing or postulation of "imperceptible objects and events". We cannot, however, think of the manifest image as encapsulating our knowledge of perceptible entities or phenomena and the scientific image as encapsulating our knowledge of a completely distinct or disjoint realm of imperceptible or unobservable entities without again doing violence to Sellars' insistence that each image claims to provide a *complete* picture of the world and our place within it. A more promising alternative is suggested by his description of the two images as «different *perspectives* on a landscape that are fused into a single coherent experience» (p. 40, my emphasis). This description does not, of course, suggest a division of labor in which different observers contemplate disjoint parts or regions of a single landscape (say, the perceptible and imperceptible regions), but instead one in which two observers have distinct views of *one and the same set of objects* due to something like a difference in those observers' respective vantage points.

On this conception, most of the world's inhabitants can be located within both the manifest and the scientific images, but the two images conceive of them quite differently and tell us very different sorts of things about them: they represent different aspects or dimensions of what we know about (and how we know about) cabbages, kings, finger snaps, and all the rest. On such a view, cabbages belong neither to the scientific image nor to the manifest image, but our conception of them includes aspects that belong to the scientific image (such as their evolutionary history, their role in an economy or an ecosystem, their chemical composition or nutritional value for human beings) and aspects that belong instead to the manifest image (the way they look and smell; how you might use one to prop open a door; the extent to which eating the one in your hand would alleviate your hunger). In fact, it would seem that these identifications of entities in the scientific and manifest images are the *products* of our efforts to fit the two images together, the enterprise to which Sellars seeks to contribute.

But in addition to capturing distinct aspects of a common set of entities, each image would also seem to include entities that simply do not appear in the

other at all. In the case of the scientific image, these will be entities or aspects of entities that the image itself tells us are imperceptible even as it offers us theoretical resources for their detection and/or for learning much else about them: contemporary cosmology and perceptual psychology together tell us that human beings are unable to perceive dark matter, for example, even as we use our perceptual contact with other physical features of the universe to calculate (assuming the fundamental truth of the further theories upon which we rely to do so) how much there is and where it resides. More generally, when the scientific image itself tells us that particular entities or aspects of entities that it posits are sufficiently removed in some way (e.g., causally or temporally) from the perceptual apparatus of human beings, we regard those entities as "mere posits" or "imperceptible" even when we see ourselves as having sophisticated procedures for detecting their presence, magnitude, frequency, etc. in particular contexts by means of similarly hypothesized causal influences on or contact with features of our own perceptual states. By the scientific image's own lights, Cherenkov radiation is perceptible by human beings but neutrinos are not.

In addition, however, Sellars' conception of the manifest image famously includes such items as duties, intentions, justifications, and other occupants of what he elsewhere calls the "conceptual space of reasons" that do not presently seem to find counterparts in the scientific image.[8] This is in part why Sellars argues that «there is an important sense in which the primary objects of the manifest image are *persons*» (p. 46), and that «what the objects of this framework, primarily *are* and *do*, is what persons are and do» (p. 48). He describes the manifest image as the subject of the "perennial" project of self-understanding with which most of the philosophical tradition has characteristically been concerned, and he insists that the contemporary manifest image has been formed by successive modifications of the "original image" of human self conception, «the modification consisting of a gradual pruning of the implications of saying with respect to what *we* would call an inanimate object, that it *did* something» (p. 49). Whether or not Sellars is right to think that the contemporary manifest image has indeed been generated in whole or in part by such a process of gradual depersonalization – in which

[8] Given his articulation of the scientific and manifest images, of course, this would seem to mean not that intentions, duties, justifications, and linguistic meanings have no place in a scientific conception of ourselves and our place in the world, but rather that Sellars thinks we do not make sense of them by positing imperceptible entities.

«[n]ature became the locus of "truncated persons"» (p. 49) –, it seems clear that the manifest image is intended to include entities and phenomena that simply do not arise in the putatively complete description offered by the scientific image, including the sorts of normatively loaded phenomena of which we seem (at least at present) to have only a subjective apprehension.[9] And as we will see, aspects of the manifest image that do not appear at all in the scientific image are among the most serious challenges for Sellars' own efforts to "fuse" the two images into a single "stereoscopic view".

4. Irreconcilable Differences?

How does Sellars himself seek to reconcile the two images he has described? Although he will ultimately embrace what he calls the «primacy of the scientific image» (p. 69), Sellars explicitly denies that we should simply appeal to the scientific image to explain what we can in the manifest image and dismiss whatever remains as error and illusion. Instead, as he notes, «the very fact that I use the analogy of stereoscopic vision implies that as I see it the manifest image is not overwhelmed in the synthesis» (p. 45), and his explicit intention is to identify «the respective contributions of these two [images] to the unified vision of man-in-the-world which is the aim of philosophy» (p. 55). Sellars goes on to claim that the «major stresses and strains involved in any attempt at a synoptic view» are made evident by considering the three fundamental possibilities that emerged in connection with the early modern attempt to «construe physical things, in a manner already adumbrated by Greek atomism, as systems of imperceptible particles, lacking the perceptible qualities of manifest nature» and with Descartes' own efforts to synthesize this scientific view with the existing manifest image (p. 62). The remainder of Sellars' discussion is largely devoted to navigating among the three possibilities: rejecting the first, studiously ignoring the second, and trying desperately to rehabilitate the third against what appear to be insuperable obstacles.

The first possibility Sellars considers is that manifest objects are simply identical with systems of imperceptible particles, «in that simple sense in which a forest is identical with a number of trees» (p. 62). He quickly and firmly rejects this possibility, however, on the ground that manifest objects have

[9] Note that this alone implies that the scientific image is not formed simply by *adding* methods of hypothetical postulation to resources of the existing manifest image – if it were, the scientific image would contain everything that the manifest image contains and more besides.

properties which cannot be regarded as simply a matter of the imperceptible particles making them up themselves having particular properties and/or being related in particular ways: a pink ice cube in the manifest image, for example, presents itself to us as pink «through and through, as a pink continuum, all the regions of which, however small, are pink» rather than such a property being «made up of imperceptible qualities in the way in which being a ladder is made up of being cylindrical (the rungs), rectangular (the frame), wooden, etc.» (p. 63). That is, although a manifest object need not be (and typically is not) homogeneous in its color, it is "ultimately homogeneous" with respect to the property *of being colored* in a way that cannot be recapitulated by or identified with properties of its (imperceptible particulate) constituents or relations among them. The thought here seems to be that objects in the scientific image do not (or do not uniformly) have the right sorts of properties to serve as compositional parts of the *sorts* of objects we actually encounter in the manifest image.

This recognition, Sellars suggests, is what motivates the third possibility: that manifest objects «are "appearances" to human minds of a reality which is constituted by systems of imperceptible particles» (p. 63). Although he identifies serious challenges for this alternative (see below), it is the view he will ultimately seek to defend. But Sellars' treatment of the second line of thought regarding the possible relationship between the manifest and scientific images is exceedingly curious. This second line of thought is the (broadly instrumentalist) notion that «[m]anifest objects are what really exist, systems of imperceptible particles being "abstract" or "symbolic" ways of representing them» (pp. 62–63). Sellars notes that this option «merits serious consideration, and has been defended by able philosophers,» but then proceeds to gently set it aside and discuss only the first and third options instead (p. 63f). Even after the serious challenges he encounters in his defense of the third option lead him back around to posing this instrumentalist possibility a second time, he offers no argument against it but again simply sets it aside and proceeds to try to rehabilitate the third option instead (p. 69f).

We will ultimately return to Sellars' curious failure to engage this second, "instrumentalist" option, but let us first consider his efforts to overcome the challenges for the third option, the view that manifest objects «are "appearances" to human minds of a reality which is constituted by systems of imperceptible particles» (p. 63). The central problem with thus construing objects and processes in the manifest image, he argues, lies in making sense of

the qualitative character of such appearances in cases like sensation and conceptual thought. Even if we can identify «complex states of the brain, which, obeying purely physical laws, would resemble and differ from one another in a way which corresponded to the resemblances and differences between the conscious states with which they were correlated» (p. 67) he argues, the following challenge remains:

> We have pulled perceptible qualities out of the physical environment and put them into sensations. If we now say that all there really is to sensation is a complex interaction of cerebral particles, then we have taken them out of our world picture altogether. We will have made it unintelligible how things could even *appear* to be colored. (p. 67)

In a similar fashion, «the claim that "thoughts, etc., are complex neurophysiological processes" leaves us with the problems of accounting for the *introspectible qualities* of thoughts» (p. 68). It is this challenge, he suggests, which underlies the persistent temptations of both dualism and the instrumentalist conception of the scientific image that he has set aside without argument.

Sellars' attempt to rehabilitate the third option begins by insisting that the problems posed by the need to account for the status of sensation and of conceptual thought are in fact quite different, and call for different kinds of solutions. In the case of conceptual thought, he suggests, the demand arises from «the mistake of supposing that in self-awareness conceptual thinking presents itself to us in a qualitative guise» (p. 69). We mistakenly suppose that thoughts are like sensations in this way, Sellars suggests, because the two are actually alike in a different but closely related way: our knowledge of sensations and of our thoughts are both non-inferential in character. After suggesting that we conceive of our own thought largely by analogy to overt expression in speech, he goes on to insist that all we properly (and non-inferentially) know in the case of our thoughts is that «*something analogous to and properly expressed by* [a given sentence] *is going on in me*» (p. 70; cf. also p. 61). That is, Sellars thinks we have mistaken the non-inferential character of our knowledge of our own thoughts for a qualitative character directly available to introspection; in fact we have no qualitative experience of our own thoughts, and conceptual thought remains eligible for identification with one or more complex physical processes. As he (somewhat confusingly) puts the point, he has sought to make room for «the possibility that the inner state conceived in

terms of this analogy [to overt speech] is *in its qualitative character* a neurophysiological process» (p. 70).

This bare possibility is supplemented, however, with the further suggestion that the identifying features of thought do not concern any intrinsic quality at all, but instead the *role* that such thoughts play in a larger system (like that of speech, computation, and neurophysiological organization). Much as a pattern of such relationships and relative roles (rather than any intrinsic characteristic(s)) are what make a particular movement of pieces (no matter how it is physically implemented) a "castling" in a game of chess, Sellars suggests,

> our concept of "what thoughts are" might, like our concept of a castling is in chess, be abstract in the sense that it does not concern itself with the *intrinsic* character of thoughts, *save as items which can occur in patterns of relationships which are analogous to the way in which sentences are related to one another and to the contexts in which they are used.* (p. 71)

Moreover, «if thoughts are items which are conceived in terms of the roles they play, then there is no barrier *in principle* to the identification of conceptual thinking with neurophysiological processes. There would be no "qualitative" remainder to be accounted for» (p. 71). Putting together the denial that conceptual thought involves a distinctive qualitative character available to introspection with the positive claim that it is not *any* intrinsic feature or character but rather the respective roles they play that constitute thoughts as such, Sellars thus seeks to fuse these parts of the manifest and scientific images by making room for thoughts to simply be identified with complex neurophysiological states of the brain.

The case is quite different, Sellars argues, when it comes to sensation. While in the case of thought the analogy to a publicly observable item (speech) «concerns the *role* and hence leaves open the possibility that thoughts are radically different *in their intrinsic character* from the verbal behavior by analogy with which they are conceived,» by contrast «in the case of sensations, the analogy concerns the *quality* itself» (p. 72). Sensations *are* constituted by their intrinsic, qualitative characters, and nothing in the intrinsic character of a neurophysiological process will count as sufficiently analogous to make the sort of identification available in the case of thought even moderately plausible. The crucial qualitative feature we encounter in sensation is what Sellars earlier called their "ultimate homogeneity" – the fact that a pink ice cube is pink throughout all of its constituent parts, no matter how small – and it is this

feature which prevents us, he insists, from *identifying* (rather than merely correlating) sensations with corresponding neurophysiological processes or with any other part of our present scientific image. Lest we despair, however, Sellars reminds us that «the scientific image is not yet complete; we have not yet penetrated all the secrets of nature» (p. 74). Perhaps we will find that particles are not in fact "the primitive entities of the scientific image" and that «*when it comes to an adequate understanding of the relation of sensory consciousness to neurophysiological process*, we must penetrate to the nonparticulate foundation of the particulate image» (pp. 74–75).[10]

It is hard to know what to make of this seemingly desperate appeal to the explanatory capabilities of some possible future physics in which the "ultimate homogeneity" Sellars finds characteristic of sensations is also exhibited (somehow!) by the imagined nonparticulate constituents of physical particles or in which the properties of such constituents diverge radically from those of familiar physical entities in some other way that (somehow!) makes their actual identification with sensations seem plausible. Indeed, it seems difficult to regard this hopeful invocation of an imaginary physics so different from our own as anything more than whistling past the graveyard or a pious counsel of desperation: Sellars appears to have painted himself into a corner from which there seems little hope of any dignified escape.

5. Learning From Failure: An Instructive Diagnosis?

This might seem the natural point in the tale for instrumentalism to sweep in and save the day, shaming Sellars' abortive earlier treatment of it and rescuing us from his somewhat sheepish appeal to an imaginary future physics. But such a triumphant rescue is simply not in the cards for reasons that turn out to be important and revealing.

Return for a moment to Sellars' earlier consideration of what I called the broadly instrumentalist option that «[m]anifest objects are what really exist, systems of imperceptible particles being "abstract" or "symbolic" ways of

[10] In the final section (pp. 75–78) Sellars goes on to sketch a program for extending his attempted reconciliation to incorporate human action under various kinds of *standards* (ethical, logical, etc.) by construing action under any description employing such standards as incorporating an assertion of (actual or potential) membership in a community and being subject to the collective intentions of that community. This seems a plausible enough line to take regarding such standards (sharing at least the spirit of some existing noncognitivist views in ethics), but our immediate concerns can be served without considering it.

representing them» (pp. 62–63). We can perhaps begin to see why Sellars finds this line of thought so implausible or distasteful when he later expands this brief description of the instrumentalist option: the possibility he invites us to consider is that

> [R]eality is the world of the manifest image, and that all the postulated entities of the scientific image are "symbolic tools" which function (something like the distance-measuring devices which are rolled around on maps) to help us find our way around in the world, but do not themselves describe actual objects and processes. (p. 69)

As Sellars quite rightly notes,

> On this view, the theoretical counterparts of *all* features of the manifest image would be *equally* unreal, and that philosophical conception of man-in-the-world would be correct which endorsed the manifest image and located the scientific image within it as a conceptual tool used by manifest man in his capacity as a scientist. (p. 69)

This view is indeed implausible and Sellars is perhaps right to simply dismiss it outright, but his own italics inadvertently reveal where the real source of the implausibility lies: the most unpromising aspect of this proposal is its presumption that we must either be instrumentalists about *all* "theoretical counterparts" of features of the manifest image or none of them. In other words, what Sellars (sensibly) sets aside is the view that the *entire* scientific image is nothing but a massive calculational tool we use to mediate our engagement with the "real" world we encounter in the manifest image.

This is indeed an unappealing prospect, for a wide variety of reasons that certainly includes the consequence Sellars points to above: it requires us to reject *all* posited or hypothesized entities or aspects of the world as unreal. Even those who offer the most cogent and pressing reasons for doubting that our best scientific theories are simply accurate reports of how things stand in otherwise inaccessible natural domains can usually identify some constituents of the scientific image, even some "imperceptible" theoretical posits (paramecia? dinosaurs? continental plates?), whose description in the scientific image they think of as something more than merely cogs in a gigantic calculational tool for moving from some observable states to others. But there is no reason we must choose between being instrumentalists about every hypothesized or imperceptible entity and/or aspect of nature or being instrumentalists about none of them. Indeed, even those with strongly realist

sensibilities are often tempted to adopt some variety of such an instrumentalist position concerning particular theories. In the case of a theory like quantum mechanics, for example, our theoretical descriptions of fundamental physical entities as "simultaneously particle-like and wave-like" or as occupying "superpositions" of classical states like having determinate positions or momenta seem likely to reflect as much about the constraints or limits on the ways we are able to conceptualize the natural world as they do about the fundamental constitution of that world itself. There is simply no ground for insisting that we must choose between adopting an instrumentalist attitude towards every hypothesized or imperceptible entity and/or aspect of nature or towards none of them.[11]

This realization suggests that Sellars has approached his inquiry with a fundamental presupposition that deserves to be questioned, namely that there is just *one* monolithic and homogeneous way in which the scientific and manifest images are related to one another, and thus some single way in which each component part of each image is related to some corresponding part (if such there be) of the other. But to recognize this presumption is to see why we have little reason to embrace it. Few scientific instrumentalists wish to regard *everything* in the scientific image as merely instrumental, few scientific realists want to extend their realism to absolutely everything in the scientific image, and few sensible people think upon serious reflection that the relation of every "theoretical", "postulated", or even "imperceptible" entity or aspect of nature to our manifest experience must be just the same as that of every other. The sensible prospect of being instrumentalists about *some* scientific posits or theoretical claims and not others, shared by many self-described realist as well as nonrealist philosophers of science, illustrates why we have every reason to doubt that "the" relationship between the manifest and scientific images has the sort of monolithic and homogeneous character that Sellars supposes it must or should. The first lesson to draw from Sellars' failure, then, is not so much that he was too quick to dismiss instrumentalism as that it was a mistake

[11] Intriguingly, Sellars' own description of a *nonparticulate* possible future physics is one on which particles «could be treated as singularities in a space-time continuum which could be conceptually "cut up" without significant loss – *in inorganic contexts, at least* – into interacting particles» and in which «for many purposes the central nervous system can be construed without loss as a complex system of physical particles» (pp. 74–75). This would seem to articulate (albeit vaguely) just the sort of instrumentalism regarding a particular scientific description of a particular domain of nature (here fundamental physical "particles") whose broader possibility Sellars seems to ignore.

for him to go looking for just *one* relationship between the scientific and manifest images in the first place.

It may be that Sellars has been betrayed into this presumption by what I suggested at the outset was an unfortunate metaphorical transformation: the shift from the demand to "know our way around" the world and all its many heterogeneous inhabitants to that of "fusing" two images into a "stereoscopic vision". The metaphor of fusing the manifest and scientific images into a single stereoscopic view almost inexorably suggests that there should be just a single monolithic relationship between the corresponding parts of the two images, for this is indeed how composite images are formed in stereoscopic vision. In effect, then, it obscures the possibility that the relationship between the manifest and scientific images might be heterogeneous in character, for that possibility finds no counterpart in the metaphor of stereoscopic vision. But as the prospect of selective instrumentalism about theoretical posits vividly illustrates, we have every reason to recognize the possibility (even the plausibility) of heterogeneity in the ways that different theoretical posits are related to the world we encounter in experience, perception, or common sense. We have substantial reasons to doubt that such theoretical posits as superpositions, gluons, and Newtonian gravitational forces, all seemingly good candidates for us to regard as mere "useful fictions", are related to the manifest image in just the same way(s) as paramecia, dinosaurs, or continental plates, but the metaphor guiding Sellars' inquiry leaves no room for a difference between them.

Once we have noticed this room for heterogeneity in the relationship that different elements in the scientific and manifest images bear to one another, however, our attention is inevitably drawn to a further respect in which Sellars' picture of the situation seems insidiously oversimple. For part of what makes it so plausible to suppose that different elements in the scientific image bear distinct relationships to their counterparts in the manifest image is the fact that Sellars seems to have been making use of more than just *one* opposition between competing conceptions of ourselves and our place in the world all along. As we've seen, Sellars repeatedly emphasizes that the most fundamental difference between the manifest and scientific images is that the former is limited to sophisticated techniques of correlation while the latter admits postulational techniques as well. But at other points (such as the discussion of the introspectible characteristics of thoughts and sensations) the primary contrast seems to be between egocentric, imagistic, first-personal, and

perspectival ways of representing ourselves and our place in the world and more abstract, third-personal, aperspectival forms of such representation. Still elsewhere the central point of contrast is asserted to be between a refined modern descendant of the "original" (or "perennial" or commonsensical) conception of ourselves and our place in the world and that which arises only after the dawn of modern science. But few contemporary philosophers would be willing to follow Sellars in simply identifying the central terms on each side of these very different contrasts with one another. Those who accept Quine's influential contention that the tables, chairs, and kittens familiar to us from common sense and everyday experience are no less theoretical posits introduced to systematize and explain our experiences than are quasars and electrons, for example, will vigorously resist the suggestion that the conception of ourselves and our place in the world offered by «sophisticated common sense» (p. 57) or «a refinement or sophistication of what might be called the "original" image» in terms of which man first encountered himself (pp. 42–43) or «the perennial philosophy of man-in-the-world» (p. 44) is purely correlational or does not traffic in theoretical postulation.[12] Nor will many contemporary philosophers be tempted by the idea that either the correlational/postulational contrast or that between a sophistication of the "original" image and that made possible by the rise of modern science lines up neatly with the contrast between the sorts of concrete, imagistic, egocentric, perspectival representations of parts of the world that we receive more-or-less automatically from our senses when we survey a scene and the more abstract, theoretical, nonegocentric and aperspectival representations we make a conscious effort to construct.[13]

To be sure, there are deep and important puzzles concerning how the sorts of representations on each side of each of these contrasts are to be integrated, related or connected to those found on the other, but it is simply not the case that the puzzles are the same in each case. That is, the challenges concerning how to connect or integrate the sorts of concrete, consciously mediated, egocentric, perspectival representations of parts of the world that are

[12] Of course, Sellars' opposition explicitly described the theoretical posits of the scientific image as imperceptible, but this seems simply to leave no room at all for theoretical or postulated entities that are also perceptible.

[13] Of course, our brains do automatically integrate information from many different sources into a single egocentric perceptual representation of the world around us, but this integrated egocentric perceptual representation cannot hope to exhaust the many different roles and characteristic features Sellars attributes to the idealization he christens as the manifest (or "original") image.

presented to us by our senses with more abstract, theoretical, nonegocentric and aperspectival representations we make a conscious effort to construct are simply not the same as those of relating or integrating representations relying only on correlations with those involving theoretical postulation as well, or those involving only perceptible objects and processes with those deploying imperceptible ones as well, or a refined modern descendant of the "original" (or "perennial" or commonsensical) conception of ourselves and our place in the world with that which arises after the dawn of modern theoretical natural science. But Sellars seems to slide freely between these contrasts in describing the opposition between the manifest and scientific images.

It is revealing, then, that Sellars readily concedes that the opposition between the manifest and scientific images does not even arise until after each of those images has been *constructed* by a self-conscious process of idealization and abstraction from the welter of heterogeneous forms of engagement and representation with which we encounter the world. Sellars repeatedly describes the manifest and scientific images as themselves "idealizations" (p. 41; cf. p. 43), "ideal constructs" (p. 56), and "poles to which philosophical reflection has been drawn" (p. 44). Specifically with regard to the contrast between correlational and postulational methods, he allows that the idea of a purely correlational scientific view is «both a historical and methodological fiction» (p. 43), because in reality our scientific worldview has been formed by a complex interplay in which both sorts of methods «have gone hand in hand» and been «dialectically related», with «postulational hypotheses, presupposing correlations to be explained and suggesting possible correlations to be investigated» (p. 43). Sellars allows that the manifest image he has constructed is simply "a useful fiction" formed by "abstracting correlational fruits from the conditions of their discovery", and it is claimed to be "no *mere* fiction" only because it enables us to bring the contrast with the scientific image into sharper view (p. 43). But the same work of abstraction and construction is, if anything, even more evident in the case of the scientific image, even by Sellars' own lights: the manifest image, we are told, allows us to

> [D]efine a way of looking at the world, which, though disciplined and, in a limited sense, scientific, contrasts sharply with an image of man-in-the-world which is *implicit* in and can be *constructed* from the postulational *aspects* of contemporary scientific theory. (p. 43; my emphasis)

The scientific image is constructed in one further way as well, by the imagined integration of many different and partial theoretical pictures of different scientific domains or subject matters: «Thus the conception of *the* scientific or postulational image is an idealization in the sense that it is a conception of an integration of a manifold of images» (p. 56). Sellars is not much troubled by this dimension of the problem of constructing a single scientific image of the world, but our less reductionistic age has learned to be considerably more circumspect about simply assuming that the various sorts of representations found in different parts of theoretical science can be smoothly integrated with one another.

It seems, then, that we are not *actually* confronted with any fundamental opposition or contrast between the scientific and manifest images unless and until we ourselves have done quite a bit of idealizing, abstracting, and constructing in order to generate these two competing images (or more properly, simply the ideas of these two competing images) from the materials of experience and scientific representation. But this implies first, that the demand to reconcile these two images is not a task set for us by our encounter with ourselves and the world but rather one that Sellars suggests we set for ourselves by idealizing, abstracting, and constructing our way to these two images in the first place, and second, that it is simply an article of faith on Sellars' part that the contrasts involved in the many different oppositions between which he slides can all be made to line up neatly into just two fundamental "master" representations of the world and our place within it. In other words, Sellars *invites* us to follow him in idealizing, abstracting, and constructing our way to a contrast between these two master representations, and it is by no means clear that we should accept the invitation.

Indeed, Sellars has pulled off a sort of conjuring trick, for whenever we go looking for particular examples of representations contrasting in *one or another* of the various ways he characterizes the manifest and scientific images respectively, suitable candidates can nearly always be located, but this does not show that Sellars has managed to identify exactly two "pictures of the world" that must be stereoscopically "fused". The ease with which we can identify such candidates in particular cases of contrasting representations is perhaps well illustrated by Sellars' appeal to Eddington's famous "two tables" as representatives of the manifest and scientific images respectively (p. 73), but it is a substantial further step to suppose that the representations on each side of *each* of the various oppositions so easily illustrated jointly constitute a single

comprehensive "image" of the world and our place within it that competes with a comparable single image jointly constituted by the other side of each opposition. And that further supposition appears to be a substantive as well as an historical and methodological fiction: we are not in fact faced with just one problem of fitting together distinct and sometimes competing conceptions of ourselves and our place in the world, but with many different such problems.[14]

All this suggests in turn that the broad ambition Sellars holds out for philosophy as a whole, to "understand how things in the broadest possible sense of the term hang together in the broadest possible sense of the term", may be much better served by his original metaphor of learning to "know one's way around" to than by the alternative of stereoscopic vision to which he so quickly shifts following what I called a visual or ocular turn. That is, instead of ascribing to philosophy the job of first creating and then reconciling two fundamental competing images of the world and our own place within it, these reflections suggest that the broad ambition Sellars holds out for philosophy is actually better served by viewing its charge as that of learning to navigate among the *various* kinds of representations we encounter and deploy of cabbages, kings, numbers, duties, possibilities, finger snaps, aesthetic experience, and death, with no expectation of any single uniform or homogeneous relationship between those representations. In forming a sense of how the "bailiwick" of each special discipline or department of knowledge «fits into the countryside as a whole» (p. 38), philosophical inquiry might be better seen as investigating how the various and multiply heterogeneous *actual* ways in which we represent parts or aspects of the world and our own place within it fit together and are related or connected to one another, rather than first idealizing away from those actual representations so as to create two fictionalized master representations and then asking what single homogeneous relationship those two idealized or fictionalized representations could even possibly bear to one another. In light of the sort of heterogeneity among representations we have encountered, this seems a far more promising starting point for reflectively illuminating and even improving the distinctive sort of

[14] I should perhaps acknowledge explicitly that I have not contributed anything here to what Sellars seems to regard as the most intractable of these problems: finding room for qualitative conscious experience in our theoretical scientific conception of ourselves. My point is rather that we will not gain traction on the many different problems of such reconciliation we face by insisting that they all arise in the course of trying to fuse two fictional "master" representations, or that there must be a single homogeneous relationship between those master representations.

"know-how" that allows us to navigate *between* and *among* the various sorts of representations of the world and our place in it that we use to make our way in that world.

Moreover, this recognition invites us to take a somewhat different view of the instrumentalist's burden with which we began. No longer does it seem natural to ask the instrumentalist what it would be like to take the picture of the world given to us by theoretical science as simply a powerful cognitive tool or instrument for guiding our practical engagement with the world, for we have lately been reminded that there is no such picture of the world. Instead, we regard some *particular* scientific theory about some particular part or aspect of nature as such an instrument. When we do so, we use it to predict, intervene, and otherwise guide our pragmatic engagement with inhabitants of the world *as* those inhabitants can be understood in terms of *other* representations (including perhaps other theories and even other scientific theories) whose ontological and other descriptive commitments we do straightforwardly embrace. Indeed, this is just the instrumental use that even scientific realists make of Newtonian mechanics, illustrating that we are *all* instrumentalists in this sense, and those on opposite sides of the question of scientific realism have historically differed not in whether they take up instrumentalist commitments at all but in their view of just which theories are the ones towards which such an attitude should be adopted. Elsewhere (2006, Ch. 8) I have tried to give a somewhat more detailed account of what this form of instrumentalist view would look like, but the most important point for present purposes is that regarding a particular scientific theory simply as a useful cognitive device for navigating with respect to other representations of the world and our place in it will represent just *one* of the many different ways in which our heterogeneous (scientific and nonscientific) representations of various parts or aspects of the world can be systematically related, connected, or integrated with one another. Seen in this way, it seems quite right for Sellars to suggest that learning to reflectively navigate among those interconnected representations and to "know our way around" with respect to subjects of our representations as diverse as cabbages, kings, numbers, duties, and all the rest is indeed a special concern of systematic philosophical inquiry, and thus that at least *one* fundamental aim of philosophy (though surely not the only one) is indeed to «understand how things in the broadest sense of the term hang together in the broadest sense of the term» (p. 37).

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