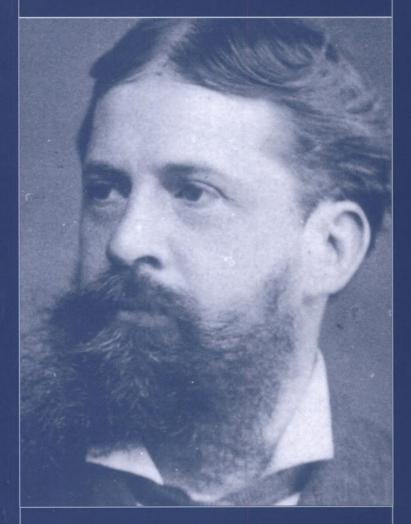# The Cambridge Companion
to
PEIRCE

EDITED BY
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1   Charles Sanders Peirce (1839–1914)

I. INTRODUCTION

Charles Sanders Peirce was the founder of pragmatism – the view that our theories must be linked to experience or practice. His work is staggering in its breadth and much of it lies in a huge bulk of manuscripts and scraps. His few published papers include those of the 1870s series in *Popular Science Monthly* called "Illustrations of the Logic of Science," most notably "How to Make Our Ideas Clear" and "The Fixation of Belief." His Lowell Lectures in 1898 and 1903 and his Harvard Pragmatism Lectures in 1903 also contain essential material. But much of what is important is only now being published in the definitive chronological edition: *The Writings of Charles Sanders Peirce.*

Peirce was a difficult man and this was no doubt partly responsible for his being frozen out of what he most desired: a permanent academic position.[1] He worked instead for the U.S. Coast Survey – his scientific and mathematical endeavors there had a significant influence on his logic, on his work in statistical inference, and on his epistemology and metaphysics. He is perhaps best known today for his theory of truth and his semeiotics, as well as for his influence on William James and John Dewey. But because of the scattered nature of his work and because he was always out of the academic mainstream, many of his contributions are just now coming to light.

As Philstrom's essay in this volume makes clear, one of the most important influences on Peirce was Kant. There is also a strong gust of medieval philosophy blowing throughout his writing. It is from here that Peirce gets his Scholastic realism, which is

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set against the nominalism of the British empiricists. (See Boler's contribution to this volume.) But there are also clear affinities between Peirce and the British empiricists. For instance, Peirce credits Berkeley's arguments that all meaningful language should be matched with sensory experience as the precursor of pragmatism:

Berkeley on the whole has more right to be considered the introducer of pragmatism into philosophy than any other one man, though I was more explicit in enunciating it.[2]

It has seemed to many that, despite Peirce's claims to be putting together a grand 'architectonic' system, there are substantial tensions in his work. Goudge (1950) declared that there were two incompatible Peirces. One is a hard-headed epistemologist/philosopher of science and the other is a soft-headed religious thinker prone to metaphysical speculation. Misak and Anderson argue in this volume that the two Peirces can and ought to be brought together.

Whether or not Peirce's work can be brought into a harmonious whole, the reader of this collection will be struck by the enormous range of debates to which Peirce was a serious contributor. In this introductory essay, a whirlwind tour of those contributions will be conducted.[3]

2. THE PRAGMATIC MAXIM

Peirce took the 'spirit' of pragmatism to be captured in the following maxim: "we must look to the upshot of our concepts in order rightly to apprehend them" (CP 5.4). There is a connection between understanding a concept and knowing what to expect if sentences containing the concept were true or false. If a concept has no such consequences, then it lacks an important dimension which we would have had to get right were we to fully understand it.

This criterion of legitimacy lies at the heart of Peirce's work. Not only does he criticise certain philosophical positions as pragmatically spurious, but he arrives at many of his own views by focussing on the consequences of, say, "P is true" or "x is real." The pragmatic maxim, that is, serves both as a standard for determining which expressions are empty and as a methodological principle for formulating philosophical theories of truth, reality, etc.

In "How to Make Our Ideas Clear," Peirce publically unveils pragmatism and sets out the maxim as follows:

Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these is the whole of our conception of the object. (W 3, 266)

Peirce suggests in this paper that knowing the meaning of an expression is exhausted by knowing its "practical" effects, which he characterizes as "effects, direct or indirect, upon our senses" (W 3, 266). These effects can be described by conditionals of the sort: if you were to do A, you would observe B. He says:

We come down to what is tangible and practical, as the root of every real distinction of thought, no matter how subtle it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference of practice. (W 3, 265)

As an example of how the pragmatic maxim operates, Peirce examines the meaning of "this diamond is hard." He says that it means that if you try to scratch it, you will find that "it will not be scratched by many other substances" (W 3, 266).

Notice that the practical effect here is formulated as an indicative conditional, as a matter of what *will* happen. Peirce sees that if he formulates practical effects in this manner, it makes little sense to describe a diamond which is in fact never scratched as being hard. He seems to be content with this conclusion in "How to Make Our Ideas Clear." But when he considers the matter later, he insists on a subjunctive formulation. He chides himself for making the nominalist suggestion that habits, dispositions, or "would-bes" are not real. A Scholastic realism about dispositions and subjunctive conditionals must be adopted: a disposition is more than the total of its realizations and a subjunctive conditional can be correct or incorrect, whether or not the antecedent is fulfilled. The practical effects which concern pragmatism are those which would occur under certain conditions, not those which will actually occur. His considered view about the unscratched diamond is that "it is a real fact that it *would* resist pressure" (CP 8.208).

This was not Peirce's only amendment to the pragmatic maxim. In his struggle to arrive at a suitable account of understanding,

we sometimes find him suggesting something very similar to what we find later in logical positivism. The positivists' criterion effectively restricted meaning to statements about physical objects – to statements about that which is directly observable or verifiable. Statements about anything else – metaphysics or ethics for example – were literally meaningless. But, in further improvements to the pragmatic maxim, Peirce makes it clear that he is concerned to give a much more generous account of what is involved in understanding.

First, Peirce himself inclined toward metaphysics and he did not want to do away with it altogether. In metaphysics "one finds those questions that at first seem to offer no handle for reason's clutch, but which readily yield to logical analysis" (CP 6.463). Metaphysics, "in its present condition," is "a puny, rickety, and scrofulous science" (CP 6.6). But it need not be so, for many of its hypotheses are meaningful and important. It is the job of the pragmatic maxim to sweep "all metaphysical rubbish out of one's house. Each abstraction is either pronounced to be gibberish or is provided with a plain, practical definition" (CP 8.191).

Second, Peirce frequently claims that the pragmatic maxim captures only *a part* of what it is to know the meaning of an expression. In order to grasp a term, he argues, a threefold competence is required. The interpreter must be able to

(1) pick out what objects the term refers to or know the term's denotation,
(2) give a definition of the term or know the term's connotation, and
(3) know what to expect if hypotheses containing the term are true.

He takes these three aspects of understanding to spell out completely what someone must be able to do if she grasps a concept or knows the meaning of an expression.

A much-neglected implication of this view is that definition is not the most important project for philosophers: "Definition can no longer be regarded as the supreme mode of clear Apprehension" (MS 647, p. 2). That is, we must be alert to the fact that what Peirce arrives at when he applies the pragmatic maxim to a concept is not

a definition of the concept, but rather, a pragmatic elucidation. He examines a concept through its relations with practical endeavors. That is one route to understanding a concept, the route Peirce takes as his own contribution to debates about what it is to understand something.

Third, Peirce tries to divert the philosopher from thinking that sensory experience is all-important. A perceptual belief, he argues, is merely a belief that is compelling, surprising, impinging, unchosen, involuntary, or forceful. Such beliefs need not arise from the senses. Peirce, unlike his verificationist successors, wants all hypotheses to be exposed to the pragmatic maxim; he does not exempt formal (or "analytic") sentences. Logical and mathematical hypotheses can meet the criterion because there is a kind of experience relevant to them – you can make manipulations in proofs or diagrams and observe unexpected results. And some metaphysical hypotheses meet the criterion as well. They must have consequences, Peirce argues, for ordinary, everyday experience. See the contributions here from Wiggins and Misak for a discussion of how mathematics and morals fit in this picture.

3. TRUTH AND REALITY

Peirce applies the pragmatic maxim to the debate on the nature of truth and reality. The philosopher must look to our practices and see what account of truth would be best suited for them: "We must not begin by talking of pure ideas, – vagabond thoughts that tramp the public roads without any human habitation, – but must begin with men and their conversation" (CP 8.112). As Wiggins's essay in this volume makes so clear, the upshot is a subtle and compelling view. Peirce's route to the concept of truth is through belief, inquiry, and deliberation: the practices linked to truth and to the seeking of truth. Peirce suggests that we concern ourselves with propositions we have arrived at, expressed, affirmed, or believed and those we shall arrive at, express, affirm, or believe.[4] By making this our focus, we will discover something about what it is at which we aim: truth. This does not mean that truth is an epistemological notion. Rather, this exemplifies one route to finding out something about truth: the route through our epistemological practices of believing, inquiring, and deliberating.

true beliefs are about. Chris Hookway has recently improved our understanding of how Peirce saw this connection and the reader is advised to turn to his contribution to this volume for a summary of that new understanding.

4. SEMEIOTICS

Peirce was a pioneer in semeiotics. Not only is he responsible for the distinction between type ('human' as a general term) and token ('human' as applied to various individuals), but he developed a complex map of sixty-six kinds of signs, from which sprout 59,049 varieties. The details of this map are still of great interest to semeioticians, but they will not concern me here. Short's and Skagested's papers in this volume convey many of the important points. Short shows how Peirce eventually abandoned his early theory of signs and substituted for it a much less paradoxical one and Skagested shows how Peirce's theory of signs connects to issues about intentionality and the philosophy of mind.

It is important to notice for this broad overview of Peirce's work that his theory of signs has interpretation at its center. Peirce holds that the sign–referent relation is not able, on its own, to sustain a complete account of representation. Representation is triadic: it involves a sign, an object, and an interpreter. Each aspect of this representation relation corresponds to one of the elements in Peirce's division of signs into icons, indices, and symbols. And in each of these, one or another aspect of the linguistic competence alluded to in Section 2 is most prominent.

Icons are signs that exhibit their objects by virtue of similarity or resemblance. A portrait is an icon of the person it portrays and a map is an icon of a certain geographical area. Peirce argues that the meaning of iconic signs lies mostly in their connotation: what makes a painting or a map an icon is that its qualities or attributes resemble the qualities or attributes of its object.

Indices are signs that indicate their objects in a causal manner: an index "signifies its object solely by virtue of being really connected with it" (CP 3.360). A symptom is an index of a disease and smoke is an index of fire. The essential quality of an index is its ability to compel attention. A pointing finger, a knock on the door, or a

demonstrative pronoun, such as 'there' or 'that,' draws attention to its object by getting the interpreter to focus on the object. So an index, by being object-directed, has its denotation or extension as its "most prominent feature" (CP 8.119). An index picks out or indicates its object; it points to 'that, that, and that' as its extension.

A symbol is a word, hypothesis, or argument which depends on a conventional or habitual rule: a symbol is a sign "because it is used and understood as such" (CP 2.307). Symbols have "principle" or pragmatic meaning; they have "intellectual purport."

Peirce contrasts pragmatic meaning with "internal" meaning (which he relates to icons and connotation) and with "external" meaning (which he relates to indices and denotation). He suggests that the pragmatic meaning of symbols has to do with a "purpose" (CP 8.119). A symbol has pragmatic meaning because if the utterer knows how interpreters habitually interpret a sign, she can use the sign to cause a specific effect in the interpreter. And Peirce calls this effect the "interpretant" of the sign. If, for instance, I write 'dog,' I intend the sign to cause a certain effect in the interpreter (perhaps I want the interpreter to think of a dog), whereas if I write 'odg,' I do not, as 'odg' is not a conventional sign. Or if I assert 'That bridge has a loose plank,' I might want the interpreter to be careful when crossing the bridge. Peirce characterizes an assertion as the attempt to produce a disposition in an interpreter; it is "the deliberate exercise, in uttering the proposition, of a force tending to determine a belief in it in the mind of an interpreter" (NE 4, 249).

Notice that if pragmatic meaning is about this sort of effect (having an effect on the beliefs of the interpreter), it is no longer about "effects, direct or indirect, upon our senses." Pragmatic meaning, rather, involves consequences for action or thought. In 1905 we find Peirce offering this version of the pragmatic maxim:

The entire intellectual purport of any symbol consists in the total of all general modes of rational conduct which, conditionally upon all the possible different circumstances and desires, would ensue upon the acceptance of the symbol. (CP 5.438)

Peirce thinks that "rational conduct" will eventually manifest itself in a modification of the interpreter's disposition to behave. And "rational conduct" includes the conduct of one's thought.

This twist in the pragmatic maxim – that the acceptance of a hypothesis must have effects on an interpreter's train of thought – coincides with a development in the early 1900s in Peirce's theory of signs. Here Peirce arrived at a complex theory of interpretants and he locates pragmatic meaning within this theory.

He distinguishes three types of interpretants. The "immediate" interpretant is the fitness of a sign to be understood in a certain way; the "dynamical" interpretant is the actual effect a sign has on an interpreter; and the "final" interpretant is the effect which eventually would be decided to be the correct interpretation. Pragmatic meaning, Peirce says, lies in a kind of dynamical interpretant: the "ultimate logical interpretant". A sign, Peirce argues, sparks a subsequent sign (an interpretant) in the mind of the interpreter, and since an interpretant is itself a sign, an infinite chain of interpretation, development, or thought is begun. Peirce stops the regress by introducing the notion of an "ultimate logical interpretant" or a "habit-change". He follows Alexander Bain in taking a belief to be a habit or a disposition to behave. And so this new habit is a belief or a modification of the interpreter's tendencies towards action. The pragmatic meaning of an expression, according to Peirce's theory of signs, is the action (which includes the action of subsequent thought, and which ends in a disposition to behave) that arises after an interpreter accepts it.

5. THEORY OF INQUIRY

The notion of inquiry occupies a central place in Peirce's thought. Philosophy, he insisted, must get along with other branches of inquiry. Indeed, the following motto "deserves to be inscribed upon every wall of the city of philosophy: Do not block the path of inquiry" (CP 1.135).

In "The Fixation of Belief," Peirce characterizes inquiry as the struggle to rid ourselves of doubt and achieve a state of belief. An inquirer has a body of settled beliefs – beliefs which are, in fact, not doubted. These beliefs, however, are susceptible to doubt, if it is prompted by some "positive reason," such as a surprising experience (CP 5.51). We have seen that Peirce takes experience to be that which impinges upon us – experience, he says, teaches us "by practical

jokes, mostly cruel" (CP 5.51). When experience conflicts with an inquirer's belief, doubt is immediately sparked. And doubt "essentially involves a struggle to escape" (CP 5.372n2). Inquiry is that struggle to regain belief. The path of inquiry is as follows: belief – surprise – doubt – inquiry – belief.

Peirce does not take these points to be mere observations about human psychology; he thinks that psychology should be kept out of logic and the theory of inquiry. Doubt and belief, although they do have psychological aspects, such as making the inquirer feel comfortable or uncomfortable, are best thought of in terms of habits. A "belief–habit" manifests itself in an expectation: if we believe P, then we habitually expect the consequences or the predictions we derive from P to come about when the appropriate occasion arises. Inquirers are thrown into doubt when a recalcitrant experience upsets or disrupts a belief or expectation.

There are three stances an inquirer may have with respect to a hypothesis: believe it, believe its negation, or consider the matter open to inquiry. Only in the third stance are we left without a habit of expectation and thus it is agnosticism, which is the undesirable state. That is, doubting whether a hypothesis is true is not equivalent to believing that it is false – rather, doubting is not knowing what to believe. What is wrong with this state is that it leads to paralysis of action. An inquirer has some end in view, and two different and inconsistent lines of action present themselves, bringing the inquirer to a halt: "he waits at the fork for an indication, and kicks his heels ... A true doubt is accordingly a doubt which really interferes with the smooth working of the belief-habit" (CP 5.510). Doubt is not knowing how to act. And action, for Peirce, includes action in diagrammatic and thought experiments.

Peirce's theory of inquiry has a certain kind of empiricism at its core. Inquirers aim for beliefs that fit with experience, in Peirce's broad sense of that word. When we replace a belief which has come into doubt, that new belief stands up to experience better than the old one. So we accept it, act on it, and think for the time being that it is true. But we know very well that it eventually might be overthrown and shown by experience to be false. Peirce adds the more contentious claim that what we aim for is permanently settled belief. When we have a belief that would forever withstand the tests

of experience and argument, he argues that there is no point of re-
fusing to confer upon it the title "true." Only a spurious desire for
transcendental metaphysics will make one want to distinguish per-
fectly good beliefs from true beliefs.

But in "The Fixation of Belief" Peirce says that a permanently
fixed belief, *no matter how it is fixed*, is true. A problem of course
looms large here. If beliefs could be settled by a religious authority,
or by a charismatic guru, or by astrology, so that they were perma-
nently resistant to doubt, his account would give us no reason for
criticising them. Peirce trys to solve this problem by considering var-
ious methods of fixing belief and arguing that it is hard *really* to end
the irritation of doubt.

The method of tenacity, or holding on to your beliefs come what
may, will not work, he says, because doubt will be sparked when
one notices that the opinions of others differ from one's own. Be-
liefs produced by the method of authority (fixing beliefs according to
the dictates of a state or religion) will similarly be subject to doubt
when one notices that those in other states or religions believe differ-
ent things. Beliefs produced by the a priori method (adopting beliefs
which are agreeable to reason) will eventually be doubted when it
is seen that what we take as being agreeable to reason shifts like a
pendulum and is really a matter of intellectual taste. None of these
methods will produce permanently settled belief because they have a
self-destructive design: the beliefs settled by them eventually would
be assailed by doubt.

The agent of destruction which Peirce sees in each of the specious
methods seems to be a purported fact about our psychological
makeup: if an inquirer believes a hypothesis, and notices that other
inquirers do not believe it, that first inquirer will be thrown into
doubt. This impulse, Peirce says, is "too strong in man to be sup-
pressed, without danger of destroying the human species" (W 3, 250).
If this psychological hypothesis expresses a universal fact about us,
then the unsatisfactory methods will indeed prove unreliable in the
long run. They will not produce permanently settled belief and we
should refrain from using them.

The psychological hypothesis, however, seems to be false. I have
suggested (Misak 1991) that the way to resolve this difficulty is to
focus on Peirce's thought that being responsive to or answerable to
something is one of the "essentials of belief, without which it would

Peirce's theory of inquiry provides the key to understanding his view of the growth of knowledge and the progress of science. His position anticipates Neurath's metaphor of building a boat at sea, replacing defective planks one by one. Science, Peirce says,

is not standing upon the bedrock of fact. It is walking upon a bog, and can only say, this ground seems to hold for the present. Here I will stay till it begins to give way. (CP 5.589)

Accepted hypotheses and theories are stable until they are upset by experience. They are as good as they can be, given the state of evidence, technology, argument, etc. Knowledge is rebuilt bit by bit when experience forces inquirers to revise their beliefs. We have some reason to believe that we are advancing or getting closer to the truth, for the new beliefs will get along with experience better than the old ones. True beliefs are those which would, in the end, get along with experience and one explanation of our beliefs achieving more and more fit with experience is that a good number of them are true. A good number of them would be permanently doubt-resistant.

But Peirce's picture is not one of placing indubitable building blocks upon each other as we progress toward the truth. Rather, the picture is one of doubt (recalcitrant experience) forcing us to inquire until we reach another tentative doubt-resistant belief. The ground upon which inquiry walks is tenuous and it is only the danger of losing our footing that makes us go forward. Doubt and uncertainty provide the motive for inquiry. All our beliefs are fallible and when someone accepts a belief, she does so with the knowledge that it might very well succumb to the surprise of further experience. But if she knows that the belief is the result of a method which takes experience seriously, then she is warranted in accepting it, asserting it, and acting upon it.

In addition, Peirce's theory of inquiry invokes two regulative hopes: assumptions, such that, without making them, the participants in a practice could make no sense of that practice. We must, Peirce says, hope or assume that the community will continue indefinitely and we must hope that there would be, if inquiry were pursued far enough, a final settled answer to "the particular questions with which our inquiries are busied" (CP 6.610). We must hope, that is,

that bivalence holds for the question at hand; we must hope that P or $-P$. He says,

A reasonable disputant disputes because he hopes, or at least, goes upon the assumption that the dispute will come to something; that is to say, that both parties will at length find themselves forced to a common belief which will be definitive and final. For otherwise, why dispute? (CP 2.29)

Inquiry is the asking of questions, and a presupposition of inquiry is that the questioner hopes for an answer. We have, Peirce says, some ground for this hope because all sorts of questions that seemed at one time to be completely resistant to resolution have been resolved.

6. LOGIC: DEDUCTION, INDUCTION, ABDUCTION

Peirce described himself as first and foremost a logician. He despaired of the state of philosophy in America at the turn of the last century; philosophers, he said, found formal logic too difficult. He classified inference into three types, deduction, induction, and abduction (which he also called retroduction or hypothesis) and made significant contributions to the study of each. Indeed, the very idea of abduction, what is today known as "inference to the best explanation," is due to Peirce.

As is made clear in Dipert's essay in this volume, Peirce's contributions to deductive logic are most impressive, although today it is Frege, not Peirce, who is regarded as bringing modern logic into the world. Peirce developed a logic of relations and quantifiers independent of and at roughly the same time as Frege, discovered the Sheffer Stroke twenty years before Sheffer, and invented a notation (utilizing normal forms) very similar to the one still in use. In mathematics, he anticipated Dedekind on the difference between finite and infinite sets and independently developed arguments about infinity similar to Cantor's.[6]

Peirce is also known for his work on induction. Some see in his writing an anticipation of Reichenbach's probabilistic response to Hume's scepticism about induction, while others see an anticipation of the Neyman–Pearson confidence interval approach to testing statistical hypotheses.[7]

What we usually think of as inductive inference (that which concludes that all As are Bs because there are no known instances to the

contrary) is what Peirce called "crude induction." It assumes that future experience will not be "utterly at variance" with past experience (CP 7.756). This, Peirce says, is the only kind of induction in which we are able to infer the truth of a universal generalization. Its flaw is that "it is liable at any moment to be utterly shattered by a single experience" (CP 7.157).

The problem of induction, as Hume characterizes it, is about crude induction; it is about the legitimacy of concluding that all As are Bs or that the next A will be a B from the fact that all observed As have been Bs. Peirce assumes that Hume's problem is straightforwardly settled by fallibilism and critical commonsensism. We are right to believe that the sun will rise tomorrow, yet it is by no means certain that it will. To show that induction is valid, we need not show that we can be certain about the correctness of the conclusion of a crude inductive inference. Fallibilism holds that this is a pipe dream. What we have to show, rather, is that induction is a reliable method in inquiry.

Peirce holds that it is a mistake, anyway, to think that all inductive reasoning is aimed at conclusions which are universal generalizations. The strongest sort of induction is "quantitative induction" and it deals with statistical ratios. For instance:

> *Case*: These beans have been randomly taken from this bag.
> *Result*: 2/3 of these beans are white.
> *Rule*: Therefore 2/3 of the beans in the bag are white.

That is, one can argue that if, in a random sampling of some group of Ss, a certain proportion r/n have the character P, the same proportion r/n of the Ss have P. One concludes from an observed relative frequency in a randomly drawn sample a hypothesis about the relative frequency in the population. See Levi's contribution to this volume for a careful analysis of Peirce and quantitative induction.

Peirce is concerned with how inductive inference forms a part of the scientific method: how inductive inferences can fulfill their role as the testing ground for hypotheses. Quantitative induction can be seen as a kind of experiment. We ask what the probability is that a member of the experimental class of the Ss will have the character P. The experimenter then obtains a fair sample of Ss and draws from it at random. The value of the proportion of Ss sampled that are P approximates the value of the probability in question. When we test,

we infer that if a sample passes the test, the entire population would pass the test. Or we infer that if 10% of the sample has a certain feature, then 10% of the population has that feature.

Peirce took the three types of inference to form the scientific method. The role played by induction is to test hypotheses. The job of abductive inference is to provide hypotheses for testing. In abductive inference "we find some very curious circumstance, which would be explained by the supposition that it was a case of a certain general rule, and thereupon adopt that supposition" (W 3, 326). The form it takes is:

> The surprising fact, C, is observed;
> But if A were true, C would be a matter of course,
> Hence, there is reason to suspect that A is true. (CP 5.189)

Peirce argued with Paul Carus about when an explanation is called for. Carus claimed that irregularity demands an explanation and Peirce disagreed. Nobody, he says, is "surprised that the trees in a forest do not form a regular pattern, or asks for any explanation of such a fact" (CP 7.189). Peirce suggests that irregularity is "the overwhelmingly preponderant rule of experience, and regularity only the strange exception." A mere irregularity, where no definite regularity is expected, he says, creates no surprise; it excites no curiosity. And it is surprise or anomaly which throws us into doubt – which demands an inquiry to explain the surprising phenomenon. An *unexpected* regularity or the breach of an existing regularity makes a demand for explanation. The interruption of a habit of expectation (a belief) calls for an explanation.

Abduction is "the process of forming an explanatory hypothesis" (CP 5.171) for such unexpected regularities or breaches of regularities. These hypotheses, however, are merely conjectures; we must "hold ourselves ready to throw them overboard at a moment's notice from experience" (CP 1.634). For an abductive inference "commits us to nothing. It merely causes a hypothesis to be set down upon our docket of cases to be tried" (CP 5.602).

So the first stage of inquiry is arriving at a conjecture or an explanatory hypothesis. Peirce argued that abduction and induction are "ampliative" and deduction is "explicative." In explicative inference, the conclusion follows from the premises necessarily; in ampliative inference, the conclusion amplifies rather than explicates

what is stated in the premises. He argues that ampliative inference is the only kind that can introduce new ideas into our body of belief. Being a form of ampliative inference, abduction allows us to infer, or at least conjecture, from the known to the unknown. We can infer a hypothesis to explain why we observed what we did.

The second stage is to deduce consequences or predictions from the hypothesis. The "purpose" of deduction is "that of collecting consequents of the hypothesis." The third stage is that of "ascertaining how far those consequents accord with Experience" (MS 841, p. 44). By induction we test the hypothesis: if it passes, it is added to our body of belief.

Peirce sees that the validity of abductive inference is a tricky matter. Its conclusion is not even asserted to be true:

> The hypothesis which it problematically concludes is frequently utterly wrong in itself, and even the method need not ever lead to the truth; for it may be that the features of the phenomena which it aims to explain have no rational explanation at all. Its only justification is that its method is the only way in which there can be any hope of attaining a rational explanation. (CP 2.777)

The reason we are justified in making abductive inferences is that, if we are to have any knowledge at all, we must make them. A logician, Peirce says, should have two goals – he should "bring out the amount and kind of *security* ... of each kind of reasoning" and he should bring out the "uberty, or value in productiveness, of each kind" (CP 8.384). Abduction is such that "though its *security* is low, its *uberty* is high" (CP 8.388). It is the other two kinds of inference to which the notions of security and validity more aptly apply.

7. THE CATEGORIES

Peirce expended a great deal of intellectual energy engaging in a project which absorbed Aristotle and Kant – the categories. Peirce's ubiquitous classificatory scheme – the categories of Firstness, Secondness, and Thirdness – is designed to cover any object of thought. It is a classificatory scheme that takes each category to be an "independent and distinct element of the triune Reality" (CP 5.431). The doctrine, which permeates Peirce's work, is extremely complex and difficult.

force. The second category is one "which the rough and tumble of life renders most familiarly prominent. We are continually bumping up against hard fact" (CP 1.324):

We can make no effort where we experience no resistance, no reaction. The sense of effort is a two-sided sense, revealing at once a something within and another something without. There is binarity in the idea of brute force; it is its principal ingredient. (CP 2.84)

A First is a simple monadic element. Peirce says that it suggests spontaneity, and it is real "regardless of anything else." In virtue of its very nature, it is indescribable; it can only be grasped by prescission:

It cannot be articulately thought: assert it, and it has already lost its charac- teristic innocence; for assertion always implies a denial of something else. Stop to think of it, and it has flown! ... that is first, present, immediate, fresh, new, initiative, original, spontaneous, free, vivid, conscious, and evanescent. Only, remember that every description of it must be false to it. (CP 1.357)

These "qualities of feeling" are mere possibilities:

I do not mean the sense of actually experiencing these feelings ... that is something that involves these qualities as an element of it. But I mean the qualities themselves which, in themselves, are mere may-bes, not necessar- ily realized. (CP 1.287)

So the first category is that of possibility.

One upshot of Peirce's doctrine of categories is that he thinks that reality comes in three grades. He is a "realist" with respect to all of the categories – possibility, actuality, and generality are real. He insists that "the *will be's*, the actually *is's*, and the *have beens* are not the sum of the reals. They only cover actuality. There are besides *would be's* and *can be's* that are real" (CP 8.216). And his Scholastic realism has it that laws or thirds are real; they are not mere mental constructions.

Peirce takes nominalism – the doctrine that "*laws* and general *types* are figments of the mind" (CP 1.16) – to be pernicious. He says:

... the property, the character, the predicate, *hardness*, is not invented by men, as the word is, but is really and truly in the hard things and is one in them all, as a description of habit, disposition, or behavior. ... (CP 1.27n1)

Peirce thinks that the fact that we can predict things ought to convince us of realism about generals. Scholastic realism explains prediction by holding that laws and dispositions have causal efficacy: "if there is any *would be* at all, there is more or less causation; for that is all that I mean by causation" (CP 8.225 n10). If a prediction has a tendency to be fulfilled, it must be the case that future events have a tendency to conform to a general rule. Peirce concludes that some laws or generals are real. Laws and dispositions mediate between possibility (Firstness) and actuality (Secondness) – it is the law that makes the possible actual, for laws or general patterns cause their instances.

But Peirce does not think that possibilities and generals actually exist; universals or generals are not "things." The realm of existence is the second category, and so possibilities and generals are real but not existent.

8. METAPHYSICS

The doctrine of categories is not Peirce's only metaphysical venture. He is set against determinism, which he takes to be the position that "every single fact in the universe is precisely determined by law" (CP 6.36). His "Tychism" has it that there is absolute chance in the universe – there is spontaneous deviation from the laws of nature. Peirce takes a corollory of Tychism to be that physical laws are statistical, something which physics now takes for granted.

Tychism is tied to Peirce's view of evolutionary cosmology, for Tychism has it that there is a tendency toward diversification in the universe. Laws, Peirce thinks, evolved from "pure possibility." The starting point "was not a state of pure abstract being. On the contrary it was a state of just nothing at all, not even a state of emptiness, for even emptiness is something" (CP 6.215). He usually says that it was pure Firstness – recall that spontaneity is paradigmatic of Firstness. It is a state which has no existing things (Secondness), compulsion (Secondness), or law (Thirdness): it is a state of pure chance or possibility.

From this state of possibility came accidental "flashes" (CP 1.412) which, again accidentally, reacted with one another. That is, Secondness emerged. And from these reactions arose a habit-taking

tendency or Thirdness. Peirce says that it is the nature of habit to ever strenghten itself and thus, laws came into being. Evolution is the process of growth; the world becomes more and more rational and law-bound.

Another of Peirce's metaphysical doctrines is "Synechism," which has it that the notion of continuity is the key to philosophy. Sometimes he says that "Synechism is not an ultimate and absolute metaphysical doctrine; it is a regulative principle of logic prescribing what sort of hypothesis is fit to be entertained and examined" (CP 6.173). But at other times he presents it as highly metaphysical.

Like Aristotle, Peirce holds that a continuous series is not a collection of discrete points. A continuous series is rather a possibility of endless further determination. A continuum has no existing parts, but only a potential for being divided into parts. The infinite number of points on a continuous line are really places at which a point could be located; they are merely possibles or Firsts rather than actuals or Seconds. Continuity itself is an instance of Thirdness; it is a kind of ultimate mediation. For a continuous series is a path where we can always find one thing between two others. Peirce characteristically tries to link up this example of Thirdness with others, most particularly, with laws and generality.

Another metaphysical debate which Peirce joined is the debate about reality. Sometimes he writes of reality not in the way described in Section 3, where reality is the object of perfectly stable beliefs. But sometimes he places his view of reality within the idealism–materialism debate and sides for a kind of idealism. Reality, he says, is nothing but "effete mind" – "what we call matter is not completely dead, but is merely mind hidebound with habits" (CP 6.158). It is unclear whether this idealism can be reconciled with the view of reality elucidated within Peirce's account of truth. And it is unclear whether idealism, along with the other metaphysical doctrines touched upon here, can pass the pragmatic test, which requires metaphysical theories to have consequences for practice.[8]

9. INFLUENCE

The pragmatic theory of truth is still a going concern. Some of the current brands are not the one Peirce himself offered, but closer to those of William James and John Dewey, both of whom

acknowledged their debt to Peirce. (See Pihlstrom's essay for an account of these relationships.)

Richard Rorty's pragmatism, for instance, has it that the very notion of truth is metaphysical and ought to be abandoned. Peirce, on the other hand, thinks that truth not only is a sensible notion, but, given that it is what inquirers aim at, it is a notion which is essential for inquiry. W. V. O. Quine (in some moods) and Hilary Putnam are more clearly the inheritors of Peircean pragmatism.

Another area where Peirce's influence is still felt is in the field of semeiotics, where many of his distinctions, classifications, and terminology still reign. His influence in the field of logic was impeded by his isolation and by the fact that the Boolean school was eventually edged out of the mainstream by the Fregean. Schröder adopted Peirce's notation, and some well-known results are written in it.[9] And Whitehead seems to have learnt quantification from Peirce. But despite the quantity and quality of his work in formal logic and statistical inference, he is probably best remembered in logic for introducing abductive inference, something which by its very nature cannot be formalized.

Unfortunately, Peirce's lack of success in securing an academic position, his perhaps abrasive personality, and his penchant for cumbersome terminology combined to render his views pretty much inaccessible during his own lifetime. He died penniless and unappreciated. It has only been recently that his work has found the interest it deserves and the excavation it requires.

NOTES

1. See Brent (1993) for an account of Peirce's woes in the academy. Menand (2001) is, I believe, an unreliable account: it is highly speculative about Peirce's character and bizarre in its analysis of the rise and fall of pragmatism's popularity in the United States.
2. Letter to William James in 1903, quoted in Perry 1936: vol. II, 425. See Misak (1995) for an account of Peirce's place in the empiricist tradition.
3. Much of the material that follows rests on Misak (1991) and (1995).
4. See also Hookway (2000).
5. See also Misak in this volume and (1991: 59ff).
6. See Dauben (1982), Dipert (1981a), and Putnam (1982) for details.
7. For the latter, see Levi (1980), Levi's contribution to this volume, and Hacking (1980). See Wiggins in this volume for a better Peircean

response to Hume than the Reichenbachian one sometimes attributed to him.

8. Peirce did argue against some kinds of idealism on pragmatic grounds: "Very well, an idealist ... is lounging down Regent Street ... when some drunken fellow unexpectedly ... lets fly his fist and knocks him in the eye. What has become of his philosophical reflections now?" (CP 5.539).

9. For instance, Lowenheim's theorem and Zermelo's axioms: see Putnam (1982).

a thing as the pragmatist tradition, originated by Peirce and continued by James, Dewey, Schiller, Mead, and their followers. There is no need to insist, as some scholars do, that the broader movement known as pragmatism is something essentially different from Peirce's own pragmaticism. Aggressively orthodox Peirceans who think only Peirce's views deserve philosophical attention tend to overlook the remarkable integrity we find among the pragmatists, despite their occasional profound disagreements. There are both unity and differences-in-unity in the pragmatist tradition. We should be skeptical about all attempts to find just two forms of pragmatism (e.g., Peirce's and all others') opposed to each other.[5]

Both the integrity and the disagreements among pragmatists are worth discussing. Since it is impossible to make any detailed comparisons between Peirce and other pragmatists in a single article, I shall focus on James (Sections 2–4), offering only general remarks on Peirce's relations to Dewey and Schiller (Sections 5–6), while Royce, Mead, and other classical thinkers can hardly be more than mentioned.[6] Finally, I shall compare Peirce to neopragmatists such as Putnam and Rorty (Section 7), before concluding with reflections on Peirce's and other pragmatists' relation to the realism vs. idealism dispute (Section 8). These comparisons, brief as they must remain, are intended to place Peirce in his position in the extremely rich tradition he founded.

2. PEIRCE AND JAMES: REALISM AND TRUTH

It has been suggested, plausibly, that the basic difference between Peirce and James in their partly conflicting characterizations of pragmatism was that the former developed a strictly logical method that would help us understand the meaning of scientific concepts, whereas the latter was interested in a wider application of the practice-oriented method of pragmatism in human concerns (Hookway 1997). This difference in their "philosophical temperaments" – to use James's term – and in their overall philosophical projects is reflected in a number of more detailed differences,[7] which, however, should not conceal their similarities. It is a mistake to interpret James's pragmatism as a mere misunderstanding or misapplication of Peirce's. James was an independent thinker. He did not simply misunderstand Peirce but employed pragmatism more broadly, partly

because he had a different conception of science and the practical uses of inquiry (cf. Hookway 2000).

The opposition between *realism* and *nominalism* has been recognized as one of the issues dividing Peirce and James. Peirce always resisted nominalism, thinking that it committed the worst of philosophical sins, viz., blocking the road of inquiry (cf. CP 1.170, c. 1897). Peirce even came to resist some of his own early formulations of pragmatism as too nominalistic, and described himself as "a scholastic realist of a somewhat extreme stripe" (CP 5.470, c. 1906). Scholastic realism is essentially the doctrine that there are "real generals" (universals, dispositions, laws, habits). This view, Peirce thought, is required in any adequate formulation of scientific philosophy and metaphysics, including pragmatism itself. If universality and generality were "dependent upon what we happened to be thinking," science "would not relate to anything real" (CP 8.18, 1871).[8] James's pragmatism is more nominalistically inclined. Although it would be an exaggeration to call James a "nominalist," it is true that he focused on particular experiences and practical consequences of actions, whereas the consequences Peirce was interested in were general patterns and habits (Hookway 1997: 152). Another difference, related to scholastic realism, is this: while in some sense James went (or wanted to go) "round Kant" whereas Peirce's views were developed "through Kant" (Fisch 1986: 288), it turns out that James, contrary to his own self-image, was the more thoroughgoing Kantian. James's constructivistic pragmatism can be interpreted as a form of transcendental idealism, whereas in Peirce's case such a Kantian (re)interpretation is more difficult, because of his extreme realism (cf. Pihlström 1998a).

One of the points where James has been taken to have distorted Peirce's pragmatism is the *theory of truth*. But rather than interpreting James's pragmatist theory of truth as a misunderstanding of Peirce, we may see it as a "substantial extension" of Peirce's view, according to which truth is something that is satisfactory, useful, expedient, or good for us to believe, something that is "safe from overthrow by subsequent experience" (Haack 1976: 233–4). Because of his more nominalist bias, James focused on individual, concrete truths that were to be practically used in the course of experience, rather than on anything like the "Truth," or the final opinion of the scientific community (Haack 1976: 234). Peirce mentions James's

doctrine of the "mutability of truth" as one of the "seeds of death" with which his original pragmatism became infected in the hands of later pragmatists (CP 6.485, 1908). Yet the pragmatist theory of truth is, according to Haack (1976: 236, 247), a "cosmopolitan" theory, containing both correspondence and coherence elements and receiving different emphases in different authors. It need not be a rival of the correspondence theory, but it is meaningful to say that there is one single pragmatist theory, differently developed by Peirce, James, Dewey, and others. Hookway (2000: 82, 89) also notes that James's theory of truth, instead of competing with the correspondence theory, was designed to elucidate what agreement with reality means – and so, though differently, was Peirce's.[9]

James, as well as Dewey, endorsed rather than rejected or misunderstood Peirce's formulation that truth is to be equated with the eventual outcome of inquiry, or with the convergence of belief. As Hookway (2000: 44) puts it, James accepted the connection between convergence of opinion and truth "as an account of 'absolute truth,'" whereas Dewey "agreed with it as an analysis of *truth* before concluding that logic and epistemology would do well to abandon this notion in favour of 'warranted assertibility.'" James (1907 [1975]: 107) treats "absolute truth" as a regulative notion, and Dewey (1938: 345) refers to Peirce's definition as "the best definition of truth," from the logical point of view.[10] It is Dewey's conclusion that the notion of truth has no significant role to play in logic or inquiry that Peirce did not draw.

The problems of (Scholastic) realism and truth only give us preliminary answers to the question of what distinguishes James's pragmatism from Peirce's. We have noticed differences of emphasis rather than of principle – but important differences nevertheless. Further elucidation is needed.

3. THEORY AND PRACTICE

Turning more closely to the opinions Peirce expressed about James's views, we can easily see that Peirce was critical of James's ways of developing the pragmatist ideas he had himself presented, while also admitting that his early formulations were relatively close to the pragmatism James developed.[11] Peirce also explored James's views in contexts not directly related to pragmatism. For example, he

reviewed James's *The Principles of Psychology* (1890) in *The Nation* in 1891 (CP 8.55ff.).

Peirce respected James as a thinker. He admitted that James was a "perfect lover of truth" (CP 6.183, c. 1911; Perry 1935/1936: I, 540) and a great pragmatist: "You are of all my friends the one who illustrates *pragmatism* in its most needful forms. You are a jewel of pragmatism" (Perry 1935/1936: II, 427; Peirce's letter to James, March 16, 1903). There were, however, significant temperamental differences between the two, which Peirce recognized: "His comprehension of men to the very core was most wonderful. Who, for example, could be of a nature so different from his as I? He so concrete, so living; I a mere table of contents, so abstract, a very snarl of twine. Yet in all my life I found scarce any soul that seemed to comprehend, naturally, [not] my concepts, but the mainspring of my life better than he did. He was even greater [in the] practice than in the theory of psychology" (CP 6.184, c. 1911).

These differences can be highlighted by taking a look at what Peirce says about James's (1897 [1979]) doctrine of the "will to believe." In Peirce's view, this doctrine, assuming that "the end of man is action," pushes the pragmatic method "to such extremes as must tend to give us pause" (CP 5.3, 1902). James's pragmatism is "extreme," implying that "Doing is the ultimate purpose of life" (CP 8.115, c. 1900). Earlier, Peirce had remarked that "faith," though "highly necessary in affairs," is "ruinous in practice," if it means that "you are not going to be alert for indications that the moment has come to change your tactics" (CP 8.251, 1897; Perry 1935/1936: II, 222; see also CP 6.485, 1908).[12] Later, commenting on the Bergsonian conception of philosophy manifested in James's *A Pluralistic Universe* (1909b [1977]), Peirce was even more critical: "I thought your *Will to Believe* was a very exaggerated utterance, such as injures a serious man very much, but to say what you now do is far more suicidal.... [P]hilosophy is either a science or is balderdash..." (Perry 1935/1936: II, 438; letter to James, March 9, 1909).[13] Peirce insisted that pragmatism is not a *Weltanschauung* but "a method of reflexion having for its purpose to render ideas clear" (CP 5.13 n1, c. 1902). In a letter to the Italian pragmatist Mario Calderoni, Peirce, having made the distinction between pragmatism (among whose representatives he mentioned Schiller, James, Dewey, and Royce) and pragmaticism, noted that pragmaticism is "not a system of philosophy" but "only a method of thinking" (CP 8.205–6, c. 1905).

It was already in 1897, after having received James's *The Will to Believe*, dedicated to him, that Peirce reflected on the relation between his old and more recent conception of pragmatism in a letter to James (March 13, 1897; cf. also CP 8.255–6, 1902):

That everything is to be tested by its practical results was the great text of my early papers; so, as far as I get your general aim... I am quite with you in the main. In my later papers, I have seen more thoroughly than I used to do that it is not mere action as brute exercise of strength that is the purpose of all, but say generalization, such action as tends toward regularization, and the actualization of the thought which without action remains unthought. (CP 8.250)

This contains, *in nuce*, the difference between James's and Peirce's pragmatisms, as Peirce saw it. While it is not clear that James should be interpreted as having favored mere "brute exercise of strength," it is fairly accurate to say that he considered action or "doing" the main purpose of life. This is something that Peirce, impressed more by self-reflective habits and regularized action than individual actions, could not accept. "[T]he end of thought," he wrote, "is action only in so far as the end of action is another thought" (CP 8.272, 1902). Thus, Peirce thought that his fellow pragmatists, overemphasizing what he called "secondness," did not really understand what his categories were all about (CP 8.263, 1905). He also considered James's terminology unclear: in addition to accusing James of having misdescribed "pragmatism," he remarked that James's "pure experience" (James 1912 [1976]) "is not experience at all and certainly ought to have a name," because it is "downright bad morals so to misuse words, for it prevents philosophy from becoming a science" (CP 8.301, 1904). But then again, James hardly wanted philosophy to become a science.

A metaphilosophical opposition between Peirce and James can be observed in their conceptions of the role of philosophy in human life. While some Peirceans – e.g., Misak (1994, 2000) – have found support from Peirce's notions of truth and inquiry in defending moral realism, there is some evidence for the contention that Peirce did not consider our "practical affairs" or matters related to "the conduct of life" philosophically important.[14] He condemned, in his Cambridge Conferences Lectures (1898), "with the whole strength of conviction the Hellenic tendency to mingle Philosophy and Practice," and remarked that in philosophy, "the investigator who does not stand

based on experience, they rejected the passive, atomistic conception of experience consisting of scattered individual sensations assumed in much of the empiricist tradition.

4. INTERPRETATIONS OF THE PRAGMATIC MAXIM

While Peirce distanced his pragmatism from James's, James tended to diminish the differences. Specific references to Peirce by James can be found in *The Will to Believe* (1897b [1979]), the *Varieties* (1902 [1985]), *Pragmatism* (1907 [1975]), and *The Meaning of Truth* (1909a [1978]), as well as in manuscripts and lecture notes. These are in most cases to the pragmatic maxim, though James did teach Peirce's evolutionary metaphysics in his courses at Harvard, as his *Manuscript Lectures* (1988) show. In the *Varieties*, James (1902 [1985]: 351) mentioned "the principle of Peirce, the principle of pragmatism," referring to "How to Make Our Ideas Clear" (1878) and applying the principle to a discussion of God's metaphysical attributes. The same article by Peirce was already quoted in James's "The Function of Cognition," read before the Aristotelian Society in 1884 and published in *Mind* (vol. 10, 1885). That paper later formed the first chapter of *The Meaning of Truth*.[19] Later James reports:

The term ["pragmatism"] is derived from the same Greek word [$\pi\rho\alpha\gamma\mu\alpha$], meaning action, from which our words 'practice' and 'practical' come. It was introduced into philosophy by Mr. Charles Peirce in 1878.... Mr. Peirce, after pointing out that our beliefs are really rules for action, said that, to develop a thought's meaning, we need only determine what conduct it is fitted to produce: that conduct is for us its sole significance.... To attain perfect clearness in our thoughts of an object, then, we need only consider what conceivable effects of a practical kind the object may involve – what sensations we are to expect from it, and what reactions we must prepare. Our conception of these effects, whether immediate or remote, is then for us the whole of our conception of the object, so far as that conception has positive significance at all....
    To take in the importance of Peirce's principle, one must get accustomed to applying it to concrete cases. (James 1907 [1975]: 28–9)

Peirce's original text reads as follows: "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these

effects is the whole of our conception of the object" (CP 5.402/W 3, 266, 1878).[20] When presenting Peirce's principle in his California address in 1898, James said "it should be expressed more broadly than Mr. Peirce expresses it" (James 1898: 124). Attempting to do this, he appears to slide from acknowledging Peirce's notions of *possible* differences and *conceivable* effects to the stronger requirement that those differences or effects should be actualized in our concrete experiences or practices.

James demanded the practical consequences of our conceptions to be, above all, *particular* (James 1909a [1978]: 124; Perry 1935/1936: I, 458; II, 410–11). This, though little more than a corollary of his insistence that abstract ideas ought to be put to work among the actual facts of our world, conflicts with Peirce's focus on generality and habits, as Peirce consistently emphasized – instead of any particular, actualized bearings – the *"conceivably* practical bearings" in which "the entire meaning and significance of any conception" lies (EP 2:145, 1903). The Peircean formulation allows that conceptions, though always conceptions of "conceivable practical effects," "reach far beyond the practical"; it is only required that we maintain a connection with some possible practical effect (CP 5.196/EP 2:235, 1903). Thus, Scholastic realism, the principle that generality is operative in nature (and that modalities are thus interpreted realistically), is a central background assumption of pragmatism. It is not required that certain specific, particular consequences be actualized; it is enough that some general habitual patterns can be connected with all of our meaningful ideas.

Peirce remarked in a letter in December, 1904, that James's "Humanism and Truth" (reprinted in *The Meaning of Truth*) had distorted his views:

You have a quotation from me which greatly astonishes me ...: "The serious meaning of a concept lies in the concrete difference to some one which its being true will make."[21] ... I do not think I have often spoken of the "meaning of a concept" whether "serious" or not. I have said that the concept itself "is" *nothing more* than the concept, not of any concrete difference that *will* be made to someone, but is nothing more than the concept of the *conceivable* practical applications of it. (Perry 1935/1936: II, 432–3)

Peirce was somewhat happier with the way James interpreted him in *Pragmatism*, though he wished that James had learned to think

"with more exactitude" (Perry 1935/1936: II, 436–7). It is, clearly, in the "applications" that James's pragmatism takes a turn away from Peirce's. James did not pay much attention to Peirce's later developments of pragmatism; the logical spirit of Peirce's thought remained alien to him. This is something that James admitted, referring to his "non-mathematical" mind and "slight interest in logic" (Perry 1935/1936: II, 427; letter to Peirce, June 5, 1903). He wrote: "Your mind inhabits a technical logical thicket of its own into which no other mind has as yet penetrated" (Perry 1935/1936: II, 427n7; letter to Peirce, July 10, 1903; see also Perry 1935/1936: II, 680). Peirce agreed that James's failure to appreciate his (Peirce's) pragmatism resulted from his (James's) weak mathematical and logical capacities: James "had no head for logic at all" and thus "made the man in [the] street get some notions of what pragmatism was" (NE 3/1: 192, 1911).[22]

The oppositions between Peirce and James can be seen as emerging from their different formulations and applications of the pragmatic maxim. Peirce's Scholastic realism, emphasis on community, antipsychologistic view of logic, and emphasis on pragmatism as a logical principle conflicted with James's nominalism, individualism, psychological orientation, and psychologistic interpretation of pragmatism.[23] These conflicts are not unrelated to how they viewed the notion of practical consequences: for instance, in a note added in 1893 to the 1878 paper (CP 5.402n2), Peirce remarked that the maxim, understood as an application of the Biblical rule, "Ye may know them by their fruits," ought to be interpreted collectively, not individualistically. The emphasis on the collective nature of science, and of the habitually evolving rationality that human action manifests, extends through virtually everything that Peirce wrote. The individualistic overtones of James's pragmatism were as alien to him as James's psychologism. These differences are especially clear in Peirce's 1903 Harvard Lectures, one of the most significant documents of how Peirce resisted the psychologization of pragmatism.[24] He said that his own formulations of the 1870s were too psychological and that he no longer considers it satisfactory "to reduce such fundamental things [as the pragmatic maxim] to facts of psychology," because "man could alter his nature" (EP 2: 140; see also CP 5.28).

In these lectures, Peirce was concerned with demonstrating the truth of pragmatism as a method of thought and inquiry, connecting the maxim with almost all other branches of his philosophy (i.e., phenomenology, the categories, logic of relatives, theory of probability, the normative sciences – logic, ethics, and aesthetics, theory of inference, semiotics, and scholastic realism).[25] Regarding the "truth" of pragmatism, James's view may, however, have been more consistently pragmatic than Peirce's. Arguably, James applied pragmatism *to itself*, treating the pragmatist principle as pragmatically true (cf. Conant 1997, Pihlström 1998a). No logical demonstration of its truth, independently of pragmatism, was needed or even possible for him; the pragmatic efficacy and the truth of pragmatism were (*pace* Turrisi 1997b: 28) pretty much the same thing for James, though not for Peirce. The maxim that ideas ought to be tested practically in the course of experience covers this pragmatist idea itself.

This metaphilosophical difference over the status and provability of the pragmatic maxim was a corollary of the opposition between the logical and psychological orientations of Peirce and James, respectively. We may say that for James the evaluation of the philosophical role of generalities or abstract ideas was among the applications of the pragmatic maxim, whereas for Peirce the reality of generals was a presupposition making pragmatism possible. James could have argued that any such presupposition must again be pragmatically assessed. Peirce also thought that the pragmatic maxim had pragmatic consequences; he, too, in his own way applied pragmatism to itself. But the point is that James was willing to let practical consequences – which for him constituted a more open and inclusive class than the scientifically focused consequences Peirce emphasized – determine the philosophical value of pragmatism in a pragmatic manner, independently of any *prior* logical demonstration. Peirce's pragmatism was subordinated to logic; according to James, whatever philosophical value logic had it was to be explained on a pragmatic basis.

Some of these differences may hide a more basic similarity. The fact that, in Peirce's view, theory must be distinguished from practice and philosophy cannot help us in "matters of vital importance," might be considered a key difference to James, but it might also express a partial agreement. Peirce thought, with James rather than against him, that vitally important issues should be resolved by

instinct and sentiment rather than mere intellectual reflection or theorizing. Even so, the distance from James is considerable here. For James (as well as for Dewey), matters of vital importance do require something like "inquiry," because "inquiry" is defined in highly general terms, more broadly than "scientific inquiry." On the other hand, even Peirce may be interpreted as having held the view that "the method of science" can be applied to "all respectable subject-matters" (Hookway 2000: 76–7). There is perhaps a tension in Peirce's position in this respect.[26]

Another interesting comparison, not unrelated to the pragmatic maxim, results from the question of whether Peirce's presupposi-tions of inquiry – e.g., that there are real things independent of what we think about them – should be interpreted as transcendentally es-tablished truths or mere *hopes* (cf. Hookway 1998: § 10; 2000: 6–7, 39, 109–10, 185–6, 190, 296). Hookway observes that, from Peirce's point of view, the fact that something is a presupposition of inquiry, experience, or thought only provides a reason for hoping, not for believing, that it is true. Now, James's pragmatism might lead us to reject the distinction between these two attitudes as practically idle. What we *have to* adopt as a sincere hope on the basis of what our inquiries or experiences presuppose is, James would have urged, for us *ipso facto* pragmatically true. There is, in James's pragma-tism, no pragmatically solid distinction to be drawn between hopes and beliefs in the Peircean way. This is especially clear in the "will to believe" doctrine and in James's "faith ladder" (as formulated in *A Pluralistic Universe*): the status of sincere hopes is pragmat-ically indistinguishable from their status as convictions we need in our lives, convictions that are, for this reason, pragmatically true *for us*.

Here James was a more radical pragmatist with respect to truth than Peirce. One might argue against him by saying that hopes or regulative assumptions are not true or false and should be distin-guished from beliefs. Calling something a regulative assumption is "to make a statement about a practice," about some practice (e.g., inquiry) requiring "for its sensible continuation" certain assump-tion(s) by those who engage in it (e.g., inquirers); this is not to claim that such assumptions are true (Misak 1991: 140). But one of the arguments characterizing James's pragmatism as a whole is that the

1904, he wrote to Dewey: "You propose to substitute for the Normative Science which in my judgment is the greatest need of our age a 'Natural History' of thought or of experience. ... I do not think anything like a natural history can answer the terrible need..." (CP 8.239). Since pragmatism was, for Peirce, a method for clarifying ideas and, because of its relation to the theory of inference, a maxim of logic, and since logic was a normative science, James and Dewey were from Peirce's perspective guilty of a conflation of logical and (socio) psychological issues.

Still, pragmatists like Dewey and Mead can be seen as developing further some basically Peircean themes, particularly the reflexivity of habits of action and of rationality (Kilpinen 2000: ch. 3). Dewey did not entirely reject Peirce's realism of generality: "... Peirce has laid the basis for a valid logical theory of universals. It is the business of leading principles, as formulae of operations, to guide us in the drawing of inferences. They accomplish this task by indicating what qualities of things are characteristic of the presence of a specified kind of object or event" (Dewey 1936: 532). But he insisted that the problem of the relation between universals and individuals is logical rather than ontological (533), resisting the metaphysics of real generality. Dewey (1946: 228) also approvingly remarked that Peirce was the first to draw attention to the importance of the principle that "[t]he generic propositions or universals of science can take effect... only through the medium of the habits and impulsive tendencies of the one who judges" and that they have "no *modus operandi* of their own."

One of the major differences between Peirce's and Dewey's conceptions of inquiry is related to their accounts of truth. As was observed, Dewey (like James) approved of Peirce's 1878 definition of truth as the ultimate opinion of inquiry; yet Dewey did not rely on the idea that there must be a *unique* limit to inquiry (Tiles 1988: 107). He conceived of the tasks of inquiry more pluralistically than Peirce did, remaining closer to James. Instead of Peircean "pure science," Dewey favored "socially responsible science" (Tiles 1988: 160). This basic position regarding the social and, more generally, human relevance of inquiry can be found in virtually all of his writings. Furthermore, Dewey (like James) was more idealistically or constructivistically oriented than Peirce in his quite explicit view that the actions of inquirers constitute the objects of knowledge instead of

being answerable to pre-existing real things (cf. Dewey 1929; see Shook 2000).

It is undeniable that Peirce's community-driven conception of inquiry was a crucial background of Dewey's "instrumentalism" (cf. Dewey 1922); moreover, even within a Deweyan, more pluralistic conception of what our inquiries aim at one may retain the Peircean view that there is one definite answer to be arrived at regarding any particular question, provided that inquiry could be carried out long enough. The pluralism associated with James's pragmatism and his doctrine of the mutability of truth seems to be more extreme than the pluralism we can read into Dewey's account of inquiry.

6. PEIRCE AND OTHER EARLY PRAGMATISTS

Among the initial pragmatists, Josiah Royce was an important critic of James and developed a mixture of pragmatism and Hegelian idealism ("absolute pragmatism") that was closer to Peirce's views than were most other classical formulations of pragmatism. G. H. Mead was perhaps the one closest to Peirce among the early figures of the tradition, especially because of his interest in semiotics. C. I. Lewis, sometimes described as the last classical pragmatist, was also closer to Peirce than to James or Dewey. Lewis's "conceptualistic pragmatism," developed in *Mind and the World-Order* in 1929, perhaps lies between Peirce's and Royce's views (Fisch 1986: 300–1). These pragmatists remain outside the scope of the present inquiry.[31] I shall, in this section, focus on F. C. S. Schiller, the most radical subjectivist among the classical pragmatists.

Peirce did not approve of Schiller's manner of transforming pragmatism any more than he approved of James's: "...I, by no means, follow Mr. Schiller's brilliant and seductive humanistic logic, according to which it is proper to take account of the whole personal situation in logical inquiries." His reason for dismissing Schiller resembles his critiques of James and Dewey: "...I hold it to be very evil and harmful procedure to introduce into scientific investigation an unfounded hypothesis, without any definite prospect of its hastening our discovery of the truth" (CP 5.489, c. 1906; cf. also 5.494, c. 1906). Schiller was irresponsibly unclear about what he meant by "the *real*" (CP 5.533, c. 1905; cf. also CP 8.319, undated), as well as about his definition (influenced by James) of truth as something that is "satisfactory" (CP 5.552, 1906). In his review of the book

Personal Idealism (Sturt 1902), to which Schiller had contributed, Peirce noted that Schiller "does not believe that there are any hard facts which remain true independently of what we may think about them" (CN 3, 127). Although he did not criticize this position in any detail in the review, most of his writings on pragmatism and the scientific method defend such "hard facts." "Humanism," in particular, remained unclear and unscientific in Peirce's eyes:

[Schiller] does not wish us to devote any attention to the effects of conditions that do not occur, or at any rate not to substitute the solution of such a problem for the true problems of nature....I think such talk shows great ignorance of the conditions of science. [As] I understand it, this Humanism is to be a philosophy not purely intellectual because every department of man's nature must be voiced in it....I beg to be excused from having any dealings with such a philosophy. I wish philosophy to be a strict science, passionless and severely fair. (CP 5.537, c. 1905)

To ignore the conditions of science – especially scholastic realism, which draws attention to unactualized generalities – was, for Peirce, to ignore the central teachings of his pragmati(ci)sm. As he wrote to James: "The humanistic element of pragmatism is very true and important and impressive; but I do not think that the doctrine can be *proved* in that way. The present generation likes to skip proofs.... You and Schiller carry pragmatism too far for me. The most important consequence of it, by far,...is that under that conception of reality we must abandon nominalism" (CP 8.258, 1904; Perry 1935/1936: II, 430).[32] Apparently, Schiller, like James, applied pragmatism (or humanism) to itself, finding it a pragmatically valuable philosophy in human affairs, instead of seeking a proof available for nonpragmatists and pragmatists alike.

Apart from this metaphilosophical difference, Peirce's disagreements with James and Schiller were partly terminological. In another letter to James, Peirce noted that he would prefer the term "anthropomorphism" to Schiller's "humanism," especially if it implies theism (though he rejected the idea that the theistic God might be finite).[33] Furthermore, "[p]luralism," he said, "does not satisfy either my head or my heart" (CP 8.262, 1905; Perry 1935/1936: II, 434). Later, he mentioned "pluralism generally," along with the "will to believe" and the "mutability of truth," as an implication of James's and Schiller's pragmatism he did not accept (EP2: 457, 1911). As in the case of James and Dewey, Peirce felt that Schiller's

psychologism and nominalism were the opposite of the true spirit of pragmatism: "When you say that Logical consequences cannot be separated from psychological effects, ... you are merely adopting a mode of expression highly inconvenient which ... can only confuse, any sound argumentation. It is a part of nominalism which is utterly antipragmatistic ... " (CP 8.326; letter to Schiller, September 10, 1906).

Given Peirce's remarks on the indistinguishability of his views from James's, it seems that Peirce was more critical of Schiller than of James. Why? Is there a difference between James's pluralistic pragmatism and Schiller's personalistic humanism, although James often appeared to endorse Schiller's views on truth and on the constitution of reality through human practices?

This issue must be left for James and Schiller scholars to solve on another occasion. We can say that Schiller, even more radically than James, distanced himself from Peirce's logical, scientific pragmatism. He admitted that Peirce was the one who invented pragmatism, but added that "it would seem to follow from pragmatist principles that a doctrine belongs to him who makes an effective use of it" (Schiller 1903: 27 n1). Schiller (1907: ix–x) ignored Peirce's criticism of James's and his own views simply by remarking that Peirce's 1905 *Monist* papers "have shown that he had not disavowed the great Pragmatic principle which he launched into the world so unobtrusively nearly thirty years ago." Schiller (1907: 5) thought this principle was "the greatest truism": it is clear that the consequences of a claim are used to test the truth of the claim. "Humanism" is a broader doctrine than pragmatism (1907: 5 n1). Schiller added, though, that Peirce had privately assured him that "from the first he had perceived the full consequences of his dictum."

Neither James nor Schiller was responsive to the critique Peirce launched against them, although they, as leading figures of the movement founded by Peirce, perhaps ought to have been. This, one might speculate, may have been one of the reasons Peirce's pragmatism was only slowly received in the philosophical community.

7. PEIRCE AND LATER PRAGMATISM

Peirce and other classical pragmatists influenced later thinkers in many ways. Among central twentieth century philosophers, Ludwig

Wittgenstein is one of the most interesting in relation to the pragmatist tradition, although he was influenced more by James than by Peirce. Peirce's influence on Wittgenstein has been shown to go primarily through Frank Ramsey.[34] Unlike Wittgenstein, postpositivist philosophers of science, especially scientific realists, have been less affected by James and Dewey and more attached to a Peircean doctrine of the final opinion of the scientific community as the measure of truth (cf. Niiniluoto 1999). There are, furthermore, contemporary pragmatists (e.g., Haack 1998; Rescher 2000) whose views can be regarded as "Peircean," but despite the growing industry of Peirce scholarship, it seems that the most original thinkers to be classified as pragmatists today have been more strongly influenced by James and Dewey than by Peirce (e.g., Putnam, Rorty, and others). Yet we can find conflicting attitudes to Peirce even among these Jamesian–Deweyan neopragmatists: there is a great gulf separating Putnam's (1990: ch. 18) appreciation of Peirce's role as one of the founders of modern logic from Rorty's infamous way of restricting his contribution to the pragmatist tradition to his having given it the name and having stimulated James (see Rorty 1982: 160–161).

Putnam (1994, 1995a), like Rorty, sees James and Dewey as the two great pragmatists he wishes to follow. He refers to himself as one who attempts to revive the idea that truth is, "in some way (not in Peirce's way, but in a more humanly accessible, modest way), an idealization of the notion of warranted assertibility" (Putnam 1990: 223), and points out that "Peirce was certainly wrong in thinking that truth can be defined as what inquiry would converge to in the long run" (Putnam 1994: 152). Still, there are Peircean elements in Putnam's pragmatism: his attempt to define truth in epistemic terms (Putnam 1981, 1990) is not unlike Peirce's notion of the ideal limit of scientific opinion.[35] In Rorty's neopragmatism, such Peircean elements have disappeared, since in Rorty we can hardly find any sincere concern with truth or inquiry. Rorty also misuses Peircean ideas by regarding the pragmatist tradition as based on what he calls "antirepresentationalism." It is odd to claim that the founder of semiotics also founded an antirepresentationalist philosophy. Yet Rorty (1998) maintains something from the Peircean account of truth: insisting on the "cautionary" use of "true," he comes close to the kind of regulative "absolute" truth that James and Dewey considered valuable in Peirce's philosophy, viz., a notion of truth whose point is that "it

instead of defining their views in terms of it. But it is equally legiti-
mate to use this traditional opposition to uncover the tensions that
remain in pragmatists' peculiar combinations of realism and ideal-
ism (even if we may in the end agree that the contrast has been tran-
scended). What makes pragmatism philosophically interesting is its
tendency to result in fruitful albeit not easily resolvable struggles be-
tween realism and idealism.[38] Neither Peirce's, James's, nor Dewey's
(nor their more recent followers') views can be simply described as
realistic or idealistic. They are as complex doctrines as Kant's, who
combined transcendental idealism with empirical realism.

In his essay on Peirce, Dewey concluded: "Do not a large part
of our epistemological difficulties arise from an attempt to define
the 'real' as something given prior to reflective inquiry instead of as
that which reflective inquiry is forced to reach and to which when
it is reached belief can stably cling?" (1923: 308) This suggestion –
that the "real" should *not* be defined as "something given prior to
reflective inquiry" – leads to the elusiveness of the contrast between
realism and idealism that can be found throughout the pragmatist
tradition. Does inquiry produce the real by being forced to reach
for it? How independently does the real exist before inquiry, if it
is not "given" prior to it? And how meaningful is this worry it-
self? Although we should not confuse the problems we encounter
in formulating the realism question with the openness of the ques-
tion itself, the fact that a certain issue is hard to formulate is an
indicator of its genuine openness. Through pragmatists' writings,
the problem of realism is continuously transformed, but never fully
settled. For example, Putnam (1992a: 73) classifies Peirce's scholas-
tic realism as a species of metaphysical realism, the unpragmatistic
view that we can discover Nature's own "joints" – a view whose
rejection he regards as a virtue rather than a vice in James and
Dewey.

Peirce and other pragmatists were presumably aware of their diffi-
culties in reconciling the *prima facie* conflicting demands of realism
and idealism. Peirce characterized truth as "[t]he opinion which is
fated to be ultimately agreed to by all who investigate" and reality, or
"the real," as "the object represented in this opinion" (CP 5.407/W 3,
273, 1878). But the real, he always emphasized, must be thought of as
something that is "independent of the vagaries of me and you" (CP
5.311/W 2, 239, 1868; see also CP 5.405/W 3, 271, 1878; CP 5.430,

1905). Traditional realists require that the nature of reality be absolutely independent of our – even our most considered, collective, or "final" – opinions. Peirce thought that reality "depends on the ultimate decision of the community" (CP 5.316/W 2, 241, 1868). Claims like this seem to make his pragmati(ci)sm ambiguous between realism (connected with a correspondence analysis of truth, according to which the final opinion of inquiry corresponds to the way things are) and idealism (connected with a coherence or consensus account of truth). Peirce also said that reality, while being independent of "what you or I or any finite number of men may think about it," may not be independent "of thought in general" (CP 5.408/W 3, 274, 1878; cf. also CP 7.336, 1873).[39] This reference to "thought in general" in the constitution of reality in some sense makes him an idealist. Realizing the instability of his position, Peirce remarked that the claim that "[t]he object of final belief which exists only in consequence of the belief, should itself produce the belief" sounds paradoxical, but that this is not to say that the object of the belief "begins to exist first when the belief begins to exist" (CP 7.340, 1873). Even though the Peircean pragmatist characterizes inquiry nonpsychologically in illuminating the notions of reality and truth in terms of the final outcome of inquiry, it is not easy to make sense of the idea of inquiry as a genuine discovery, if inquiry, fated to lead to a consensus of opinion in the long run, constitutes the way the world is (Hookway 1985: 37–9).

The secondary literature is full of attempts to reconcile the tension between realism and idealism. For example, Carl Hausman (1993) endorses the idea that Peirce was a "metaphysical realist" (although preferably to be called an "evolutionary realist"), and defends this view against philosophers like Putnam. While Peirce rejected the "spectator theory of knowledge" (as all pragmatists did), he insisted that there are conditions of inquiry that were never made by us, that there is "resistance" in our experience (224–5). But is it possible to reject the spectator theory, denying that the object of knowledge is "given" to us, and yet claim that there is an external, independent world that is the object of knowledge? If the object of knowledge is constituted as the final outcome of inquiry, if truth is to be equated with belief that cannot be improved on through further inquiry, it is hard to see how the world can be totally independent of us in the sense in which realists claim it to be.

Each volume in this series of companions to major philosophers contains specially commissioned essays by an international team of scholars, together with a substantial bibliography, and will serve as a reference work for students and nonspecialists. One aim of the series is to dispel the intimidation such readers often feel when faced with the work of a difficult and challenging thinker.

Charles Sanders Peirce (1839–1914) is generally considered the most significant American philosopher. He was the founder of pragmatism – the view popularized by William James and John Dewey, that our philosophical theories must be linked to experience and practice. The essays in this volume reveal how Peirce worked through this idea to make important contributions to most branches of philosophy. The topics covered include Peirce's influence; the famous pragmatic maxim and the view of truth and reality arising from it; the question as to whether mathematical, moral, and religious hypotheses might aspire to truth; his theories of inquiry and perception; and his contribution to semiotics, statistical inference, and deductive logic.

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