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Pragmatic Philosophy of Science and the Charge of Scientism

By the turn of the century, it was clear to William James, Thorstein Veblen and John Dewey that science was giving "its tone to modern culture." But for them, the consequences were more than uncertain. The most well-known advocates of science, Spencer, Clifford, Huxley and others, were not only defending agnosticism and positivism, but a view in which science was immunized from the biases and interests of human communities. James, Veblen and Dewey saw that this was far from being true. Indeed, James's criticisms hinged on ideas about the foundations of science which were completely novel, and Veblen and Dewey were clearest in seeing that science was being shaped by changes "in industry and in the economic organization of society." Science, pretender to transcendent authority, was becoming industrialized, technocratic.

David Hollinger has rightly argued that the critical role played by the pragmatists in American culture was "to find and articulate" a "way of life consistent with what they and their contemporaries variously perceived as the implications of modern science."¹ It is widely held, by friends *and* enemies, that they succeeded. On this interpretation, the pragmatists adopted a view of science in which successful prediction and control vindicated inquiry. By subordinating *all* inquiry to "practical ends," they could show that a belief was warranted *only* insofar as it was "scientific." Finally, they could then vindicate a culture whose "social motor" was science.² In what follows, I suggest that the foregoing interpretation is a stunning distortion and that the pragmatists failed utterly in their quest to set a new course for a "scientific" civilization. Not only were the forces at work resistant to their criticisms, but their fundamental insights, in a paradoxical inversion, became absorbed in distorted forms.

But they were not entirely blameless. The problem is not merely that the language they employed, including, of course, the term "pragmatism" itself, made it easy to misunderstand their views -although this was certainly true.³ Rather the problem was deeper. In particular, it regarded pragmatist views of the nature of philosophy and

of its relation to science. While the pragmatists were correct in seeing themselves as innovators, and while, finally, they may well have agreed on less than they disagreed, they did not wholly escape prevailing anti-metaphysical attitudes. Indeed, the nature of their commitment to experience made it easy to distort the nature of their commitment to practice. If I am correct, the deep problem in pragmatist thought is the turn away from "the epistemological question," explicitly taken by Dewey. The troubles begin with Peirce's verificationism and are enormously exacerbated by James's shift from the philosophy of his *Principles* to his radical empiricism. The difficulties in getting a handle on Dewey's philosophy can hardly be overstated. My treatment, which relies heavily on R. W. Sleeper's recent and important study, is but a sketch.⁴ In Sleeper's useful terms, if I am correct, Dewey's "logic of experience" and "metaphysics of existence" made his naturalism precarious and incomplete, a feature of his philosophy noticed, for example, by Woodbridge and Santayana. For me, his logic of experience needed what his metaphysics of existence would not allow, an indirect realism which affirmed that there is a causally efficacious non-experienceable world sufficiently structured to be inferentially knowable. Peirce struggled with the idea, and surely in *Principles*, James had held to such a view. But for reasons which I try to make clear, James and then Dewey supposed that it could be dispensed with. Spurred on by an emerging consensus over the nature of science, Peirce's "doubt-belief" theory of inquiry allowed Dewey to dissolve both "the problem of the external world" and "the mind/ body problem." For him, there was no problem of knowledge *überhaupt*, even if there were particular and concrete questions which cried for resolution, questions which persistent inquiry could answer. This meant, on Dewey's view, how might the methods of science be turned to human use? Yet, if as a consequence of the turn away from the epistemological legacy of modern philosophy, the idea of science which he assumed had positivist elements, then it became easy to see pragmatism as a technocratic philosophy.⁵ The story I have suggested is complicated, of course, and this essay must be considered but a sketch.

Peirce's Pragmatism

As everyone knows, what came to be called "pragmatism" was first set out by Peirce in two remarkable essays published in *Popular Science Monthly* in 1877-78.⁶ In the first, "The Fixation of Belief," he put forward his genuinely original "doubt-belief" theory of inquiry, what I shall take to be the core of "pragmatism." Insisting that "that sole object of inquiry is the settlement of opinion"--not as the tradition had held, the securing of truth, and that "belief is of the nature of a habit," he offered that of the possible modes of fixing belief, while all "do have their merits," the method of science had, finally, to be the one we must chose. Unlike "tenacity," but like "authority," it is consistent with the fact that humans are social beings. On the other hand, while the method of science can give us "a clear logical conscience," as with "all that we cherish," it "costs us dear." The other methods, indeed, are psychologically satisfying and easy. The *a priori* method, e.g., allows "the action of natural preferences" to be "unimpeded" and "under their influences" lets people "conversing together and regarding matters in different lights, gradually develop beliefs in harmony with natural causes" (p. 105)--Peirce's version of philosophy as "conversation." Similarly, the method of authority is not only propelled by our natural feelings of "sympathy and fellowship," but, striking a skeptical note, if for "the mass of mankind" it is "their highest impulse to be intellectual slaves," then "slaves they ought to remain."⁷ Nevertheless, as with the mate one has selected, one must "work and fight" for the method of science, never complaining that "there are blows to take, hoping that there may be as many and as hard to give..." (p. 112). Why this effort? Exactly because the method of science alone "presents any distinction of a right and a wrong way" (p. 108f.). Its "fundamental hypothesis" is that

there are real things, whose characters are entirely independent of our opinions about them; these realities affect our senses according to regular laws, and, though our sensations are as different as our relations to objects, yet, by taking advantage of the laws of perception, we can ascertain by reasoning how things really are...(p. 107f.)

I want to emphasize that (1) for Peirce, the "doubt-belief" theory rules out the question of the existence of an "external world " as a sceptical question, even if versions of "realism" and "idealism " remained open questions. That is, neither solipsism nor the problem of other minds can be taken seriously. Peirce cannot "prove" that there is something "which affects or might affect every [one], " but "upon which our thinking has no effect." Yet there is no reason that a genuine doubt should arise in the practice of the method; indeed, "nobody...can really doubt there are realities, or, if he did, doubt would not be a source of dissatisfaction" (p. 108). (2) We can know "how things really are" even if the effects of reality on us "are necessarily as various as are individual conditions." We can because we can assume that there are "regular laws" involved in our transacting with "real things." As Peirce later makes clear, this guarantees that given infinite time, there will be agreement on the part of all inquirers. Finally, (3), not only does "everybody use the method," hesitating only when "he does not know when to apply it," but "scientific investigation has had the most wonderful triumphs in the way of settling opinion" (*ibid.*). More generally, then, I am suggesting that the "doubt-belief" theory is a psycho-social --and thus scientific -- theory of belief, but that Peirce aims to provide a *philosophical* defense of a particular method of fixing belief, the scientific method, the foundations for which are in common sense. To put the matter briefly (if cryptically), Peirce recasts the "epistemological problem" by accepting the Kantian "insulation" against scepticism, but by rejecting Kant's transcendental move.⁸

This enormously rich beginning was followed by "How to Make Our Ideas Clear," the essay which contains Peirce's famous "pragmatic maxim." Usually read as the earliest --and clearest! --expression of the "operationalist" theory of meaning, the essay addressed a problem which a host of writers had begun to address: the distinctive character of the *terms* of science. Peirce, and of course, James and Dewey, began their inquiries at just the time that a host of philosopher/physicists were producing books and articles in what we would now call "the philosophy of science." These included G. R. Kirchoff, Wilhelm Ostwald, Ludwig Boltzmann, Hermann Helmholtz,

his pupil, Heinrich Hertz, Ernst Mach, W. K. Clifford and his student, Karl Pearson, Henri Poincaré and Pierre Duhem. These men all spoke with enormous authority exactly because, by then, science was rapidly becoming an evident force in the daily lives of people. Moreover, all of these men have been called "positivists" in that, following Kant, they held, first, that scientific explanation must eschew appeal to what in principle is beyond experience, that to do so takes one into metaphysics, and second, following Berkeley and Hume, that "laws of nature," are but empirical invariances.⁹ This thesis was related to the first, and, as we shall, it was a critical one.

In his *Analytic Mechanics*, then, Kirchoff had said that we understand the effect of force, but do not understand what force is. Peirce found this self-contradictory: "the idea which the word 'force' excites in our minds has no other function than to affect our actions, and these actions can have no reference to force otherwise than through its effects" (p. 129). It surely seems here that, as Ostwald and Mach argued, force is not some "mysterious power" but is nothing other than its "sensible effects." Peirce illustrated his famous principle by asking if one could say of a diamond that had been crystalized in the midst of a cushion of cotton and had remained there until it was burned up, whether it was *really* hard? He responded, confidently, that "the question of what would occur under circumstances which do not actually arise is not a question of fact, but only of the most perspicuous arrangement of them."

We know that Peirce came to see that his initial attempt to reconcile realism and phenomenalism, the characteristic drift of positivist philosophies of science, foundered on the assumption that nothing is possible which is not actual or will not become actual. The issue was not merely whether unscratched diamonds are hard, but more generally, there was the question of that Reality which he had posited as so essential to the method of science. When Peirce applied his principle to the meaning of "the real," he was led, as everyone knows, to assert that "the opinion which is fated to be ultimately agreed to by all who investigate is what we mean by the truth, and the object represented in this opinion is the real" (p. 133). Against himself, he asked whether this was consistent with the definition given in

his fixation essay? Did it not, in idealist fashion, make "the characters of the real depend upon what is ultimately thought about them." He answered that "reality is independent, not necessarily of thought in general, but only of what you or I or any finite number of men may think about it" (*ibid.*). Murray Murphey was surely correct to conclude :

In Peirce's system, the infinite future plays the part of the philosopher's stone; it transforms possibility into actuality without compromising either the inexhaustibility of the possible or the limitations of the actual. On the one hand, the real must be a permanent and inexhaustible possibility of sensation; on the other, it must be wholly cognized.¹⁰

But if "the real" is to provide a constraint on *current* belief adequate for epistemic purposes, will this do ?

In *The Monist* of 1905, he returned to these problems. In the first of two essays, he made clear that "instead of merely jeering at metaphysics, like other prope-positivists, the pragmaticist extracts from it a precious essence, which will serve to give life to cosmology and physics" (p. 192). This "precious essence" was his "scholastic realism " - and precious it indeed was.

But if pragmatism was "prope-positivist," what did this mean? He began the essay with an anecdote about an "experimentalist." He wrote:

If you talk to him as Mr. Balfour talked not long ago to the British Association saying that "the physicist...seeks something deeper than the laws connecting possible objects of experience," that "his object is physical reality" unrevealed in experiments, and that the existence of such non-experienceable reality is "the unalterable faith of science" ...you will find the experimentalist mind to be color-blind. (p. 182)

Although the phrase, "unrevealed in experiments, is more problematic than may appear,

this could have been written by Ostwald or Mach, Poincaré or Pearson: Science aims at discovering laws which connect possible objects of experience, where this means, laws of in- variance between phenomena. But in that same essay, Peirce was as emphatic about his scholastic realism as he was emphatic about what for him was the real novelty of the new pragmatic theory: "its recognition of an inseparable connection between rational cognition and rational purpose," the connection which James will be so pleased to develop.

Whatever Peirce intended by his scholastic realism, it is clear enough to see that it is inconsistent with all the positivisms, Comte's, Mill's, Mach's or later Vienna varieties. While for Peirce, there was no "non-experienceable reality" --in this he agreed with Kant and the positivists, "there are real objects that are general, among the number being the modes of determination of existent singulars." The article of 1878 had either glossed over this point as "unsuited" to the public there addressed or, he noted, "perhaps the author wavered in his own mind" (p. 215). In that essay, he had written: "it would be merely a question of nomenclature whether that diamond should be said to have been hard or not." This is, he now writes, no doubt true, "except for the abominable falsehood in the word 'merely,' implying that symbols are unreal." "Nomenclature involves classification," he continued, "and classification is true or false." Thus, "the generals to which it refers are either reals...or figments" (p. 215). In this case, the "generals" are real: There are diamonds and anything which is really a diamond is really hard because being hard is an inseparable property of at least some of those other properties which make a diamond what it really is. It *must* be hard. He wrote:

Being a diamond, it was a mass of pure carbon, in the form of a more or less transparent crystal...it could be found to be insoluble, very highly refractive, showing under radium rays...a peculiar bluish phosphorescence, having as high a specific gravity as realgar...and giving off during its combustion less heat than any other form of carbon would have done. From some of these properties hardness is believed to be inseparable.

For like it they bespeak the high polemerization of the molecule. (p. 219)

The point must not be missed. On positivist versions, laws of nature are construed as universal conditionals of the form $(x) (Fx \supset Gx)$ where ' \supset ' is "suitably" interpreted. That is, a law is construed as a contingent relationship between the extensions of its terms, "all F's are G's". But on Peirce's view of the matter, a law expresses a nomic relationship between properties, between F-ness and G-ness, properties to which we refer with corresponding abstract terms.¹¹ The reality of the diamond *is* expressed in the truth of "general conditional propositions," but these are not construed in a Humean fashion, for as Peirce saw (and Kant before him), on such a view, science is not possible.

In an unpublished manuscript, "Laws of Nature and Hume" (1901), Peirce's criticism of Hume (and the Humeans) is decisive. He writes:

...we do not say that the alternation of day and night is necessary, because it depends upon the circumstance that the earth continually rotates. But we do say that by virtue of gravity every body near the surface of the earth *must* be continually receiving a component downward acceleration...Nor do Hume or his followers dream of denying that. But what they mean when they say there is not "necessity" in gravitation is that every "event" which gravitation formulates is in reality totally *independent* of every other; just as Hume supposes the different instances of induction to be *independent* "evidences." One stone's falling has no real connection with another's fall...The objection to Hume's conception of a Law of Nature is that it supposes the universe to be utterly unintelligible, while, in truth, the only warrant for any hypothesis must be that it renders phenomena intelligible. (p. 310)

Abduction leads us to conclude that gravity is a structural property of all bodies; hence, $d = 1/2at^2$ is a law. It is a contingent fact that

the world is constituted such that gravity is true of all bodies and it is a contingent fact that some particular body be near the earth, but if the theory is true, then that body "*must* be continually receiving a component downward acceleration"; in free-fall, it *must* fall as $1/2 at^2$. Science needs real connectedness; but such connectedness is not the product of constitutive features of the mind, as Kant had it. Connectedness is in the mind-independent world. It is thus that for Peirce, there are "objective possibilities," unactualized, but real.

Plainly, I cannot here do any sort of justice to Peirce's complicated and ingenious philosophy of science. Murray Murphey has, I think, caught its most fundamental premises in his account of the "material aspects" of Firstness, Secondness and Thirdness. Briefly, Firstness and Secondness involve, critically, a psychological theory of perception. The phenomenal suchness of a percept, Firstness, is a product of unconscious inferences of neural stimuli --as Helmholtz had argued. Secondness is the stubbornness or compulsory character of sensation. Thirdness, then, is lawfulness. As Peirce wrote:

Whatever is subject to law is capable of representation by a sign of which that law is the meaning, and whatever is subject to law is itself a sign of the law to which it is subject. It is in this sense that Thirdness is at once the category of law and of rationality and intelligibility. (Quoted by Flower and Murphey, p. 604. See Murphey, *Development*, p. 317)

Since the pragmatic theory of meaning holds that "what a thing means is simply what habits it involves," and since "habits" are themselves analysable as conditionals supporting expectations--realistically understood--we can see how critical is Peirce's anti-Humean concept of law.

There are all sorts of questions which might be asked here, not least whether, in whole or in part, Peirce's philosophy of science can be sustained? I forego the temptation to engage this question. Instead, I merely emphasize that Peirce packed a great deal of empirical science into his theory of knowledge and that because all of the

usual categories, positivist, realist, idealist, fit his thought, none of them did. He did deny with the positivist that there was a "nonexperienceable reality," a consequence of his ingenious, if unsuccessful, effort to combine realism and phenomenalism. No doubt this fostered confusion. Moreover, like them, he offered a verificationist theory of meaning, but unlike them, he tied this to a psycho-social theory of belief and a strong version of lawfulness, a version which was under- girded by his scholastic realism. His conditionals were not exhausted by the material conditionals of later verificationist theories. For Peirce, Thirdness was a critical ontological category guaranteeing his semiotic. The ideologists of "scientific method " liked the "operationist" part of the story and at least in part because so much of Peirce's work was unpublished, the very complicated metaphysics which sustained it was ignored. Aided and abetted by the loose language of James's *Pragmatism*, the former came to fit neatly into the *Weltanschauung* of the times, initiating the myth of Peirce, the seminal American pragmatist *cum* positivist.

James and Dewey each found different things in Peirce, but it is fair to say that they both liked what Peirce saw to be the genuine novelty of "pragmatism," namely, the "inseparable connection between rational cognition and rational purpose." Although James had arrived at a similar notion at about the same time as Peirce, it found its most developed expression in James's *Principles of Psychology* (1890).¹²

The Context of James's Principles

James *Principles* is perhaps one of the two or three greatest books in the history of psychology. Yet contrary to the conventional wisdom, it had practically no influence on the development of American psychology. It would take another essay to begin to show this, but since the problem is germane to the present argument, something needs to be said.

We can notice, first, that *Principles* was published when the subject-matter and method of psychology as a science were still very much unsettled¹³ For example, was psychology concerned with the "laws of the mind" (as in Mill, Bain, the later Wundt)? Or with giving

a neurophysiological account of the phenomenon of mind, including the physiology of sensation and the genesis of "reasoning" (as for example, in Helmholtz or Spencer)? What was its relation to "logic" (as in Venn or Lotze)? Or perhaps the task of psychology was "practical," in "behavior"? Was its concern "the generalized, normal human adult mind" or the psychology of individual differences? And finally, what of its methods? Was introspection part of "experimental psycholog," independent of it, or to be completely rejected ?

Moreover, and critically, American psychology had just begun to find a place in the new American "university." There were vast new opportunities being created by the exploding system of higher education, by the mushrooming problems of immigration and urbanization and by the incorporation of scientifically generated technologies into the rationalized industrial system. To make a long story short, it is clear that American psychologists responded with a nearly single-minded emphasis on what has come to be called "applied psychology ," a psychology put to "practical use."¹⁴ Defined then as "the science of behavior" (by MacDougal, in 1908), psychology could be "scientific," which, as J. B. Watson was shortly to insist, meant not merely the rejection of introspection as a means, but rejection of all the traditional goals for the new science. As Watson put it, "the theoretical [sic] goal" of scientific psychology was not to be the study of "mind," but to be "the prediction and control of behavior ." Watson merely lit a match to a mass that had been kindling. Watson became famous because he was acutely sensitive to what had been happening in American psychology and, in "behaviorism," he found just the right slogan. Thus in his famous 1913 paper, he noted that:

those branches of psychology which have partially with- drawn from the parent, experimental psychology, and which are consequently less dependent on introspection are today in the most flourishing condition. Experimental pedagogy, the psychology of drugs, the psychology of advertising, legal psychology, the psychology of tests and psychopathology are all vigorous growths.¹⁵

Indeed, in modelling "theoretical" psychology on applied psychology, American academic psychology became the exemplar of a positivist and technocratic science. But all this was utterly foreign to the *Principles*. It is true, of course, that the influence of Darwin made James's psychology (like Dewey's) "functionalist." But the term "functionalism" is as misleading as "pragmatism" turned out to be. The pragmatic psychologists were "functionalist" in insisting that there was a relation between cognition and purpose, that consciousness was "selective," that coordination is holistic, adaptive and teleological, and more generally, that "mechanism" in biology will not suffice. But James, the pragmatist, was *never* interested in the "mind in use" if that means that he was interested in "the prediction and control of behavior."¹⁶ Indeed, if anything, the *Principles* is better described as a naturalized epistemology! It *seemed*, at least, to offer answers to questions which had been the province of epistemology, an effort to show scientifically how it is that we have *knowledge* of things in space and time, how percepts are related to sensations, why there is a stream of consciousness, what are the conditions of reasoning and inference? Not only was James committed to inquiry into the physiological "conditions" of the phenomenon of mind, but for him introspection was *indispensable* to psychological science.

James's Philosophy of Science

James offered, modestly and misleadingly, that the originality of his *Principles* consisted in its "strictly positivist point of view."¹⁷ It is important first to see what James did *not* mean by this.

He was clear that the results of scientific inquiry were in no way the "immediate results of experience" nor were "scientific objects" restricted to what is found *in* experience. Thus, "the essence of things for science is not to be what they seem, but to be atoms and molecules moving to and from each other according to strange laws...What we experience, *what comes before us*, is a chaos of fragmentary impressions interrupting each other; what we *think* is an abstract system of hypothetical data and laws" (II, p. 1230-31).

Plainly, we *do something* with "what comes before us." But there

are two aspects of this. There is first what we *all* do if we are to have coherent experience, if we are to convert "the chaos of fragmentary impressions" to a grasp of the "habitudes of concrete things." The grasp of these, the "proximate laws of nature," for example, that heat melts ice and salt preserves meat, form "an enormous part of human wisdom." These "empirical truths" are "practical." Indeed, they are indispensable to the continued reproduction of human communities. In James's view, getting an understanding of how we come to have such knowledge was the first problem for a scientific psychology. But there is, as well, what *as scientists* we do: The effort to explain these "proximate laws" by means of theories which, for example, speak of polemerization or gravitation. For James, such theories have an entirely different aim and ground. "The popular notion that 'Science' is forced on the mind *ab extra*, and that our interests have nothing to do with its constructions, is utterly absurd." But James emphatically denied that the "interest " which generates science is "practical." Picking up a theme he had advanced in "The Sentiment of Rationality," he insisted that "the craving to believe that the things of the world belong to kinds which are related by an inward rationality together, is the parent of Science as well as of sentimental philosophy. " Moreover, "the original investigator always preserves a healthy sense of how plastic the materials are in his hands" (*Principles*, 11, p. 1260).

Scientific inquiry might yield technologies, but James was clear that this was neither its motivation nor its vindication, a point which Veblen put to such good work in his "The Place of Science in Modern Civilization." In contrast to the "proximate laws of nature," scientific theories are "abstract systems of laws." They "have to harmonize" with the "proximate laws of nature," yet they are tested not in the course of everyday experience, but in "artificial experiments in the laboratory." James seems to see that, in order to set up an experiment, we need to "conjecture" that there is some unobservable mechanism whose processes have predicted effects. We contrive the experiment, then, so as to eliminate conditions which, in uncontrolled common experience, would interfere with its un-complicated operation. That is, "experience," in Baconian fashion,

does not "engender" the "inner relations." Rather, in experimentation, we *generate* experiences which give us evidence of the reality postulated by the theory.¹⁸

Accordingly, what is pertinent to defining success will differ as well. Practical purposes offer practical tests; the interests of theoretic rationality, the "constructions" which bring "a strong feeling of ease, peace, rest," the "lively relief" which comes with "rational comprehension," answer to "the aesthetic Principle of Ease" (*Essays*, p. 35), what Veblen termed, "the test of dramatic consistency. "

In *Principles*, James's selected example is a long text from Helmholtz's *Die Efhaltung der Kraft*. Helmholtz had it right: Theoretical science "tries to discover the unknown causes of processes from their visible effects; tries to understand them by the law of causality...The ultimate goal of theoretical physics is to find the last *unchanging* causes of the processes of nature" (*Principles*, II, p. 1261).¹⁹

To be sure, James gave this a novel twist: "What makes the assumption [of unchanging causes] 'scientific' and not merely poetic, what makes a Helmholtz and his kin *discoverers*, is that the things of Nature turn out to act as if they *were* of the kind assumed" (*ibid.*). Over metaphysics, aesthetics and moral philosophy, science has an advantage:

...Though nature's materials lend themselves slowly and discouragingly to our translation of them into ethical forms; but more readily into aesthetic forms; to translation into scientific forms they lend themselves with relative ease and completeness. The translation, it is true, will probably never be ended. The perceptive order does not give way, nor the right conceptive substitute for it arise at our bare word of command. It is often a deadly fight. (II, p. 1236)

This is perhaps the basis of James's most profound ethical claim, repeated in many different formulations, that "the inmost nature of ...reality is congenial to *powers* which [we] possess." Moreover, saying that "the translation...will probably never be ended" suggests that James would reject, as I think he should, the Peircean notion that in the end,

there will be some one true "description" that is the product of persistent inquiry. Indeed, this would seem to be the case, as well, as regards ethical and aesthetic matters. Yet, the belief that there are "atoms and molecules moving to and from each other according to strange laws" is a belief about the nature of a hidden reality. Indeed, in his notes for the 1879 "The Sentiment of Rationality," there is a brilliant argument for the pragmatic pertinence of the idea of a *non-experienceable* reality. James says:

The principle of "pragmatism" which allows for all assumptions to be of identical value so long as they equally save the appearances will of course be satisfied by this empiricist explanation...[viz., as according to Mill, that no mysterious "outness" needs to be postulated]. But common sense is not assuaged. She says, yes, I get all the particulars, am cheated out of none of my expectations. And yet the principle of *intelligibility* is gone. Real outness makes everything simple as the day, but the troops of ideas marching and falling perpetually into order, which you now ask me to adopt, have no *reason* in them -their whole existence is *de facto* and not *de jure*.²⁰

Nevertheless, if British phenomenalism did not suffice, neither could he accept a "more" beyond the actual as it functioned in Spencer and Kant. Appealing to Peirce's arguments, he first notes that "most scientific readers of Spencer wholly fail to catch the destructive import of his theory...They are willing to believe with the Master that the deepest reality is the absolutely irrational, because that reality is unknowable, but few of them ultimately realize that the knowable of their philosophy forms a world of Chance pure and simple" (*Essays*, p. 369). Spencer's "unknowable" cannot function to give order, since to do this it must be *known* to have properties which could *explain* the orderliness of experience. It was thus that the "plus ultra in many philosophies--in Mr Spencer's and in Kant's e.g., the noumenon is a dog in the manger, it does nothing for us itself but merely stands and blasts with its breath the actual" (p. 371).

James was haunted by the apparent intractability of making sense of a relation between "outer" and "inner," between mental facts and facts in the world independent of mind. At this point at least, none of the inherited forms of phenomenalism would suffice. Moreover, so as to be clear, they did not suffice not because, or only because, of flaws in the associationist treatment of the connectedness of experience, but because "the troops of ideas...have no *reason* in them." James agreed here with Peirce that the real could not be reduced to the actual: "There are still other forces at work in the mind which lead it to suppose something over and above the mere actuality of things." These include "the sense of futurity, the power of expectation" and our moral judgments, which "also involve [...] the notion of something related to the instant representation and yet lying beyond its mere actuality" (p. 369f.).

The "Sentiment of Rationality" is important in another way. In holding that "conceptions, 'kinds' are teleological instruments," serving the needs of "theoretic rationality," he hinted at an utterly novel solution to some age-old problems, problems given a full-blown naturalistic treatment in *Principles* in the chapters on conception (XII), reasoning (XXII) and necessary truths (XXVIII).

On this view, classification, judging and predicating *presuppose* "a rather intricate system of necessary and immutable ideal truths of comparison." The "empiricists" are wrong in supposing that necessary truths are merely the result of "experience" or as Spencer had it, of "mere paths of 'frequent' association which outer stimuli ...ploughed" into the brain. But the apriorists are also wrong since the "eternal verities" which "our mind lays hold of do not necessarily themselves lay hold on extra-mental being, nor have they, as Kant pretended later, a legislating character even for all possible experience." Rooted "in the inner forces which make the brain grow," and therefore *not* transcendental, they can be given a wholly naturalistic explanation.

Moreover, psychology shows that classification is functional in the sense that essential attributes are nothing more than abstracted properties which serve inference. While "universals" need *not* be ground-ed in "reality," if we are to think at all, they are nevertheless indispensable.

It is not surprising, accordingly, that if Mill *et al.* "begin with a clear nominalist note, they are sure to end with a grating rattle which sounds very like *universalia in re*, if not *ante rem*" (*Essays*, p. 49). As Peirce had already insisted, if "particulars" are wholly independent, inference is impossible. But on James's view, Peirce's "generals" did not need to have ontological status, either *ante rem* or *in re*. "The only meaning of essence is teleological...classification and conception are purely teleological weapons of the mind" (*Principles*, II, p. 961).

Yet it is critical to see also that James's "pragmatic" account presupposes--as he sees --that there are relatively enduring "things," that "the world" which is independent of mind is not Heraclitean: "This world *might* be a world in which all things differed, and in which what properties there were were ultimate and had not farther predicates." Fortunately, *our* world "plays right into logic's hands. *Some* of the things...are of the same kind as other things; *some* of them remain always of the kind which they once were; and some of the properties of them cohere indissolubly and are always found together" (II, p. 1246-47.). That is, as Peirce had insisted, the "objects" of the external world have some "character" *or other*, even though they need not be self-identifying to be cognized. If they are not self-identifying, however, the way they got identified can be largely a function of human purposes, *generically understood*. H₂O is not "more deeply and truly" the essence of water than it is "a solvent of sugar or a slaker of thirst" --since "it is all of these things with equal reality" (II, p. 961, note). Still, for scientific purposes, H₂O is primary, exactly because the scientific interest in "the interest of theoretic rationality. "

The foregoing shows, I believe, that James offered a powerful philosophy of science which was not vulnerable to the difficulties in Peirce's more speculative view.²¹ And it was not a positivism: "All ages have their intellectual populace. That of our own day prides itself particularly on its love of Science and Facts and its contempt for all metaphysics (*Essays in Philosophy*, p. 56). Positivists fool themselves if they suppose that they dispense with metaphysics. Indeed, "Metaphysics of some sort there must be.

The only alternative is between the good Metaphysics of clear-headed Philosophy and the trashy Metaphysics of vulgar Positivism " (p. 57).

James's philosophy of science was no "trashy metaphysics of vulgar Positivism." yet, James prefaced *Principles* by insisting that in writing it, he had adopted "a strictly positivist point of view." If I am correct, the nature of James's "positivism" is centrally connected to the problem acknowledged by James, that *Principles* was confusingly a psychology *and* an epistemology.

Psychology or Naturalized Epistemology?

James insisted that a psychology which takes "the natural science point of view," must assume as data (a) mental states of humans (experience) (b) physical things and states in a spatio-temporal environment and (c) knowledge by humans of things of type (b) (1,6, and p. 184). But he also asserted that "the relation of knowing is the most mysterious thing in the world," that "if we ask how one thing *can* know another we are led into the heart of *Erkenntnisstheorie and metaphysics*" (I, p. 212). A moment's consideration will show, however, that if the latter is true, there are some serious problems for psychology as a science. Indeed, it was the fear of metaphysics which had led Mill, for example, to restrict psychology to investigation of mental states,²² just as it led the behaviorists to redefine the goals of a scientific psychology. James nevertheless insisted that while psychology was "the Science of Mental Life," this necessarily committed the psychologist to investigation of not just its "phenomena," e.g., consciousness and the stream of thought, but to investigation of its "conditions," physiologically *and* in the "outer world."

Similarly, while he seems to deny that psychology, approached from "the natural science point of view," needs to solve the mind/ body problem, he attacked materialism, spiritualism, parallelism *and* epiphenomenalism. For him, "mental phenomena are not only conditioned *a parte ante* by bodily process, but they lead to them *a parte post*" (I, p. 18). That is, although brain activity is a necessary causal condition for mental phenomena, for James, it seemed obvious that mental phenomena were themselves irreducibly real and had causal efficacy. Not only do they lead to *acts* -- "of course the

most familiar of truths" --but mental states "occasion...changes in the calibre of blood vessels...or processes more subtle still, in glands and viscera." His emergent naturalism recurs throughout *Principles*. The following brilliantly suggests his notion of this:

What happens in the brain after experience has done its utmost is what happens in every material mass which has been fashioned by an outward force. ..The fashioning from without brings the elements into collocations which set new internal forces free to exert their effects in turn. And the random irradiations and resettlements of our ideas, which *supervene upon experience*, and constitute our free mental play, are due entirely to those secondary internal processes, which vary enormously from brain to brain. .. The higher thought-processes owe their being to causes which correspond far more to the sourings and fermentations of dough, the setting of mortar, or the subsidence of sediments in mixtures than to the manipulations by which these physical aggregates came to be compounded. (II, pp. 1234-35)

James was not, however, clear on how such a non-reductive naturalistic response to the mind/body problem had to be worked out.²³ Indeed, one might say that the Cartesian (ontically dualist) formulations which also occur in *Principles* suggest more than unclarity, that they reveal tensions not resolved in James's own mind.

James's 1894 Presidential address to the American Psychological Association, "The Knowing of Things Together,"²⁴ was a clear step in the resolution of the tensions of the *Principles*. In that essay, he considered a host of theories in response to the psychological problem of "the nature of the synthetic unity of consciousness" and concluded that for various reasons, none of the theories can be accepted. But what of his own view in the *Principles*? He there had proposed "to simply eliminate from psychology 'considered as a natural science' the whole business of ascertaining how we come to know things together *or to know them at all*" (p. 87, my emphasis). "That we

do know things, sometimes singly and sometimes together, is a fact. That states of consciousness are the vehicle of knowledge, and depend on brain states, are two other facts." At that time he supposed that "a natural science of psychology might legitimately confine itself to tracing the functional variations of these three sorts of fact" (*ibid.*).

It was precisely, then, in his claim that a science had to restrict itself to "functional variations" between "facts" that James was a positivist. For despite texts which suggest the opposite, for example, his willingness to countenance Helmholtz on the search for hidden causes, he more generally seems to agree with the positivists that *all talk about causes as productive powers* is metaphysical. Science aims at but "functional variations."

The point is critical. The clearest statement is in Vol. I, of *Principles*, in his criticism of "the automation theory." James insisted that "the whole question of interaction and influence between things is a metaphysical question...It is truly enough hard to image the 'idea of a beefsteak binding two molecules together;' but since Hume's time it has been equally hard to imagine anything binding them together" (I, p. 140). The problem is not merely mind and matter as different "stuffs," but of the causal interactions between molecules constituting a beefsteak! The whole idea of "binding," he wrote, "is a mystery, the first step towards the solution of which is to clear scholastic rubbish out of the way." It was true that "popular science talks of 'forces,' 'attractions' or 'affinities' as binding the molecules," but while such words may be used "to abbreviate discourse," "clear science [Mach, Pearson, Ostwald!]...has no use for the conceptions, and is satisfied when she can express in simple 'laws' the bare space-relations of the molecules as functions of each other and of time" (*ibid.*).

The automatists "pull the pall over the psychic half of the subject only...and say that *that* causation is unintelligible, whilst in the same breath one dogmatizes about material causation as if Hume, Kant, and Lotze had never been born" (I, p. 140). James insists that one must be "either impartially *naif* or impartially critical," either "pull the pall" over the whole business *or* admit both physical *and* psychic causation:

If the latter, the reconstruction must be thorough-going or "metaphysical," and will probably preserve the common-sense view that ideas are forces, in some translatable form. But Psychology is a mere natural science, accepting certain terms uncritically as her data, and stopping short of meta-physical construction. (I, p. 141)

He had defined psychology as "the Science of Mental Life, both of its phenomena and their conditions," and as he says many, many times, he is interested in ascertaining all sorts of "conditions"--of e.g., memory, I, p. 17; of discrimination, I, p. 494-98; of thinking that what we believe is real, II, p. 917-935, etc. But not only is he never bashful about employing causal language and in implying that it is explanatory --no scientist is!-- but one may reasonably wonder what are the conditions for something existing or happening if, taken together, they are not its *causes* and do not *explain* ? Moreover, it was clear to James, even if amazingly missed by so many, that one cannot experience the *causes* of experience. Indeed, there had to be complicated causal relations between the three sorts of "facts" involved in knowing. Even the "spiritualist" and the "associationist" are "cerebralists" since they must admit that "certain peculiarities in the way of working of their own favorite principles are *explicable* only by the fact that the brain laws are a *codeterminant* of the result" (I, p. 18, my emphasis).

Nevertheless, *for good historical reasons*, James, like Spencer, remained trapped in the idea that *scientific* causation was merely *empirical invariance*.²⁵ But if so, then if he were consistent, psychology, as James had defined it, was not likely to achieve its goals. It is true that one *begins* "naively," by taking for granted that people have minds, that there is a physical world and that people have knowledge of *it*, but if one then refuses to consider *how*, one is surely not going to *explain* perception, conception, reasoning, learning, memory *or anything else*. On the positivist view, of course, explanation is either subsumption (deduction, inclusion in "a class already known") or it is "metaphysical" - appealing to "occult forces," "substances," "powers."²⁶ James offered no deductions and he produced no empirical

invariances between the three sorts of "facts," between, for example, the experience of red tomato, some discharge of neurons and some 'thing' in the external world. Indeed, exactly because an enormous number of very different kinds of causal mechanisms are involved in my experiencing red tomato --are "codeterminant of the result"--it is hard to see how this could be possible! On the other hand, when in terms of "conditions," he did propose an explanation, for example, of memory, he was then well on his way to that "thorough-going," "metaphysical" reconstruction which would have been at least part of naturalistic epistemology. An excellent example of this tension is James's discussion of memory. The reader has been led to believe that he is getting some explanations, but just before James concludes his brilliant account, he asserts:

A word, in closing, about the metaphysics involved in remembering. According to the assumptions of this book, thoughts accompany the brain's workings, and those thoughts are cognitive of realities. The whole creation is one which we can only write down empirically, confessing that no glimmer of explanation of it is yet in sight. That brains should give rise to knowing consciousness at all, this is the one mystery which always returns, no matter of what sort the consciousness or of what sort the knowledge may be. (*Principles*, I, p. 647)

It is a remarkable fact, but nonetheless a fact, that positivist assumptions about causality and lawfulness *are* adequate to a scientific psychology which *denies* that it is "the Science of Mental life, both of its phenomena and their conditions." By taking "prediction and control" as its "theoretical" (sic) goal, such a psychology avoids the troublesome "metaphysics" of mind/body, *and* of knowledge and reality. Or better, as James had it, it assumes "the trashy Metaphysics of vulgar Positivism."

Radical Empiricism

By the 1894 "Knowing of Things Together," James "became convinced...that no

conventional restrictions *can* keep metaphysical and so-called epistemological inquiries out of the psychology-books" (*Essays*, p. 88). But this did not lead him in the direction of a metaphysical reconstruction which would have allowed a full-blown non- reductive, physiological psychology replete with physical and psychic causation as a *replacement* for some of the central problems of traditional epistemology. It led him, instead, to "radical empiricism," as John McDermott rightly says, to a novel *metaphysics of experience*.

This then is the heart of the problem. Was it possible to have both a physiological psychology which displaced traditional epistemology *and* a metaphysics of experience, or indeed, are the two ideas at bottom inconsistent?

From the beginning, James had sought to transform empiricism. As Hollinger says, his previous efforts had been in work which James himself called "practical and psychological."²⁷ Thus, the idea that relations as well as particulars come to us as part of a single "stream" was offered in response to both "associationist" psychology and to neo-Kantian alternatives. As I have suggested, this attack was fully consistent with the indirect realism of *Principles*. Still, the problem of the relation of knower to known and of mind to body haunted James. He made the break with "radical empiricism."

It seems that, originally, "radical empiricism " was, for James, merely a name of "an attitude." But increasingly he came to think of it as the name for a technical position in epistemology and metaphysics, a "doctrine" which allowed him to overcome the limitations of conventional empiricisms *and* to dispense with the "inclusive mind" of the idealists. Nothing could be clearer, I believe, than that James overcame with the new doctrine of pure experience what, for him, were ultimately invidious dualisms in his own psychology. What, in *Principles*, he had called "the most mysterious thing in the world" was now, remarkably, fully intelligible.²⁸

If we start with the supposition that there was only one primal stuff or material of the world, a stuff of which every- thing is composed, and if we call that stuff "pure experience," then *knowing can easily be explained*

as a particular sort of relation towards one another into which portions of pure experience may enter. (*Essays in Radical Empiricism*, p. 4, my emphasis)

Yet I do not see how to square radical empiricism with any vision of an indirect realism. Thus the well-known "postulate" of radical empiricism asserts:

...the only things that shall be debateable among philosophers shall be things definable in terms drawn from experience. [Things of an unexperienceable nature may exist ad libitum, but they form no part of the material for philosophic debate.]

If what is not definable "in terms drawn from experience" cannot be a matter of rational debate, it is hard to see how this is not a phenomenalism.²⁹

One might hold here that this takes James too strictly or that it reads James in the light of developments in epistemology and the philosophy of science with which he had little concern. Why, for example, hold James to the logician's sense of "definable in terms drawn from experience"?

There is, I believe, an important case to be made here. James *as a philosopher* was a "popular" writer whose concerns far outran the concerns of the professional community (including the present writer!), who *now* struggle to get straight his "epistemology" and "metaphysics." James could applaud Mach and influence Russell, but the James who left the psychological laboratory was ambivalently an "epistemologist" *and* a trenchant cultural critic. As Hollinger has argued, "especially did James fear that his contemporary intellectuals were forming a culturally destructive idea of what it meant to be 'scientific.'"³⁰ Thus, the tragic irony: Because his scientific psychology seemed to him to involve an invidious dualism, James opted for an innovative metaphysics of experience. This theory, he hoped,

gave *logical* rights to those "too tender to give up religion, but too tough to give up science." But unnoticed was the fact that this theory also undercut the theory of science he so brilliantly sketched in *Principles*. Because it has been difficult not to read radical empiricism as a phenomenalism, James's pragmatism was plagued by an incipient subjectivism, and by the collapse of realism into actualism, the problem which haunted Peirce, and if I am correct, haunted Dewey, as well.

The issue is not, so as to be clear here, the status of "essences" or universals, for James's own psychological account of these is fully consistent with his own earlier indirect realism. Nor does it regard James's life-long criticism of the correspondence theory of truth, for rejection of it is also consistent with forms of indirect realism. James's most penetrating text on this score is his very early "Remarks on Spencer's Definition of Mind as Correspondence." James there wrote:

...the knower is not simply a mirror floating with no foot-hold anywhere, and passively reflecting an order that he comes upon and finds simply existing. The knower is an actor, and co-efficient of truth on one side, whilst on the other he registers the truth which he helps to create. Mental interests, hypotheses, postulates, so far as they are bases for human action -action which to great extent trans- forms the world -help to *make* the truth which they declare...The only objective criterion of reality is coerciveness, in the long run, over thought. Objective facts, Spencer's outward relations, are real only because they coerce sensation. (*Essays in Philosophy*, p. 21)

But if this is true, as I think it is, then "outward relations" are real enough, even though all we can experience are the *effects* of a world which is never experienced *as it is in itself*. This means that *no* sense can be made of testing truth by "correspondence;" but it means as well that as James *had* assented, the "world " contains relatively enduring "things" which exist independently of us, *and* that these are

the "objects" at the object end of the "subject/object" dichotomy. From the point of view of science, these are the *theoretized* objects of physical science, just as so much in *Principles* suggested. Accordingly, foundationalist epistemology *can* give way to a naturalized epistemology in which a critical part of the story will be showing how, for example, theorized photons, being emitted from "things" not *in* experience affect our retina, and how, through some very complicated causal process, "things" in the "outer world" become the "things" *of* ordinary experience.³¹ That is, either we admit the existence and causal powers of photons which are in principle not "definable in terms drawn from experience," or as radical empiricists, we merely accept, unexplained, the *de facto* relatedness of experience.³²

Dewey's Rejection of Traditional Epistemology

This is, if I am correct, another way of saying, as John Smith said of Dewey, that the essence of his well-known rejection of the epistemological problem was his unwillingness to countenance that there was a theoretical subject/object problem, that "in effect all attempts at making knowledge itself intelligible are greeted by pointing out that science is a fact and that is the end of the matter."³³ Dewey was right in rejecting "the spectator theory of knowledge"--the kernal of pragmatic *psychology*, and right also in insisting that inquiry had a biological and a social "matrix"--as Peirce had seen. His theory of inquiry *was* a naturalist epistemology, but it was incomplete because he finally; rejected "the problem of an external world" and "the mind/body problem" as non-problems.

Dewey did, of course, struggle with these problems, from his explicitly idealist beginnings until perhaps the exhaustion of the heated realist controversies at the end of the second decade of this century. As Sleeper has convincingly demonstrated, Dewey generated an entirely novel metaphysics, rejecting both classical realism, even as that had lingered in the thought of Peirce, *and* the Jamesian metaphysics of experience. Nevertheless, in my view, Dewey's rejection of traditional epistemology was insufficiently radical; indeed, it was conservative insofar as his "metaphysics of existence" satisfied Kantian strictures about metaphysics.

The issue of realism was particularly bothersome since critics of pragmatism persistently said that it was an idealism. Consider but these few transitional texts: In "Reality as Experience" (1906), he offered, cautiously, that "early reality"--reality which lacked "conscious organisms," is "at any and every point on its way to experience" (p. 102). The answer could hardly be satisfactory. One might admit that if minded beings had not arrived on the scene, there could be no knowledge of "early reality," but surely this reality would still have existed independently? In "The Realism of Pragmatism," (1905) he wrote that "ideas, sensations, mental states, are, in their cognitive significance, media of so adjusting things to one another, that they *become* representative of one another. When this is accomplished, they drop out; and things are present to the agent in the most naively realistic fashion " (p. 153). His defense of a kind of operational naive realism recurs in "The Postulate of Immediate Empiricism" (1905), where he asserts: "Immediate empiricism postulates that things--anything, in the ordinary or non-technical use of the term 'thing' -- are what they are experienced as" (p. 158). In "Experience and Objective Idealism" (1906), he defended the empiricism of (absolute) idealism but rejected its rationalism, the idea that "thought or reason" provides objectivity to sensory data. But he left open what did. It was thus that R. B. Perry was happy to accept Dewey's rescue of reality "from dependence on intellect," but was not happy that Dewey was "satisfied to leave it in the grasp of that more universal experience which is 'a matter of functions and habit, of active adjustments and readjustments, of coordinations and activities, rather than states of consciousness.'" For Perry, "a thoroughgoing realism must assert independence not only of thought, but of any variety whatsoever of experiencing, whether it be perception, feeling, or even the instinctive response of the organism to its environment."³⁴

Dewey's earliest writings on mind and body are patently dualist and, as in his 1884 "The New Psychology," he is at pains to deny that physiology can give any sort of explanation of "psychical events." Following Wundt, he was at that time insisting that "of itself," physiology "has no value for psychology."³⁵ The justly famous "Reflex Arc Concept in Psychology" (1896) has often been taken as Dewey's

solution to the mind/body problem. But though it does mark a decisive break from his earlier dualism, its key feature is the way that Dewey preserves, in a biological setting, the teleology of his earlier idealism. He firmly and rightly rejects mechanistic biology as inadequate to the facts, then generalizes this to include the psychological. To be sure, the mechanistic view did assume that "the sensation is an ambiguous dweller on the borderland of soul and body, the idea (or central process) is purely psychological, and the act (or movement) is purely physical," but it was no answer to assert merely that "the reflex arc formulation is neither physical (or physiological) nor psychological: it is a mixed materialistic-spiritualist assumption."³⁶

Had Dewey been more critical of the new "behaviorists" in American psychology, he would have seen --and might have taught them, that his brilliant critique of mechanism utterly undermined their research program. But in fact, his easy "functionalist" solution to the ontological issue surely contributed to the view, shared by all the behaviorists, here including Skinner, that mind/body was a non-issue.

Finally, while there are texts which support the view that Dewey assumed that psychology (along with sociology) had displaced traditional epistemology, he seems not to have noticed there that there were matters left unfinished, matters which rightly puzzled his critics. Here is one example: "...when a writer endeavors to take a frankly naturalistic, biological and moral attitude, and to account for knowledge on the basis of the place it occupies in such a reality, he is treated as if his philosophy were only, after all, just another kind of epistemology." For Dewey, of course, the root fallacy of all epistemology was "the failure to recognize that what is doubtful is not the existence of the world but the validity of certain customary yet inferential beliefs about things in it."³⁷ Presumably, once this be admitted, one ought to get on with the real questions of which inferred beliefs were valid --a wholly scientific problem.

But it hardly satisfied his critics to treat them as if they failed to understand that their problems were non-problems and to assert that "[pragmatism] occupies a position of an emancipated empiricism or thoroughgoing naive realism," that "[it] is content to take its stand with science...[and] daily life."³⁸ By doing this, Dewey

simply took for granted both common sense *and* science and thus refused to acknowledge with Hume and Kant, that there was a *problem* of knowledge, not merely of *certain* knowledge, but of how we can *at all* connect "subjectivity" to "the world."

Nevertheless, innocence once lost cannot be regained. Even if Dewey did show that the skeptical objections of modern philosophy foundered on a misconstrual of "experience," there remained the problem of "reconciling the reality of the physical object of science with the richly qualitative object of ordinary experience." Dewey, who I quote here, called this problem "factitious."³⁹ Yet however much the problem was "unnatural," an "artifact" of some accidental developments in the history of Western civilization, it was, if unfortunately, a genuine theoretical problem --as James surely would have acknowledged. In the present view, the much heralded over-coming of subject and object, the duality bequeathed by modern philosophy, is "overcome" only by eliminating one or the other: reductive materialism (the "naturalism" of Rorty), or ("basement") idealism, the metaphysics so frequently imputed to Dewey.⁴⁰ The other alternative, recommended here, is to insist that even if there is no duality between knower and *cognized* object, the famous "ego-centric predicament," there *must* be a duality between knower and that "world" which exists independently of knowers. Indeed, it is just this which makes possible that naturalized epistemology which James was so reluctant to pursue, but which, if I am correct, Dewey took for granted.

Dewey's Philosophy of Science

James and Dewey had rich doctrines of experience. There is no doubt of that. Yet if I am correct, they became convinced, with Ostwald and Mach, and later, as regards Dewey, with Bridgman, Schlick and Carnap, that scientific knowledge could dispense not only with "essentially metaphysical" causal talk, but with talk of any non-experienceable reality. But if so, both "radical" and "emancipated empiricism," can get only to *positivist* versions of science. That is, James and Dewey *had* to give a thoroughgoing instrumentalist reading to the theoretical terms of science and thus to accept the idea that

as explanation was "subsumption," explanation and prediction were symmetrical. Peirce's "How To Make Our Ideas Clear," now shorn of his realism, was, of course, the original inspiration for the pragmatic treatment of theoretical terms. Thus Dewey writes that "the resolution of objects and nature as a whole into facts stated exclusively in terms of quantities which may be handled in calculation...is a declaration that this is the effective way to think things...to formulate their meanings."⁴¹ Conceptions are either to be defined "operationally" or *they* are "purely dialectical inventions" (p. 95). Dewey asserts that most of Newton's analytical work "would remain unchanged, if his physical objects were dropped out and geometrical points were substituted" (p. 95-96). But this could only be so if, to quote Duhem, "a physical theory is not an explanation. It is a system of mathematical propositions, deduced from a small number of mathematical principles, which aim to represent as simply, as completely, and as exactly as possible a set of experimental laws."

Once Dewey assented to this, it was easy to waffle over the goals and vindication of scientific theory. Did science aim at understanding or at prediction and control? Was a theory "valid" if and only if it "predicted?" Dewey was not, to be sure, alone in not seeing how critical these questions were. In fact, he seems to have anticipated Ernest Nagel's influential view that the differences between realist and instrumentalist construals of theory reduce to but "a conflict over preferred modes of speech."⁴² Yet, the differences are fundamental--as Hempel's "theoretician's dilemma" shows.⁴³ Thus, if theoretical terms "serve their purpose" and "establish definite connections among observable phenomena," then they are unnecessary. If, on the other hand, they lack such connections, then as but "dialectical inventions," to use Dewey's terms, they are surely unnecessary. As Hempel came to see, however, the dilemma depends upon holding that "the sole purpose of a theory is to establish deductive connections among observation sentences." If this were the case, then theoretical terms would indeed be unnecessary. But theory has other purposes. As James of *Principles* had insisted, theory satisfies "the interest of theoretic rationality ---just as had "sentimental philosophy."

Prediction and technical control is one thing, the satisfaction that comes with understanding quite another. On the positivist view, since explanation and prediction are symmetrical, this distinction is collapsed; and if so, prediction and control can be taken to *define* science--a thoroughly technocratic view.⁴⁴

Theoretic Judgments and Judgments of Practice

Pragmatism had the burden that Americans could never accept that *praktische* and *pragmatisch* were, as Peirce said, "as far apart as the two poles." When this confusion is joined to some confusions over science, one easily produces the characteristic misunderstanding of Dewey's profound analysis of "the logic of judgments." By developing in an original way the pragmatic insight which had linked rational cognition with rational purpose, Dewey tried to show that practical judgments answered to norms and conditions which made them as warrantable as "theoretic" judgments; but not because the justification of theoretical judgments is that they have some "practical" use, but because *all* inquiry is constrained by similar conditions, the indeterminate situation in which inquiry begins, the inherited materials with which it works, a "reality" which imposes its own limits, and consequences which are produced by acting on "hypotheses," consequences whose pertinence will be a function of the rational purpose of the inquiry. There could still be differences in practices aimed at satisfying theoretic rationality and those aimed at solving "practical" problems. Fully following Peirce and James, Dewey held that the "peculiarity of scientific abstraction lies in the degree of its freedom from particular existential adhesions" and that "in scientific inquiry ...meanings are related to one another on the ground of their character as meanings, free from direct reference to the concern of a limited group."⁴⁵ It was not, that is, that scientific inquiry was freed of its existential conditions and purposes, for it was exactly the pragmatist's point that no inquiry was or could be. Rather, the words to emphasize in the foregoing are "particular" and "limited," just as Peirce would have insisted.

Science and Culture

Finally, there was Dewey's well-known emphasis on science and scientific method. It is a persistent theme of all the pragmatists that although knowledge is fallible, inquiry has an integrity. Likewise, James and Dewey were emphatic that the world was "responsive to human purposes," that inquiry could change the world. But it was profoundly easy to miss the real force of this, especially if, as I have been arguing, there was an incipient subjectivism and idealism in pragmatist ontology, and in consequence, an inevitable instrumentalism in their conceptions of science. But adding to this, as Hollinger points out, it is a "striking feature of the history of pragmatism" that the detailed development of Dewey's pragmatic theory of inquiry, in his 1938 *Logic*, "appeared long after his more vague and question-begging pronouncements had helped win for his reconstructionist vision a following greater than it has enjoyed during the more than forty years since he did his best to justify it philosophically."⁴⁶

Nevertheless, Dewey was sufficiently clear on other matters that are essential. First, like Veblen, he believed that science was a critical part of the problem now being faced by inhabitants of "modern civilization." Unlike Comte, Spencer and a host of nineteenth century writers, Dewey did *not* hold that as science gave us new knowledge, there would be continuous improvement in human life. In an 1893 assessment of Renan's *The Future of Science*, Dewey endorsed Renan's view that "the definition of science...is to know from the standpoint of humanity; its goal is such a sense of life as will enable man to direct his conduct in relation to his fellows by intelligence and not by chance." But he was sympathetic to Renan's "loss of faith in science," acknowledging that "the forty years since Renan wrote have not done much to add to the human spirit and the human interpretation to the results of science; they have gone to increase its technical and remote character." To be sure, he affirmed that "any lasting denial of dogmatic authority is impossible save as science itself advances to that comprehensive synthesis which will allow it to become a guide of conduct, a social motor."⁴⁷ In this essay, he did not say what needed to happen if science was to become a "social motor" for human progress.

He returned to this theme in 1900, pointing out that "the anomaly of our present social life is obvious enough." He went on:

With tremendous increase in control of nature, in ability to utilize nature for the indefinite expansion and multiplication of commodities for human use and satisfaction, we find the actual realization of ends, the enjoyment of values growing unassured and precarious. At times it seems as if we were caught in a contradiction; the more we multiply means, the less certain and general is the use we are able to make of them.⁴⁸

If science were to become a "social motor" for human progress, there was, as Veblen was insisting, the need to gain "knowledge of the conditions through which possible values become actual in life." Lacking an understanding of the causes of outcomes, we are "at the mercy of habit, of haphazard, and hence of force." Physical science had out-distanced human science. We have applied "intelligence" to "the control of nature" but we have not put it to use to make a human world, to structure society so that our technologies are used for the realization of human values.

Secondly, Dewey was also clear that the problem was essentially *political*. When he wrote the foregoing words, the social sciences were just then becoming institutionalized as specialized "disciplines," each struggling to achieve that "expertise" which would make them authoritative in a civilization being shaped by industrialized science.⁴⁹ Dewey and Veblen agreed both on what was happening and why. Veblen was pessimistic that much could be done. In his view, American social science could not help but succumb to the temptations and atmosphere of the times. As he saw, it was easy to reject the idea that social science was "inquiry into the nature and causes, the working and outcome of [the] institutional apparatus." Such inquiry was dangerous, since even if it "should bear no colour of iconoclasm," its outcome "will disturb the habitual convictions and pre- conceptions on which they rest." In the spirit of middle class reform, social science could concentrate "on what ought to be done to improve

conditions and to conserve those usages and conventions that have by habit become imbedded in the received scheme of use and wont, and so have been found to be good and right." So as Veblen saw it, "habit, the haphazard and force" were being *reinforced* by social science.

Dewey, always hopeful, believed that the new social sciences could be part of the solution. Yet, in that early review of Renan, he had himself suggested an analysis that could have been endorsed by a Marxist, just as it became the point of departure of Veblen's later trenchant analysis. Dewey wrote: "Renan does not seem to have realized sufficiently the dead weight of entrenched class interests which resists all attempts of science to take practical form and become a 'social motor' " (p. 17).

His most significant treatment of the critical issues is perhaps his 1927 *The Public and Its Problems*.⁵¹ Dewey there offered a radical critique of the problem of democracy and concluded his account with a chapter entitled "The Problem of Method." He affirmed some characteristic Deweyan themes, e.g., the "absolutist" character of political philosophies and the diversion of thought away from fruitful questions. In this context, he affirmed Veblen's point, that while we willingly spent money responding to "results of bad conditions," we needed to identify the causes of our problems. Forgetting his earlier insight, he argued that the reason for this "anomaly" was "clear enough ": "There is no conviction that the sciences of human nature are far enough advanced to make public support of such activities worthwhile. " Yet, if on this issue he had been nearer to the truth earlier, there was a deeper problem. It was the problem of democracy, "the problem of the public," the incapacity of citizens to communicate freely, to overcome "secrecy, prejudice, bias, misrepresentation, and propaganda as well as sheer ignorance," to replace these "by inquiry and publicity," and thence to act so as to overcome present problems. This was the deep problem, since for Dewey, if social scientific knowledge of the causes of our problems was the work of "experts," the problem of putting such knowledge to work so as to make possible values actual in life, was the problem of the Democratic Community. If people were unable to act "intelligently," it

was because they lacked the means. If people were now incapable, it was because they were incapacitated by the conditions of life, economic, political and pedagogic.⁵² Nor did people need to be "experts:" "what is required is that they have the ability to judge of the bearing of the knowledge supplied by others upon common concerns." It was in this sense, indeed, that "scientific method" had to be the method of all, and it was in this sense that it was part of the democratic mode of life. Dewey tried desperately to convince us that we must "apply science to life," but even given the difficulties in his conception of science and even given his frequent use of "control" metaphors, his commitment to democracy kept his vision from being technocratic.

In this paper I have suggested that pragmatism was a novel and liberating philosophy but that its fundamental insights became distorted as they became absorbed. The epigones and enemies of American pragmatism have been pleased to make it into the American philosophy of technocracy, celebrating positivist science and bourgeoisie society. This is profoundly ironical. Although, of course, there are very large differences in their philosophies, it would be fairer to say that the project of the pragmatists, like Marx's, was to assist us in de-alienating our increasing alienated world.⁵³

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NOTES

1. David A. Hollinger, "The Problem of Pragmatism in American History," *The Journal of American History*, Vol. 67, No.1 (June, 1980), p. 93. This is reprinted in his *In the American Province* (Bloomington: Indiana University Press, 1985). The many revisions of my essay have profited from Hollinger's work.

2. It is also customary to hold that Veblen's essay was a direct critique of Dewey and of pragmatic philosophy. This is symptomatic. Since Henry Waldgrave Stuart's review of Veblen's remarkable "The Place of Science in Modern Civilization" (1906), Veblen's "idle curiosity" has been widely interpreted as offered, as Diggins writes, in opposition to "both the Deweyite determination to make all knowledge expedient and the Jamesian desire to allow man

to believe what he wills to believe." But it is clear enough that "idle curiosity" is a direct *and* acknowledged appropriation from James. Moreover, Veblen put to work Dewey's important reflex arc paper in his argument, and as I argue below, Veblen and Dewey fully agreed that as "science" was part of the problem, science was also part of the solution. As Diggins sees, Veblen "is careful to express great respect for John Dewey and William James," but he fails to see, oddly, that this is exactly because Veblen is not attacking their pragmatism, but the already persuasive technologism of American culture. For an example of the misunderstandings on these critical points, see John Diggins, *The Bard of Savagery: Thorstein Veblen and Modern Social Theory* (New York: Seabury Press, 1978), p. 30, pp. 82f. and p. 182. Perry Miller is more cautious. See his "Introduction," *American Thought, Civil War to World War I* (New York: Reinhart, 1954), p. xlviii. More recently, see Dorothy Ross, "American Social Science and the Idea of Progress," in Thomas L. Haskell (ed.), *The Authority of Experts* (Bloomington: Indiana University Press, 1984), p.165.

3. James's 1907 *Pragmatism* contributed greatly to confusion here. It is, of course, an exciting book which squarely faced "the present dilemma of philosophy": "Our children...are almost born scientific. But our esteem for facts has not neutralized in us all religiousness. It is itself almost religious." Yet, James let his language carry him away, as Dewey was quick to point out. See Dewey's review, "What Pragmatism Means by Practical" (1908), *John Dewey: The Middle Works*, Vol. 4 (Carbondale, IL: Southern Illinois Press, 1977).

4. R. W. Sleeper, *The Necessity of Pragmatism* (New Haven: Yale University Press, 1986).

5. While it is not part of the present argument, if I am correct, Richard Rorty's interpretation of Dewey falls into the family of misinterpretations which stem from the problem discussed in what follows. Versus Rorty, Sleeper is correct in seeing that (1) Dewey did not try to overcome the tradition, but to transform it and (2) Dewey did not try to make everything scientific if by "science," one means what Rorty means. Dewey's conception, as I argue, was faulty, but not quite as faulty as the one promoted by Rorty and imputed to Dewey by him. Sleeper, John McDermott and Abraham Edel have considered Rorty's views of pragmatism in the Winter, 1985 issue of *The Transactions of the Charles S. Peirce Society*, Vol. XXI, No.1. See also James Campbell's excellent treatment, "Rorty's Use of Dewey," *Southern Journal of Philosophy*, XXII, No.2 (Summer,1984).

6. "The Fixation of Belief," in P. P. Weiner (ed.), *Values in a Universe of Chance* (New York: Doubleday, 1950), p. 129. Remaining citations from Peirce will be from this edition, unless otherwise noted.

7. The text looks elitist, of course, but this is doubtful. Not only must we accept Peirce's mix of irony and seriousness, but he was no doubt correct in judging both the effectiveness of the method of authority and its

"psychology." Yet he may well be offering here that, *if we chose*, we can all always use the scientific method. As I note below, he says "everybody uses the scientific method about a great many things." For some interesting discussion, see Thomas L. Haskell, "Professionalism *versus* Capitalism: R. H. Tawney, Emile Durkheim and C. S. Peirce on the Disinterestedness of Professional Communities," in Haskell (ed.), *The Authority of Experts*.

8. See M. F. Burnyeat, "The Sceptic in his Place and Time," in R. Rorty *et al.* (eds), *Philosophy in History* (Cambridge: Cambridge University Press, 1984). On the present view, if Peirce recast the epistemological problem and refused the transcendental move, Dewey, and James, in his radical empiricism, refused the transcendental move *and* the epistemological problem.

9. For discussion of these figures, see John Passmore, *A Hundred Years of Philosophy* (Harmondsworth: Penguin, 1966), chapter 14. My definition of "positivism," it should be noted, has two components. The label was not true of Helmholtz, nor likely of Hertz, nor, as I shall argue, of Peirce or of James in *Principles*. An enormously useful account of Helmholtz, pertinent to the present essay, is to be found in M. Mandelbaum, *History, Man and Reason*. (Baltimore: Johns Hopkins, 1971).

10. Murray G. Murphey, *The Development of Peirce's Philosophy* (Cambridge, Ma.: Harvard University Press, 1961), pp. 169-70, quoted in Elizabeth Flower and Murray G. Murphey, *A History of Philosophy in America*, Two Vols. (New York: G. P. Putnams, 1977), p. 586.

11. See Fred I. Dretske's "Laws of Nature," *Philosophy of Science*, 44 (1977). If the properties are real and abstract, that is, *sui generis* real, we have a Platonism. On the other hand, as Peirce also suggests, if they are but abstracted real properties of complexes, we can have a far more modest realism.

12. See Elizabeth Flower, "The Unity of Knowledge and Purpose in James's View of Action," in w. R. Corti (ed.), *The Philosophy of William James* (Hamburg: Felix Meiner, 1976).

13. P. T. Manicas, *A History and Philosophy of the Social Sciences* (Oxford: Basil Blackwell, 1987), Chapter 9.

14. See Kurt Danziger, "The Social Origins of Modern Psychology," in A. R. Buss (ed.), *Psychology in Social Context* (New York: Irvington, 1979), P. T. Manicas, *A History and Philosophy of Social Science*, chapter 11, and Daniel W. Bjork, *The Compromised Scientist: Williams James and the Development of American Psychology* (New York: Columbia University Press, 1983).

15. "Psychology as the Behaviorist Sees It," in w. Dennis (ed.), *Readings in the History of Psychology* (New York: Appleton-Century-Crofts, 1963).

16. In his influential *A History of Experimental Psychology* (New York: Appleton-Century-Crofts, 2nd Edition, 1950), E. G. Boring credits James with being the founder of American psychology. Even if, of course, James was important in "founding" psychology as an autonomous discipline in America and was its most famous psychologist, it does not follow that American psychology followed the path marked by James.

Boring, whose account of *Principles* is poor, suggests that he did. Moreover, Boring fostered confusions by lumping together "pragmatism," the American turn to a "applied" psychology and "functionalism." At one point he remarks, "America's success-philosophy, based on individual opportunity and ambition, is responsible for shirt-sleeves democracy ('every man a king'), for pragmatism ('the philosophy of a dollar-grubbing nation') and functionalism of all kinds" (p. 507). This is a typical claim, of course, even while he sees that *it* was Darwin that fostered "functionalism." But Boring rightly notes that American psychology abandoned interest in "the generalized normal human adult mind" and became fascinated with the psychology of individual differences. He seems not to notice that this last was useful for the very American ideology of "individual opportunity." James's interests were wholly in having an understanding of the most basic human psychological powers and capacities --the "generalized normal human adult mind." Moreover, James could not have been clearer in distinguishing "science" and "art," the application of science to practice. For example, "psychology is a science and teaching is an art; and sciences never generate arts directly out of themselves" (*The Works of William James: Talks to Teachers on Psychology*, Cambridge, Ma.: Harvard University Press, 1983).

Dewey did associate pragmatism with Watson's "behaviorism." See his 1922/25 "The Development of American Pragmatism," in *John Dewey, The Later Works*, Vol. 2 (Carbondale, IL: Southern Illinois Press, 1984). But as the context makes clear, it was the attention to the brain "as an organ for the co-ordination of sense stimuli," a view already in James's *Principles*, which led Dewey to this (misplaced) association. "Functionalism"/"mechanism" are still unsettled issues in the philosophy of biology. For some samples, see Stephen Jay Gould, "Darwin's Untimely Burial," Christopher Boorse, "Wright on Functions," and William Wimsatt, "Reductive Explanation: A Functional Account," all in E. Sober (ed.), *Conceptual Issues in Evolutionary Biology* (Cambridge, Ma.: MIT Press, 1984).

For an incisive sketch of the history of American academic psychology after 1912, see Sigmund Koch, "Psychology and Emerging Conceptions of Knowledge as Unitary," in T. W. Wann (ed.), *Behaviorism and Phenomenology* (Chicago: University of Chicago Press, 1964). The response to varieties of behaviorism, varieties of "humanistic" psychology, is not Jamesian either. But Jamesian psychology, never quite dead, has more recently found significant expressions. Here one might identify, *not* currently fashionable "cognitive" psychology, but the older "cognitive" psychology of Jerome Bruner and the physiological orientations of Koch, R. B. MacLeod, Donald Campbell, Karl Pribram, and R. W. Sperry, among others.

17. *The Works of William James: Principles of Psychology*, Three Volumes (Cambridge, Ma.: Harvard University Press, 1981), I, p. 6.

18. Although it cannot be pursued here, the point is more fundamental than may appear. Experiment, properly understood, implies that causal laws cannot be sequences of events and that causal laws continue to operate under "open"

conditions, when there are no *empirical* invariances. See Roy Bhaskar, *A Realist Theory of Science*. 2nd Edition (Atlantic Highlands, N.J.: Humanities, 1978), pp. 33-36.

19. There can be no doubt that Helmholtz had a realist view of causality. For example, he wrote, "the word *Ursache* (which I use here precisely and literally) means that existent something (*Bestehende*) which lies hidden behind the changes we perceive. It is the hidden but continuously existent basis of phenomena" (*Selected Writings*, Russell Kahl (ed.), Middleton, Conn.: Wesleyan University Press, 1971). See especially pp. 521-526. Veblen concurred. Singling out Karl Pearson, he wrote: "Those eminent authorities who speak for a colorless mathematical formulation invariably and necessarily fall back on the (essentially metaphysical) preconception of causation as soon as they go into the actual work of scientific inquiry (*The Place of Science in Modern Civilization and Other Essays*, New York: Viking, p. 15). And in a distinctly Jamesian formulation, he noted that "the concept of causation is recognized to be a metaphysical postulate, a matter of imputation, not of observation; whereas it is claimed that scientific inquiry neither does not legitimately, nor, indeed, currently make use a postulate more metaphysical than the concept of idle concomitance of variation..."(p. 35). Dewey, writing after 20 further years of positivist dogma, seems to have fully fallen into line with the received view. See *The Quest for Certainty, The Later Works*, Vol.4 (Carbondale, IL: Southern Illinois Press, 1984), pp. 94-95.

20. *The Works of William James: Essays in Philosophy* (Cambridge, Ma.: Harvard University Press, 1978), p. 374.

21. Compare Joseph Margolis, *Pragmatism Without Foundations* (Oxford and New York: Basil Blackwell, 1986), esp. pp. 101-104; 284-289.

22. Mill followed Comte in noting that "states of mind are caused either by other states of mind or by a state of the body" (*Logic*, Bk. IV, ch. 4). This last was physiology, since "sensation" always has "for its proximate cause some affection of the portion of our frame called the nervous system." "The laws of the mind," then, were laws regarding "the succession of states of .mind" --British associationism, as it came to be called. Also see note 25.

23. Owen Flanagan Jr. has provided a reading of *Principles* along the lines of a non-reductive neuropsychology in his *The Science of the Mind* (Cambridge, Ma.: MIT press, 1984). See also my "Whither Psychology?" in J. Margolis, R. Harré, P. T. Manicas and P. F. Secord, *Psychology: Designing the Discipline* (Oxford: Basil Blackwell, 1986); and Manicas, *A History and Philosophy of the Social Sciences*, chapter 14.

24. In *Essays in Philosophy*, pp. 71-89. 25. In the radically rewritten second edition of his *Principles of Psychology* (1870), Spencer defended an indirect realism which he called "transfigured realism." Spencer distinguished physiology, "aestho-physiology," that is the discovery of the connections between the data of consciousness and physiology.

and psychology. "...That which distinguishes Psychology from the sciences on which it rests [i.e., physiology and aestho-physiology] is, that each of its propositions takes account of the connected internal phenomena (James's "inner") and of the connected external phenomena to which they refer (James's "outer") [A psychological proposition] is the connection between these two connections.. (*Principles of Psychology*, New York: Appleton, I, p. 132).

In his "Remarks on Spencer's Definition of Mind as Correspondence," James gave a devastating critique of Spencer's principle, the "adjustment of inner to outer relations," a principle offered to explain both life and "the entire process of mental evolution." James argued that if "the ascertainment of outward fact" is supposed to be the evolutionary task of organisms, then the principle cannot be true: " 'Mind,' as we actually find it, contains all sorts of laws--those of logic, of fancy, of wit, of taste, decorum, beauty, morals, and so forth, as well as perception of fact" (p. 8). But if "correspondence" is loosened to avoid absurdity, the principle is quickly seen to be *vacuous*: "Everything corresponds in some way with everything else that co-exists in the same world with it" (p. 10). What James seems not to have seen is that the flaw he correctly diagnosed was itself a result of Spencer's commitment to Humean causality, "causes" as *empirical* invariances. Mach's influential physiological psychology, it might here be mentioned, made the same assumption. For discussion of Spencer and Mach on these critical themes, see Manicas, *History*, chapter 9.

26. For evidence that James was sensitive to the problems about explanation which had emerged at just this time, see his note for "the Sentiment of Rationality," in *Essays in Philosophy*, pp. 340-41. A brilliant summary of twenty-five years of debate on the question is Pierre Duhem's 1906 *La Theories Physique; Son Object, Sa Structure* (translated as *The Aim and Structure of Physical Theory*, Princeton University Press, 1954). "To explain," Duhem said, is "to strip reality of the appearances covering it like a veil." Explanations, accordingly, are *always* metaphysical. In agreement with Ostwald and Mach, then, "a physical theory is not an explanation. It is a system of mathematical propositions, deduced from a small number of mathematical principles, which aim to represent as simply, as completely, and as exactly as possible a set of experimental laws" (p. 19).

27. David Hollinger, "William James and the Culture of Inquiry," in Hollinger, *In the American Province*. p. 14.

28. See John J. McDermott, "Introduction," *Essays in Radical Empiricism, The Works of William James* (Cambridge, Ma.: Harvard University Press, 1976), and Gerald Myers's introduction to James's *Principles of Psychology, Works*, pp. xi-xi. Myers offers that James "had set out to write a book that introduced psychology as a natural science....But the project forced him, he confessed, to operate with an assumption that the philosopher in him seriously mistrusted" (p. xiii).

29. See Gerald Myers, *William James: His Life and Thought* (New Haven: Yale University Press, 1986), Chapter 11. Myers comments, "the view that physical things are merely collections of sensations or sensible qualities (sometimes called phenomenalism, sometimes Berkeleyan idealism) might be hard to defend on the dualist premise of *Principles*, but it fits neatly into the scheme of radical empiricism, where everything is made of sensations or sensible qualities" (p. 319). Myers notes also that "if we examine the eight essays that represent James's radical empiricism, we cannot detect any effort to work out in technical detail the vague blueprint of pure experience" (p. 316). Myers's suggests an explanation of this in citing James's view that "philosophies are only *pictures* of the world which have grown up in the minds of different individuals" (p. 317). Do "pictures" need philosophical argument? Or perhaps, was James satisfied to leave this to "epistemologists"? See also note 30.

It is true that James denied, as per most phenomenisms, that physical objects are "constructions" from *private* particulars. See Edward H. Madden and Peter H. Hare, "James's View of Causality," in Corti (ed.) *op. cit.*, pp. 113ff. It was thus that as James said, "radical empiricism has more affinities with natural realism than with the views of Berkeley or Mill..." Yet, as Madden and Hare argue, James's commitment to the privacy of the particulars of direct experience was fatal, exactly because he then could not provide an adequate account of potentiality.

30. Hollinger, "William James and the Culture of Inquiry," *op. cit.*, p. 5. Dewey shared Hollinger's view. In his own "Development of American Pragmatism," Dewey wrote, "Peirce was above all a logician; whereas James was an educator and a humanist and wished to force the general public to realize that certain problems, certain philosophical debates, have a real importance for mankind, because the beliefs which they bring into play lead to very different modes of conduct."

The premature narrowing of context, audience, "discipline" and definition of problems in reading James has hermeneutic implications which are far more important than one is likely to think.

31. The psychological story will be but part of the story because it will need to be supplemented by a sociology of knowledge *and* a philosophical argument. See Manicas and Rosenberg, "Naturalism, Epistemological Individualism and 'The Strong Programme' in the Sociology of Knowledge," *Journal for the Theory of Social Behavior*, 15 (March, 1985). For the pertinence of sociology of knowledge to Dewey's naturalistic epistemology, see Thelma Lavine, "Naturalism and the Sociological Analysis of Knowledge," in Y. H. Krikorian (ed.), *Naturalism and the Human Spirit* (New York: Columbia University Press, 1944).

32. W. Donald Oliver remarks that "in the world of pure experience there are no mysteries." Once the distinction between mental and physical is expressed in terms of two set of relations, "no explanation need be sought for

the occurrence of an item of experience in the one or the other set of relations. Indeed, the very notion of explanation is deprived of meaning, hence to seek one is to fail to understand the import of James's radical empiricism" ("James's Cerebral Dichotomy," in Corti, *op. cit.*, p. 37, 36).

One might hold, equally, that James wanted to keep the basis of the related-ness of experience mysterious so as to make possible a source of order which is non-naturalistic. See Eugene Fontinell, *Self, God and Immortality: A Jamesian Investigation* (Philadelphia: Temple University Press, 1986).

33. John Smith, "Types and Dogmas of Empiricism", in his *Themes in American Philosophy* (New York: Harper, 1970), p. 52.

34. *John Dewey, The Middle Works*, Vol. 3 (Carbondale, IL: Southern Illinois University Press, 1977). The text from Perry is from his *Present Philosophical Tendencies* (1912) (New York: Braziller, 1955), p. 313f. A useful volume in this regard is S. Morgenbesser (ed.), *Dewey and his Critics* (New York: The Journal of Philosophy, 1977). esp. Sections II and III.

Sleeper argues that Dewey held to what he calls "transactional realism," but sees that Dewey "seems unable to recognize that what bothers Woodbridge is the conclusion that...real objects are not merely antecedent to being known, but antecedent to being had in experience, antecedent to experience altogether" (*op. cit.*, p. 115).

35. *John Dewey, The Early Works*, Vol. 1 (Carbondale: Southern Illinois University Press, 1969). For an account of Wundt's critical role in the development of academic psychology in Germany and the U. S., see Manicas, *A History of Philosophy and the Social Sciences*, chapter 9.

36. *Early Works*, Vol. 5, p. 104. 37. See "Pure Experience and Reality: A Disclaimer" (1907) and "The Existence of the World as Logical Problem" (1915), *Middle Works*, Vol. 8.

38. "Need for a Recovery of Philosophy" (1917), in *Middle Works*, Vol. 10, 1980, p. 39.

39. *Quest for Certainty*, p.105.

40. Rorty asserts:

every speech, thought, theory, poem composition, and philosophy will turn out to be completely predictable in purely naturalistic terms. Some atom-and-the-void account of micro-processes within individual human beings will permit the prediction of every sound or inscription which will ever be uttered. (*Philosophy and the Mirror of Nature*, Princeton: Princeton University Press, 1979. p.387)

The term "basement idealist" in reference to Dewey is T. V. Smith's, my teacher at Syracuse.

42. Ernest Nagel, *The Structure of Science* (New York: Harcourt, Brace and World, 1961), p. 152.

43. Carl G. Hempel, "The Theoretician's Dilemma," in Hempel, *Aspects*

of *Scientific Explanation* (New York: The Free Press, 1965). For an alternative view, see Rom Harré *Principles of Scientific Thought* (Chicago: University of Chicago Press, 1970).

44. Morgenbesser notes that "Dewey need not be interpreted to argue against a realist view of the nature of theoretical entities, to argue against their reality. His argument was rather that we can understand the significance and point of postulating theoretical entities or understand the role a theoretical term plays in a theory only if we understand the use to which the theory will be put and the specific problems to which it is addressed" (*Dewey and His Critics*, p. xvi). This is substantially the interpretation I have offered of James. While Dewey *can* be read in this way, as the foregoing exemplifies, Dewey seemed willing to accept a straightforward instrumentalist view of theoretical terms.

We should note also here that to say this is not to say that Dewey's philosophy of logic or of language has much in common with recent empiricism. As Sleeper has shown, "Dewey was not merely 'waiting at the end of the dialectical road which analytical philosophy travelled' but was trying to block that road from the outset" (*Necessity*, p. 81).

45. *John Dewey, The Later Works: Logic, The Theory of Inquiry* (Carbondale: Southern Illinois Press, 1986), p. 119.

46. Hollinger, "The Problem of Pragmatism in American History," p. 98. Sleeper rightly puts the *Logic* in the center of his interpretation of Dewey and shows that its ideas had antecedents as early as Dewey's 1892 syllabus for "Course 5." But, of course, Sleeper had the advantage of reading the *Logic* while Dewey's early followers did not. As Ernest Nagel's near dismissal of the doctrines of the *Logic* shows, by the time it was published, the philosophers could no longer welcome its central message --when it was understood. See Nagel's "Introduction" to the Carbondale edition of *Logic*.

47. "Renan's Loss of Faith in Science," *Early Works*, Vol. 4, p. 12, p.17.

48. "Psychology and Social Practice," *Middle Works*, Vol. 1, 1976

49. See my *A History and Philosophy of the Social Sciences*, Chapter II.

50. The foregoing texts are quoted from Veblen's *The Higher Learning in America: A Memorandum on the Conduct of Universities by Business Men* (New York: Sagamore Press, 1957), pp. 132 *passim*. Veblen began this book in perhaps 1906, but withheld its publication until 1918.

51. *John Dewey, The Later Works. Vol. 2: The Public and Its Problems* (Carbondale: Southern Illinois Press, 1984).

52. Although Dewey had considerable influence on public education in the U. S., the result was, for the most part, a caricature of his views. The appropriation of Dewey by interests antithetic to his was possible, at least partly, because he failed to communicate that his pragmatism was not, despite his pro- tests, a scientism. One example must suffice: When educationists began to

seek professional status within the university, the question arose, Is there a science of education? James, Royce, and Dewey were clear in insisting that the answer was in the negative. But as Silberman argues, "most educationists ignored Dewey's insistence that the study of education be rooted in philosophy and the social sciences." Instead, teacher education alienated itself within the university and, in an orgy of empiricism, "the survey became the foundation on which the entire study of education and training of teachers was built" (Charles E. Silberman, *Crisis in the Classroom*, New York: Random House, 1970, p. 428-29). Thus, just as Dewey could associate himself with Watson's behaviorism, educationists could absorb Dewey into their Taylorism and scientism.

53. Indeed, if I am correct, the fundamental parallel to Marx and Marxism regards the failure of Marx and Engels to get straight on the same issues. The upshot was "dialectical materialism," Soviet hypernaturalism and positivism. See my *A History and Philosophy of the Social Sciences*, Chapter 6.