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**COMMUNITY, CONSENSUS AND PROGRESS:
PROBLEMS IN PRAGMATISM FROM
PEIRCE AND DEWEY TO PUTNAM AND RORTY**

by

Paul Dickinson Forster

Department of Philosophy

Submitted in partial fulfilment
of the requirements for the degree of
Doctor of Philosophy

Faculty of Graduate Studies
The University of Western Ontario
London, Ontario
August, 1989

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ISBN 0-315-55296-4

THESIS ABSTRACT

This thesis deals with an antinomy that arises within debates among contemporary Pragmatists. On the one hand, lodging the authority of rationality in the context of evolving traditions raises problems of cultural relativism. Yet attempts to preserve the transcendence of reason raise epistemological problems that Pragmatism was designed to circumvent. The aim of this thesis is to adjudicate disputes among contemporary Pragmatists, through a discussion of the historical roots of the issues over which they continue to disagree.

Chapter I sets out the issues to be addressed and the structure of the argument. Chapter II deals with the context of nineteenth century thought out of which Pragmatism emerged. It is argued that, even for Peirce, despite his emphasis on formal logic, Pragmatism cannot be understood apart from issues in moral theory, religion and metaphysics.

Chapter III provides a discussion of Peirce's realism as it pertains to the views he opposes. Peirce's limit notion of truth is shown to successfully circumvent the opposition of realism and idealism. Peirce is defended from charges of equivocation, and from complaints that his view is a form of subjective idealism.

Chapter IV provides a complete account of Peirce's view that science is self-corrective. It demonstrates the

consistency and the coherence of Peirce's claim in response to objections by various commentators. The integration of logic, morals and metaphysics is again established.

Chapter V shows that there is an irreducible tension between Peirce's fallibilism and his attempt to vindicate science as the sole epistemic authority. Thus Peirce's attempt to resolve the antinomy between the immanence and the transcendence of reason fails in its own terms. The independent attempts by Putnam and Jardine to resurrect Peirce's limit theory of truth are also shown to be inadequate. In rejecting many of Peirce's least defensible epistemological claims Putnam and Jardine in fact only amplify the problems with Peirce's theory of truth.

Chapter VI shows that Dewey's notions of conduct and community provide the basis for a more radical construal of epistemic authority; one which is immune from Peirce's problems and yet also from the problem of radical relativism.

Chapter VII shows how Dewey's view of scientific inquiry emerges from his theory of conduct. Dewey's thesis that the aim of inquiry is warranted assertability is explained and defended from charges of ambiguity and cultural relativism.

Chapter VIII uses this reading of Dewey to defend Porty's view of the meaning and significance of Pragmatism against the criticisms of Putnam and Prado.

ACKNOWLEDGEMENTS

Many are owed thanks for their support in completing this project. Canadian taxpayers provided an Ontario Graduate Scholarship, a Doctoral Fellowship from the Social Sciences and Humanities Research Council of Canada and funds through the University of Western Ontario. Without financial support no student could continue. Cliff Hooker provided the initial spinal chills that prompted my move from social science to philosophy and a political vision that continues to guide my work. The department at Western took a chance on an untried social scientist. Tom Lennon taught him how to read. Jim Leach pushed him to push pragmatism into all kinds of unexplored territory and to challenge the limits of academic specialization. Hilary Putnam allowed him to freeload at Harvard for a year and spent some extremely scarce time with him. David Savan made valuable comments on this manuscript, as did Kathleen Okruhlik and Alison Wiley. Robert Butts provided helpful criticism, constant reminders of what philosophy is for (despite what it actually does at times), meals too numerous to mention, and, through his own work, an impressive standard to emulate. His warmth, wit and understanding were, and continue to be, important contributions. Margaret Morrison, above all, provides constant inspiration with her intelligence and determination. For her patience on the darker days and for her gentleness and love every day, I am extremely grateful.

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CHAPTER I - OPENING THE QUESTION.

The project of making culture scientific, of secularizing institutions and the production of knowledge, is undoubtedly the most impressive achievement of the enlightenment programme. Yet it may also point to that programme's most dramatic failure. For this process has culminated in the banishment of questions of the reform of cultural life, of institutional design, and of values in general, to the farthest reaches of academic isolation and specialization. It has also offered only the most speculative, abstract and detached of methods with which to address them. The history of scientific progress is also the history of the substitution of technological innovation, theoretical development in the natural sciences and quantitative jumps in economic indices, for what was once a much broader conception of social flourishing. It is also the history of the growing opposition of fact and value, science and art, theory and practice, rather than of the achievement of the enlightenment's promise of harmonious cultural fulfillment through the development of science.

It should thus come as no surprise that attempts to rethink the position of questions of value in the academic and theoretical hierarchy involve both serious challenges to enlightenment thought and a much broader move to reconceptualize culture as a whole. Any attempt to take

sides in this debate (or to write it off) involves a response to the successes and failures of our traditions; it involves a normative reading of our history, a reading which itself embodies a vision of cultural life.¹

The revival of interest in Pragmatism stems, in part, from its potential for social and cultural reconstruction in response to these perceived failures. Pragmatism's attempt to collapse, or circumvent, the sharp divisions of fact and value, theory and practice, mind and world, are part and parcel of its plea for intellectual engagement in social affairs, for the reintegration of the isolated strands of what has become a fragmented intellectual tradition, through the reevaluation of the form of life such fragmentation sustains. Changing the agenda of questions and problems which exercise and thus define cultural practice is, for Pragmatists, inseparable from changing institutions. The aim is a reconstruction of the intellectual and social landscape by means of a transformation of prevailing criteria of relevance and achievement.

Any position which attempts to redraw established boundaries is open to threat and frustration from those who would subsume it under the dichotomies it is trying to overcome. The Pragmatist's denial that natural science is the exclusive model of rationality is mistaken for anti-scientific romanticism. Her pluralism and contextualism for radical relativism, and her rejection of correspondence as

the measure of epistemic authority for idealism. Such strategies attempt to contain Pragmatism by placing it within standard dichotomies; the effort is to constitute Pragmatism as a traditional ally insofar as it contains any force at all, or as a species of some more traditional enemy insofar as it challenges conventional commitments. The drawing of such battlelines is one of the strategies philosophers use to make sense of their craft and to read their opponents in such a way as to define their own positions as obvious victors. The importance of such boundaries in defining philosophical movements (as well as the self-image of philosophy itself) explains the unwillingness, if not inability, to surrender those partitions. For if the choice can be reduced to reason versus irrationality, truth versus anything goes, objectivity versus ideology or force, then the conversation is over before it begins. But it is precisely on this ground that Pragmatists engage the tradition; it is the denial that these dichotomies, as traditionally understood, are exhaustive or somehow not optional that inspired Pragmatism historically and that ensures its continued relevance. Pragmatism, as with any system of interest, embodies an attempt to have it all: technology plus meaningful lives, knowledge plus purpose, authority without hierarchy and exclusion.

The failure to recognize the centrality of these broader issues to Pragmatism in all its forms explains much of the bafflement to which Pragmatism often gives rise. Among

philosophers concerned primarily with developing epistemologies of the natural sciences, Pragmatism always seems like an over-reaction, an unnecessary, unintuitive and potentially subversive rejection of (metaphysical, semantic and scientific) realism, in response to such discoveries as the theory-ladenness of observation, paradigm shifts in the history of science, and the underdetermination of theory acceptance by available evidence. But it is because Pragmatism wants not only to take science seriously but to legitimate inquiry in ethics, politics and art, that it goes so far in its challenge to intuitions about rationality. It is, in part, the failure of realism to account for objectivity in, and to recognize the interrelatedness of, these diverse practices, that inspires Pragmatism's most radical challenges.

The image of Pragmatism in the eyes of its opponents is not helped by the inability of its advocates to come to agreement on its central tenets and significance. There are still relatively few works that actually compare these differences. Historians often explain one version of Pragmatism by contrasting it with an uninformed and unsympathetic reading of another.² Similarly, contemporary advocates, such as Putnam and Rorty, trade accusations of relativism and cultural imperialism yet each appeals selectively to James, Dewey and Peirce for support. Neither has offered much in the way of historical interpretation,

leaving readers to struggle with questions of how the same works can be put to such vehemently opposed purposes, or how the significant differences between the original Pragmatists are to be reconciled.

The focus of this dissertation is a dispute among contemporary Pragmatists over an antinomy that arises between the immanence and the transcendence of epistemic authority. On the one hand, lodging the authority of science and rationality in the context of evolving historical traditions raises problems of cultural relativism and casts doubt on the possibility of criticizing traditions themselves. Yet attempts to preserve the transcendence of reason seem to raise epistemological problems that Pragmatism was initially designed to undercut, in addition to being undermined by evidence from anthropology and the history of ideas. Throughout this dissertation various versions of Pragmatism will be evaluated in terms of their effectiveness in resolving this antinomy. The aim will be to adjudicate the disputes among Pragmatism's leading contemporary advocates, through a discussion of the historical roots of the issues over which they remain divided.

In Chapter II my reading of Pragmatism as a systematic theory of science, ethics, and metaphysics is defended in the case of Charles Peirce, the Pragmatist least associated with non-scientific matters. Peirce's view is placed in its historical context, by contrasting it with Nominalism, the

empiricist liberalism of the nineteenth century that he intended to undercut. It is argued that despite his emphasis on logic and formal analysis Peirce's central motivation is to provide a general account of authority in conduct. Therefore his work cannot be understood apart from issues arising in moral theory, religion and metaphysics.

Chapter III extends this analysis of Peirce by providing a detailed discussion of his realism as it pertains to the movements against which he was arguing. It is shown that Peirce's limit notion of truth successfully circumvents the opposition between metaphysical realism and idealism. Peirce is defended from charges of equivocation on the notion of truth, and from complaints that his view is a form of relativism or subjectivism.

In Chapter IV Peirce's claim that scientific inquiry is self-corrective is presented in systematic detail. It is argued that Peirce's vindication of the methods of science as valid is, contrary to most commentators, systematic and consistent. The sense in which Peirce believes science tends toward truth and is exhaustive of rationality is discussed and the integration of Peirce's logic, method, metaphysics and moral theory is established.

Chapter V examines problems with Peirce's view and their implications for contemporary attempts to resurrect his limit notion of truth. It is argued that there is an irreconcilable tension between Peirce's fallibilism and his

vindication of science as an exclusive and absolute epistemic authority. Thus Peirce's attempt to resolve the antinomy between historicism and transcendent objectivity is shown to fail in its own terms. The separate attempts by Hilary Putnam and Nicholas Jardine to resurrect Peirce's theory of truth are each examined and are also found to be inadequate. While these writers reject many of Peirce's most controversial and least defensible epistemological claims, in so doing they merely amplify the problems with Peirce's theory of truth. It is suggested that the lingering attractiveness of Peircean realism comes from an overly restrictive partition of the available alternative positions.

Chapters VI and VII provide a reading of Dewey's Pragmatism that is immune from Peirce's problems and from the charge of relativism. In Chapter VI Dewey's notions of conduct and community are discussed as the basis for his theory of epistemic authority. The importance of Dewey's view as a departure from Nominalism and idealism is also summarized.

Chapter VII develops the view of scientific inquiry which emerges from the theory of conduct. Dewey's constructivism, his pluralism and his thesis that the aim of inquiry is warranted assertability are explained in detail and defended. Dewey's reply to the charge of cultural relativism is also provided.

The final chapter exploits the preceding interpretation

of Dewey's contribution to shed light on Richard Rorty's dispute with Hilary Putnam about the meaning and force of Pragmatism. By reading Rorty through the eyes of Dewey it is argued that Rorty does have a consistent non-relativist position. The strength of this position is illustrated by its ability to respond to the realist criticisms of Putnam and C. G. Prado.

Attempts to merge past and present frequently prove too historical for those with contemporary interests and too contemporary for historians. Many philosophers may find too much exegesis in what follows, while historians may complain that short shrift has been given to the cultural context of Pragmatism. There is no systematic way of overcoming these difficulties. I can justify the mix of history and philosophy only by saying that it came out that way. My intention throughout however is to demonstrate the relevance of past Pragmatists to current debates, without sacrificing sensitivity to the historical details.

A second source of potential complaint is the selectivity of the treatment of Pragmatism itself. Absent in what follows is a discussion of the semantic theories of either Peirce or Dewey, an area in which many fruitful contributions are to be found. Similarly, important topics such as Peirce's synchism and Dewey's theories of education and art are also ignored. A complete treatment of these issues is crucial to understanding both writers, yet in both cases

answers to questions in these fields are prefigured and influenced by the fundamental commitments that are discussed in what follows. Thus the omission of these topics does not prejudice the case made here.

Finally, most of the discussion focusses on disputes that arise within Pragmatism, with occasional contrasting references to Nominalism. Those that reject both Pragmatism and Nominalism may feel that important questions have been begged at the outset by limiting the range of available alternatives. Not only does this strategy provide greater focus for the dissertation, but the quality of the debates about Pragmatism can only be improved by providing a clearer understanding of what Pragmatism is. Furthermore, the attack on Nominalism by Pragmatists is also an attack on many forms of realism. The case for the inseparability of fact and method, subject and object, mind and world, embodies a critique of correspondence theories of truth and the idea of an absolute perspective that they imply. Thus while the specific consequences are not explicitly articulated, the challenge to prevailing views, posed by Pragmatism is discussed in detail throughout.

NOTES

1. See MacIntyre (1984a) and Becker (1968).
2. For example Peirce's objectivism is frequently contrasted with the alleged subjectivism of James or Dewey. Dewey's theory of truth is uncritically assimilated to that of Peirce or contrasted with an unsympathetic portrayal of that of James.

CHAPTER II - PEIRCE AND THE THREAT OF NOMINALISM.¹

1. INTRODUCTION: INTERPRETING PEIRCE.

It is still common for Peirce scholars to justify their vocation by defending Peirce's importance in (particularly American) intellectual history. However, Peirce's influence on that tradition was severely limited by his isolation late in life; his failure to complete a synthesis of what appear at first glance to be isolated works in mathematics, metaphysics, and logic; and his eclipse by better-known, more prolific, and institutionally established Pragmatists.

As a result Peirce's reputation as the most original philosopher America has ever produced has been won largely by demonstrating his anticipation of, and sensitivity to, problems of current concern.² But this "charitable" induction of Peirce into the community of modern philosophers can often result in an intolerable split in the Peircean corpus between that which survives the scrutiny of contemporary philosophy and that which is best forgotten. For example, Rescher treats Peirce as a "colleague and co-worker on issues of abiding interest" (1978, p.ix), yet restricts his discussion to issues in confirmation theory and methodology. Ayer insists that philosophy of science is the structure of Peirce's thought, logic the cement, and metaphysics "a somewhat florid decoration" (1968, p.6). The most extreme cases are Buchler (1939, p.ix-x) and Goudge

(1950) who posit two distinct "Peirce's"; one, the philosophically progressive empiricist logician, the other, the transcendental metaphysician and moralist wedded to the outdated prejudices of his time.

This split is intolerable first because it ignores the scope of the intellectual debates of Peirce's time. Questions of freedom, morality and religion abound in the nineteenth century. The extension of the methods and ontology of natural science to the realm of human behavior and culture is not only the focus of epistemological concern but involves a revolution in the conception of humanity's place in nature, the theory of personality, the nature of moral authority and views of the Creator's role in the cosmos. How best to synthesize the achievements of science with the moral concerns and needs of humans is perhaps the central issue of the period in which Peirce is writing.

More importantly this split is based on oppositions (between science and metaphysics, fact and value) that Peirce strongly resisted and sought to overcome. To read Peirce through the prism of these dichotomies is to override his partitioning of the intellectual landscape and to distort his conception of the evils arising from the positions of his most serious contenders, those he grouped rather loosely under the term Nominalism.²³ It is because so much of Peirce's work can be traced to his opposition to Nominalism and his dread of its consequences that it is important to be

clear about what Peirce perceived to be at stake in this debate.

2. PEIRCE AND NOMINALISM.

For Peirce, the Nominalist/Realist controversy cuts across the more familiar dichotomy of rationalism and empiricism. Nominalism unites Descartes, Leibniz and Kant with Hume, Mill, Berkeley and Hobbes. It is an issue which also transcends the narrow bounds of epistemology. In Peirce's mind Nominalism carries a commitment to assumptions which pervade every domain of intellectual inquiry. The controversy thus involves much more than an abstract philosophical claim about the nature and status of classes, species and laws. Nominalism lies at the heart of classical empiricist liberalism. It is the hinge-pin of a systematic view of the role, status and foundations of science, ethics, philosophy, economics and religion. It is this view that constitutes the orthodoxy of Peirce's day, or so he thought, and it is this view that Pragmatism is designed to reform.

For the Nominalists Peirce had in mind, reality is exhausted by an indefinite number of distinct, mind-independent, spatio-temporal individuals. The character and existence of these individuals is neither dependent upon nor altered by their being perceived or known. Reality is thus, in principle, capable of complete and exhaustive description in terms of the individuals and their particular and unique characteristics, without the use of general concepts.

Alas the human mind is finite in its capacity and powers of perception and thus cannot obtain exhaustive knowledge of the world in its indefinite particularity. What appears as a chaotic succession of sensations must instead be organized by means of abstractions. Abstraction is the activity of economizing minds; it is the artificial collection of individuals into classes to confer order upon reality.

Abstractions are artificial first because reality is particular and they are general; there are no natural kinds because there are no real kinds at all. Secondly, they are based on relations of similarity. As any two individuals can be said to be similar or different in an indefinite number of ways talk of similarity or difference is intelligible only with reference to a particular trait, that is, only in a context in which some respect has been specified. Since nature has no interests or purposes it cannot specify which of the myriad similarity relations must be chosen as relevant for purposes of classification; there can therefore be no predetermined way of organizing experience. One cannot appeal to nature to evaluate the cognitive merit of the numerous alternative conceptual schemes which are internally consistent, empirically adequate and yet contrary to one another. The only measure of the adequacy of such schemes is the degree to which they fulfill the purposes for which they were constructed. Talk of truth and falsity thus takes place only within a conventionally structured framework of general

concepts which is in turn legitimated either by their reduction to descriptions of sense impressions or as tools for coping with experience.

The matter of thought consists of sensory simples given in perception. It is organized by the combination, rearrangement and association of sensory elements to build up an ordered picture of reality.³ On this view even the forms of thought are built up in response to given stimuli and become ingrained as habits through the course of experience. This account when combined with the thesis that reality is independent of, and external to, the mind yields the central problem of enlightenment epistemology-- how can representations of the nature and structure of reality be verified given that we can never get outside those representations to compare them with things-in-themselves? The suggestion that this cannot be done is the position of the sceptic and the solipsist. The suggestion that reality is exhausted by minds and their representations is the position of naive idealism.⁴

While Reason's function is to order and systematize sensory experience, it is the function of Desire, or the Will, to motivate such organization and to determine the uses to which it is put. Nature is value-free; a wide array of choices of ends is consistent with the same understanding of the world of facts. Thus Reason's domain is the public, the universal and the objective⁵ while that of Desire is the

private, the individual and the subjective.

Reason can of course assist Desire in determining choices of actions by providing an indication of the likelihood of desire fulfillment under specified conditions (prediction), by illuminating the means by which desires can be fulfilled (control), and by pointing to the incompatibility of various desires under these same circumstances (logic). But this is achieved only by establishing objective facts about the expected outcomes of alternative courses of action. Reason is powerless in assessing the moral worth of alternative ends. Reason attempts to ensure conformity between beliefs and reality. But desires are expressions of Will without objects to which they can correspond. Value is not a determinant of Desire, it is created by Desire; objects or ends are valuable only insofar as, and indeed because, they are valued by some agent or other under some set of circumstances. Claims about preferences cannot have truth values. Treating them otherwise constitutes false-consciousness; the reification of private interests as public facts, typically by means of the naturalistic fallacy: the attempt to derive "ought" from "is".

Reason can also treat desires, indeed all mental contents, as natural phenomena. Agent's preferences are facts about them and acts of desiring exist in the world as psychic events. It is Reason's function to causally link these facts with other facts and thereby explain them. But

such explanation is normatively insignificant; the same explanatory principles are invoked to explain both "moral" and "immoral" desires. To the extent that desires can be shown to be necessarily caused, that is, subsumable under natural laws, they cannot coherently be subject to demands for moral justification for they could not have been otherwise. It is only as the product of a free-will that is somehow outside the course of nature that the issue of justification can legitimately arise. Thus attempts to naturalize the mind, to explain its operations and development by means of mechanical laws of evolution and psychology, will involve the reduction of ethics to the descriptive science of psycho-physiology; that is, the reduction of values to facts.²⁴

The object and motive of action is the satisfaction of individual desires, which are themselves built up uncritically through the habitual association of pleasure and pain with various external stimuli. Satisfaction provides the sole criterion for assessing the success of actions. Complete explanation of human behavior is thus possible through knowledge of an agent's preference rankings, her beliefs and the laws by which these are formed.

Desires are ordered according to their intensity, their contribution to the fulfillment of other desires and the time and effort required to satisfy them. Agents can make errors in decision-making only on the basis of flawed information

(false expectations about the outcomes of actions, the time involved, the means by which goals can be attained, and so on). But as preferences are subjective, errors about the value or desirability of ends are impossible.

More efficient ordering of desires can result from improved information regarding the prediction and control of the outcomes of various courses of action. The frustration of expectations and the failure to achieve desired consequences is the mechanism of learning. The result of improved understanding is greater success in action resulting in a balance or harmony between desires and the forces of nature, known as adaptation. The achievement of this harmony is the measure of individual progress.

This conception of human action and its goals finds expression in classical liberal theories of community. Society is a mere collection of autonomous self-interested individuals. Social good is not something distinct from the good of its members; it is merely the sum of the happiness of the individuals that constitute it. The state is a purely conventional construct, organized by laws whose authority rests solely on the consent of individuals. The state itself is designed to minimally restrict mutual antagonism arising from the pursuit of self-interest among individuals under conditions of scarcity (to avoid Hobbes's state of nature, for example) in order to provide a stable environment for the pursuit of individual aims. The maximum degree of individual

freedom (that is, the absence of control by an alien will in the pursuit of desire) consistent with social coherence is the organizing principle of the state." The discovery of laws of progress on which to base social reforms is the object of social theory.

While the state is based to some degree on common interests, this overlap results solely from the contingent concurrence of subjective goals among self-interested individuals; it does not represent a rational consensus about the values of the group as a whole. Similarly, the creation of groups within the state is the result of alliances among those for whom membership is a means to the pursuit of self-interest. Because there is no objective set of ends, such communities can only be based on varying coalitions of individuals with contingently coincident preferences.

3. THE THREAT OF NOMINALISM.

Nominalism clashes with Peirce's philosophy at several important points, many of which will be discussed in detail later. In general terms, Peirce is concerned that Nominalism limits the scope and authority of reason and thereby yields too much to scepticism in science, theology and moral theory. The charge is that Nominalism blocks the road of rational inquiry by severely restricting the kinds of questions one can meaningfully investigate, and by restricting the kinds of answers to questions that one can offer.

Of central concern to Peirce is the Nominalist's denial that the quest for predictive laws is capable of logical foundation. The Nominalist holds that formal logic is powerless in legitimating inductive inferences; because experience consists of an unconnected sequence of independent object-events, no amount of evidence from the past can provide knowledge about the future. Inductive inferences are not ordained by reason or grounded in experience; their authority rests solely upon the unreflective habits of association, built up in response to past experiences. As a result there is no cognitive basis for a consensus among knowers regarding habits of induction. Subjects engaging in counter-induction can at best be accused of imprudence; they are not guilty of logical error.

Furthermore, if laws are construed either as useful fictions or as redescriptions of successions of phenomena, they cannot explain why phenomena occur in patterns capable of nomological representation. Such questions are ruled out as nonsensical or unanswerable by the Nominalist. Thus insofar as prediction and control are the central virtues of scientific theories it would seem that Nominalism can account neither for the success of science nor for the intelligibility of investigating the lawlike regularities of natural phenomena (8.144-54, 1900).

A further threat to the legitimacy of science derives from the Nominalist's approach to explaining thought and

action. To understand reasoning on this view involves only the description of the conditions under which, and the psychological mechanisms by which, ideas do in fact come to be associated. But such historical descriptions have no normative force since the laws of association themselves are indifferent to questions of validity; they provide no guidance in adjudicating between legitimate and illegitimate (fallacious) associations. The only justification of induction they offer is that humans simply do, as a matter of fact, develop conceptions of the world by means of associations and act upon, and attach the epithet "true" to, the more reliable results.¹⁰

Furthermore, to the extent that psychology is interpreted materialistically, in the manner of Hartley and as suggested by the successes of Darwinian biology, the conception of reasoning as deliberation is threatened by a thoroughgoing determinism. Humans are reduced from autonomous reasoners to arational computing machines.¹¹ Errors are seen as the inevitable product of nature beyond the control of those who make them. In short, the Nominalist cannot give an account of thought in its own terms. Thought is reducible to causal processes outside the domain of meaning. Thus Nominalism is an anathema to intellectual history.

More seriously, psychology is incapable of establishing its own status as the foundational science. The explanation of psychology itself can proceed only on the presupposition

of the validity of its central concepts and inference practices; psychology can establish its own authority only by presupposing it, leaving it as an edifice that "floats on air" (8.158, 1901; 8.168, 1903).

Finally, the Nominalist account of experience gives rise to global scepticism. If mental representations are the sole object of certain knowledge then the claim that science yields truth about reality is without evidential basis. The result is an agnosticism about the epistemic credentials of science which seems to deny that the discovery of truth is a coherent scientific aim (8.168, 1903).¹²

The threat of Nominalism to theology is fairly straightforward. First, the suggestion that nomological generalities are the products of human minds blocks appeals to natural laws as evidence of design. The denial of the existence of a predetermined classification of things removes the force of appeals to the fixity of species as evidence of structure and purpose in the universe. As a result any argument from design in nature to the existence of a Designer is defused. By casting doubt on the ontological status of causation Nominalism similarly refutes arguments for the existence of a First Cause based on the principle of causation. That competition and struggle among God's creatures is the mechanism of progress and part of the natural order casts doubt on the wisdom and benevolence of the Creator.

Furthermore, the Nominalist's agnosticism regarding the

correspondence of human experience to a noumenal reality which gives rise to it, serves to relegate God to the domain of the unknowable. The concept of God is to be understood as a human creation, the ultimate generalization or abstraction whose correspondence to reality cannot be inferred from experience. Thus in addition to refuting central arguments for the existence of God, Nominalism casts doubt on the coherence of providing, or even searching for, a rational foundation for religion.

Casting doubt on the existence of God indirectly threatens the authority of His morality. The existence of a moral order is further undercut by materialism. Final causes on which to base objective judgements regarding the morality of actions are purged from nature by modern science.

The view that even charity and altruism are motivated by private arational desires poses an unacceptable reduction of commitment and conscience to self-interest. What is more, the sole measure of the goodness of actions is the degree to which they contribute to the fulfillment of desires that are private, subjective and immune from rational criticism or support. The determinants of value are the conditioned, arbitrary preferences of individuals. Propositions about the value of actions or events do not have truth values. Moral concepts are interpreted in the manner of other general terms; they are applicable only to conventionally grouped objects, actions or events. Thus the authority of judgements

about value rests, at best, on habitual conventions established through prior experience. The explanation of values proceeds solely in terms of the operations of the mind through which moral attitudes are formed. As in the case of the explanation of beliefs, such historical accounts are normatively insignificant since the same principles will be invoked to explain the saintly and the satanic. To the extent that values are explicable scientifically they cannot be justly subject to justification and thus cannot be considered to be the object of deliberation. Thus moral responsibility is cast in doubt by determinism. As a result of these considerations, Nominalism rules out the possibility of any rational basis for the adoption of moral principles.

Subjectivism about morality also carries over to the social level. The laws which regulate or mediate conflicts among individuals are purely conventional and their scope is limited to those members of the community who consent to be bound by them. Social and legal authority ultimately rests on the consent of self-interested individuals; systems of justice and social institutions are not grounded by moral theory. Thus Nominalism denies the possibility of a rational foundation for communities.

4. SUMMARY.

Nominalism gives rise to a constellation of issues that exercised Peirce throughout his career. His rejection of the

sceptical and reductive tendencies of Nominalism inspires his efforts to prove the reality of laws of nature and the theory of direct perception, his validation of induction, and his insistence on continuity (as opposed to atomism) as an irreducible ontological category. Yet much of Peirce's work in these areas is designed to overthrow ontological and epistemological presuppositions that serve to banish questions of ethics and theology to the realm of the non-cognitive. His concern with the foundations of science and logic is thus intimately related to his attempt to establish a place for concepts such as freedom, progress, value, love and community within the worldview of natural science.

Read in these terms, Peirce's tirades against Nominalism are part of a broader crusade for social and intellectual change. Peirce is one of many in the nineteenth century seeking to provide a framework for inquiry which will unify the impressive results of natural science with the behavioral and moral insights of idealism and theology.¹³ To the extent that traditional empiricism rules out the possibility of such a unification Peirce believes it to be in drastic need of Hegelian reform. Yet it is Peirce's attempt to integrate the lived world of meaning and conduct with the physicalistic world of the sciences in a single naturalized, developmental process that entitles him to claim that his Hegelism is original, radical and scientifically inspired (5.39, 1903).

Recognition of the full range of the implications of

Peirce's work is much more in keeping with his aspiration to provide a systematic philosophy that resolves the conflicts of his day and serves to accurately place Pragmaticism in its historical context. More importantly, it implies what Peirce himself suggests, that establishing the authority of science is a special case of the problem of epistemic authority in general; a problem which Peirce's architectonic philosophy attempts to solve. Pragmaticism is dedicated to enriching the empiricist conception of rationality so as to render it suitable for extension into every domain of inquiry. Thus it offers the very thing Nominalism threatens, namely, access to an ultimate, impartial and binding authority for the organization and fulfillment of human life. The details of this concept of authority, the hinge-pin of Peirce's Pragmaticism, provides the focus of what follows.

NOTES

1. The following abbreviations will be used throughout this dissertation. References to the Belknap Press edition of Peirce's Collected Papers will show the volume and paragraph number, followed by the year of the manuscript (i.e. [5.311, 1868]). References to the Indiana University Press edition of Peirce's Writings will be of the form (WCP, volume number, page number, date). Reference to the New Elements of Mathematics will be of the form (NEM, volume number, page number, date). Finally, references to Historical Perspectives on Peirce's Logic of Science will be of the form (HP, volume number, page number, date). In all cases, undated manuscripts are marked by (n.d.).

2. This strong praise of Peirce can be found in Apel (1981, p.ix), Peirce (1958, p.vii), Feibleman (1960, p.xvii), Hookway (1985, p.ix) and the introduction to Peirce (1977).

3. Peirce boldly claims that "in one word, all modern philosophy of every sect has been nominalistic" (1.19, 1903).

4. The connection of Nominalism with social theory, religion and ethics is no longer obvious. But it is obvious to Peirce and his readers as I shall illustrate. Helpful accounts of these issues from both contemporary and historical perspectives are: Becker (1968), MacIntyre (1984), Greene (1981); Bowler (1984), Young (1968, 1985) and Unger (1975). My summary owes much to these works. Relevant passages from Peirce are: (8.7-38, 1901; 8.132-56, 1900; 8.157-63, 1901) and in Peirce (1978, p.78f.).

5. Hernstein and Boring (1965) have a good selection of primary sources on the concept of association in philosophy and psychology. Rapaport (1974) details the historical evolution of the notion. Both provide further references.

6. In the nineteenth century many writers attempted to circumvent the sceptical consequences of empiricism through attacks on the concept of noumena and on the naive representationalist theory of mind. Among them were Royce, Reid and James. Peirce's attempt will be considered later.

7. The problems involved in avoiding scepticism and solipsism notwithstanding.

8. The reconciliation of sensationalist psychology and evolutionary materialism in biology and social theory, with the concept of freedom and with moral theory is a common theme among writers such as Spencer, Comte, Mill, Bentham, Smith, and Malthus. It was also a common topic among such members of the Metaphysical Club as Fiske, Wright, Abbot, James and Peirce (see Greene (1981), Kuklick (1977) and Marcell (1974, Chapters 1-3)). The moral consequences of the denial of free-will are mitigated by many of these writers by arguing that the laws of nature guarantee the progress of society. Of Peirce's formulation of this view, more later.

9. The reconciliation of self-interest with the need for social coherence and co-operation is central to the liberal tradition. Initial advocates such as Smith, Hume, Mill and Payley, tended to stress the harmonious results of competition tempered by sympathy for others. This view was challenged by Malthus who first suggested that scarcity and struggle were essential and ineliminable features of social life. Spencer suggested that such competition was the mechanism of social progress. The pressures of survival motivate the less fit to adapt to new circumstances and eliminate those unable to do so. The result is an increase in the success of individual actions through improved understanding of nature and hence an increase in total social

utility. The laws by which this process operates guarantee human progress. Comte also appealed to the principle of survival of the fit in order to explain the progress of culture, despite his resistance to utilitarianism. See Young (1984), Greene (1981) and Marcell (1974).

10. See Peirce's discussion of Mill (2.47-51, 1902). On the link between this view and hedonism see (2.66, 1902 and 1.333, 1905).

11. See (7.581-2, n.d.; 8.191, 1904; 2.144, 1902) and Peirce (1977, p.68).

12. It is the appeal to noumena that qualifies philosophers such as Plato, Hegel and, to some extent, Leibniz, as Nominalists in Peirce's eyes. The details of this complaint are discussed in Chapter III.

13. These writers include Baldwin, Wundt, Lotze (and to some extent his pupil Royce), Bergson, Renouvier and of course James and Dewey (see Becker [1968, Part II] and Kuklick [1977]).

CHAPTER III - PEIRCE AND THE DEVIATION OF NOMINALISM.

I. INTRODUCTION.

Nominalism has been presented, not as a definitive and definite set of theses, but rather as a philosophical schema. Its assumptions give rise to a set of dichotomies which prefigure debate by delimiting alternative positions and posing a set of questions that define the task of philosophy.

Hume finally lays the basis of Nominalism by establishing the ontological priority, autonomy and separability of the individual as a corollary to an axiom of philosophical method.¹ Insisting on the reduction of perceived experience to simple elements not only renders the status of universals problematic, but also the concept of "reality". If that which is known with certainty is the portion of our mental contents given immediately, then anything outside that realm is mediated, uncertain or unknowable. "Reality" must either be interpreted metaphysically as noumenon (that which lies outside experience as its unknowable cause) or idealistically as referring to knowable mental contents. The substitution of the self-evidence of Cartesian self-reflection, for that of sensation, as the model and measure of cognitive certainty is of no help. For both accounts agree that the certain, the immediate and the inner describe the same distinct ontological realm; a realm that is a self-contained, self-containing, autonomous space cut off from that which is external to it.

It is only after acknowledging the duality of subject and object, phenomena and noumena, concept and reality that idealism, scepticism and solipsism become live options.

Peirce's originality lies not in his solutions to the Nominalist's problems, but in his attempt to shift this schema and thereby transform the context of debate. His work, early and late, involves nothing less than a redrawing of battle lines and a reinterpretation of the nature and task of philosophy itself. Peirce does not offer a way to bridge the ontological gap of Nominalism; his strategy is rather to abandon the dualisms that give rise to it in the first place.

2. PEIRCE'S ATTACK ON CERTAINTY AND PSYCHOLOGISM.

Peirce's attack on the self-evidence of the Nominalist's metaphysical picture comes by way of an attack on the very notion of self-evidence and the criterion of certainty it implies. More precisely, Peirce denies the existence of faculties of intuition and introspection which yield self-evident premises that serve as the foundation of knowledge.

That we cannot infallibly partition cognitions into those which are noumenally induced intuitions and those which are determined by other cognitions seems clear from the lack of consensus on the scope of intuition in the history of philosophy, the possibility of memory lapses regarding prior appearances and the qualitative similarities between veridical experience and dreamt experience. The possibility

of error about the origins of cognitions suggests that their status must be inferred and is not directly intuited (5.215-25, 1868). If this is true for each cognition then it would seem that the very distinction between intuited and non-intuited cognitions is also inferred (WCP 3, p.52, 1872). In other words, the existence of self-evident intuitions is not self-evident; it is a hypothesis which is forced upon us, if at all, by empirical data. Similarly, the attribution of either self-consciousness or the knowledge of mental states to a faculty of introspection must also be inferred, not self-evident.

This does not rule out the existence of either intuition or introspection, Peirce can accomplish this only after he has provided theories of cognition and perception which do not require that either faculty be posited, thereby rendering them susceptible to Ockham's razor.² But the foregoing does render the foundational status of intuition and introspection problematic. For if cognitions are not cognized as intuitions or introspections then an attempt to justify them by appeal to these faculties is itself fallible. Such appeals can be no more certain than the a posteriori reasoning about the status of the particular cognition in question, and the a posteriori reasoning in defence of the general hypothesis that faculties of intuition and introspection exist. Claims at both levels may be refuted by future evidence. Once the claim that any particular

cognition is an intuition can be disputed, then their absolute authority, which is grounded in their immediacy and their self-evidence, is undercut. Introspective reports can no longer halt the regress of giving reasons for beliefs, for the appeal to intuition is itself subject to demands for justification. Disputes about the truth of such reports are always in danger of being translated into second order disputes about what is and what is not intuited or intuitable. Thus the products of intuition and introspection are transformed from unquestionable first premises to fallible empirical conclusions (2.141, 1902; 5.244-49, 1868).

These considerations provide the backdrop for Peirce's criticism of Cartesian accounts of inquiry. If absolute certainty is not possible, even for allegedly intuited cognitions, it ceases to serve as the standard definitive of all knowledge. The Euclidean model of knowledge as deduction from absolute axioms (provided either through sensation or innate ideas) must be abandoned.²

If even "obvious" cognitions are fallible then obviousness provides no measure of their absolute certainty. Not only must the inference rule that "whatever I am clearly convinced of is true" be given up, but the search for philosophical principles cannot be reliably pursued by investigating what can and cannot be called into question by inquirers at a particular time. Such a procedure, in light of Peirce's critique, involves the confusion of practical

indubitability with absolute indubitability and thus abandons the distinction between a cognition's seeming to be confirmed and really being so. In practice, therefore, this method licenses the dogmatic reification of individual prejudice as absolute truth, immune from criticism; "But thus to make single individuals absolute judges of truth is most pernicious" (5.265, 1868).⁴

Furthermore, if all cognitions are always fallible then fallibility in and of itself should not demand either the rejection or doubt of any particular belief. Fallibility does not distinguish those beliefs in which we have great confidence from those deemed to be somewhat dubious. If we must doubt all fallible beliefs, and are permitted to believe only after obtaining proof of their absolute certainty then fallibilism would imply that we may never believe anything. It would also imply that we can never reason legitimately, for all first premises must be arrived at by inference. Finally, it would imply that the quest for certainty is hopeless; doomed at the outset, for its goal lies beyond the ability of human thought altogether. The method of doubt is thus rejected by Peirce not simply because we cannot actually think ourselves into the doubting state (6.498; 1906; 4.64, 1893; 5.443-6, 1905), but rather because once purged of all fallible beliefs, the mind has nothing left to think with:⁵

We must begin with all the prejudices which we actually have when we enter upon the study of philosophy. These prejudices are not to be dispelled by a maxim, for they are things which it does not

occur to us can be questioned (5.265, 1868).

The results of this critique are consolidated in Peirce's "The Fixation of Belief" (5.358-87, 1878) in which his own theory of inquiry is developed.⁶ On this view the essence of inquiry lies in its effecting a transition from doubt to belief. Doubt here refers, not to the feigned agnosticism of Descartes, but to "living doubt", that which results from our having a positive reason to call something into question.⁷ Belief, on the other hand, is "that upon which a man is prepared to act" (5.12, 1906). Beliefs are individuated by the "modes of action" to which they give rise (5.398, 1878), they are dispositions (2.170, 1902); a belief "puts us into such a condition that we shall behave in some certain way, when the occasion arises" (5.373, 1877).⁸ The essence of belief is thus the "establishment of a habit" (5.398, 1878).

Beliefs are distinguished from doubts by the sensations associated with them, by the fact that beliefs determine conduct whereas doubts lead only to hesitation, and by the fact that belief is a "calm and satisfactory state which we do not wish to avoid, or to change..." (5.372, 1877):⁹

the irritation of doubt causes a struggle to attain a state of belief. I shall term the struggle inquiry, though it must be admitted that this is sometimes not a very apt designation (5.374, 1877).

As living doubt is the sole motive for inquiry, its alleviation, "the settlement of opinion", is inquiry's sole objective (5.375, 1877). The suggestion that the end of inquiry is true opinion proves groundless:

for as soon as a firm belief is reached we are entirely satisfied, whether the belief be true or false... The most that can be maintained is, that we seek for a belief that we shall think to be true. But we think each one of our beliefs to be true, and, indeed, it is mere tautology to say so (5.375, 1877).¹⁰

Peirce would later reject this formulation, but not the theory, as overly Nominalistic (5.28, 1903), but it is of some interest here to explore why. First, it might seem that Peirce's discussion of belief and doubt, derived from Bain's psychology¹¹, implies that the validity of beliefs depends on the subjective experiences associated with their acceptance by individual inquirers. However, it is possible to read these definitions as articulations of the meanings of these concepts abstracted from any characterization of the psychological states associated with them. Construed in this way the theory only explicates what it means to engage in inquiry; and Peirce uses it in just this way elsewhere.¹²

A more serious problem is that the criterion of adequacy for methods of inquiry is purely instrumental (7.324-5, 1872). Rules for resolving doubt are judged by their effects and not by their intrinsic rational credentials. Peirce rejects the methods of personal tenacity, institutional authority and a priorism because of their failure in practice.¹³ While he also suggests that there are theoretical flaws with these methods which account for their failure, and therefore that they could not ever be expected to yield stable beliefs at either the individual or the

social level, he cannot reject them on theoretical grounds; "It would be an egotistical impertinence to object that his procedure is irrational, for that only amounts to saying that his method of settling belief is not ours" (5.377, 1878).¹⁴

This situation is actually much worse than Peirce seems to realize,¹⁵ for the practical success of alternative methods of inquiry can be determined only through the application of some such method. So even if all inquirers accept Peirce's criterion, there will be no neutral way of applying it to competing methods; the method of tenacity will be successful so long as it is tenaciously believed to be so, the method of authority will be successful so long as it is decreed to be, and so on. Peirce's claim that these methods fail in practice can be demonstrated only by appeal to his preferred method; that is, only by insisting upon, rather than demonstrating, the authority of the method of science.

It would seem therefore that Peirce's characterization of inquiry in general is agnostic with respect to the choice of a method of inquiry. As a result all self-validating methods seem to be equally legitimate. The authority of a method is conferred by its adoption by particular inquirers in particular situations and such adoption can only be on extra-methodological grounds. As methods of inquiry are general rules or laws (Thirds) for resolving conflicts (Seconds) among competing beliefs the denial of the objective validity of laws of inquiry entailed by Peirce's early methodological

voluntarism commits him to Nominalism.¹⁶

We shall return to the foundations of logic later, however it is already clear that the critique of introspection and the problems raised by the theory of inquiry not only render problematic the foundations of knowledge-producing enterprises, but they force a readjustment in the hierarchy of the sciences. Peirce never questions the fundamental empiricist principle that knowledge must come from experience, yet he denies the Nominalist's separation of experience and cognition. The testimony of the senses, even when automatic and practically indubitable, is always inferential; and thus an understanding of what it is to appeal to experience to legitimate knowledge claims requires some understanding of its conditions.

But it should also be made clear that for Peirce the empirical psychology of cognition cannot provide this understanding on pain of circularity¹⁷. Psychology itself appeals to the data of experience which must be obtained and organized into theory through the use of inferential principles and methodological rules. Psychology thus presupposes a notion of method and a conception of inquiry which, in order to proceed, it cannot simultaneously call into question. Questions of method, knowledge and ontology can, and indeed must, be settled independently of particular theories about the causal relations between brains and objects, or minds and brains, and even independently of

theories about the mechanisms by which minds grasp the truths of metaphysics themselves. The latter must be settled strictly by empirical and not philosophical investigation. Thus for Peirce, as for Kant and Frege, there must be a sharp demarcation between philosophy and the empirical sciences.

Peirce accomplishes this demarcation in his reclassification of the sciences, in which the relation of dependence of epistemology on (axiomatic) metaphysics typical of Nominalism, is reversed.¹⁶

For Peirce, Metaphysics is that branch of Philosophy that "seeks to give an account of the universe of mind and matter" (1.186, 1903). It includes the sciences of standard Ontology, Religious Metaphysics (which deals with the problems of God, freedom and immortality) and Physical Metaphysics (which deals with the nature of time, space, lawlikeness and so on); it thus includes the general problem of the nature of reality. However, Metaphysics in turn rests on the remaining branches of Philosophy, namely Phenomenology (the science that "ascertains and studies the kinds of elements universally present in the phenomenon [i.e.] ...whatever is present at any time to the mind in any way" [1.186, 1903]) and Normative Science, (that which "distinguishes what ought to be from what ought not to be" [1.186, 1903]). The Normative Science of Logic, (which includes the general theory of signs, the theory of argument, and methodology¹⁷), is particularly important since

Metaphysics must accept "absolutely" the results of Logic as "truths of being" (1.487, 1896).

As part of Philosophy, Metaphysics confines itself "to such parts of physics and psychics as can be established without special means of observation" (1.282, 1902). Special sciences must of course take account of whatever follows from the "universal experiences" which it is the job of Philosophy to uncover. Yet they must consider further data obtained through the specialized methods of investigation and apparatus that they employ (5.522, 1905). These latter sciences presume the existence of real, law-governed objects in space and time and thus presuppose the results of Metaphysics and Logic. What is crucial, however, is that this dependence works in one direction only. Investigation in the special sciences may lead us to philosophical truth but the relation of epistemic authority is unequivocally from the top down.

I belabour this point because if Peirce is to be held to his word then his insistence that Logic and Psychology be kept distinct forbids appeal to any results of the latter in resolving interpretive problems (such as the nature of realism and truth) that arise in the former. Precisely the same thing must be true for Logic and Metaphysics (2.212, 1902).⁵⁰ It is the business of the latter "to study the most general features of reality and real objects" (6.6, 1903). The concepts of inquiry, truth, reality and objectivity are

thereby presupposed in Metaphysics, leaving to the higher order science of Logic the task of establishing these concepts.²¹

This suggests that Peirce's epistemological realism (or idealism) must be prior to, and distinct from, its application to problems in Metaphysics. Although Peirce's defence of objective idealism as a theory of evolutionary cosmology involves the application of logical concepts, it cannot be taken for an articulation of those concepts themselves. The theory of the evolution of matter and mind in the universe cannot be used to ground the general concepts of mind, nature, reality and truth. The latter task is a conceptual problem of Logic, the theory of inquiry, not Metaphysics. Thus Peirce's theory of reality is neither an account of the psychological mechanisms by which humans come to know or form judgements about the world, nor an account of the origins of, or the spatial, temporal and causal relations among, entities in the world (2.210, 1902).

Of course it is this very relationship of epistemology to metaphysics that engenders the idealist tensions in Peirce's writings. If inquiry is prior to fact then it appears that Mind is prior to World, that reality is created through inquiry rather than discovered. Exactly how to reconcile this with Peirce's commitment to realism is a matter of considerable importance. But his placement of the questions of reality and truth strictly within the domain of Logic

already suggests that it is ill-advised to begin with the question of whether Peirce held the Correspondence or Coherence Theory of Truth. This question presumes not only that the relations at issue are well understood, but that the relations, the nature of mind and world, are similarly unproblematic. For Peirce, steeped in the tradition of Kant, Berkeley and Hegel, this cannot be the case. His choice is not simply which kind of relation to call Truth, for this engages issues about reality and objectivity which are far from settled (then and now). Idealism/realism, coherence/correspondence, mind/world are not three dichotomies, they are one dichotomy whose axis is the duality of subject and object. If this duality lies at the heart of Nominalism, as I have suggested, then it should not be surprising that in rejecting Nominalism Peirce rejects the interpretations of the dichotomies which sustain its force.==

3. PEIRCE'S CONSTRUCTIVISM: THE THEORY OF REALITY AND TRUTH.

While the status of Peirce's critique of the methods of tenacity, authority, and a priorism is somewhat in doubt, the basis of his criticism is clear. These methods deny any distinction between belief and truth; truth is simply defined as whatever is adopted by the epistemic agent in question, on whatever grounds. Thus none of these methods can be improperly employed (5.385, 1877), nor can any change in beliefs be construed as a correction of error under these.

methods; beliefs become erroneous simply by being rejected and are legitimately believed to be true so long as, and indeed because, they are held. The result is a solipsistic dogmatism that is "as immoral as it is disadvantageous" (5.387, 1877). Immoral, since dogmatism acted upon becomes imperialism (5.379, 1877), and disadvantageous, since under these methods investigators "avoid looking into the support of any belief from a fear that it may turn out rotten" (5.387, 1877), and thereby forgo cognitive improvement.²³

The aim of the method of inquiry that Peirce calls Investigation is to mediate conflicts among beliefs (and believers) to produce, not an un compelled resolution as Habermas suggests (1968, pp.91-2), but a resolution compelled by normatively legitimate, and hence morally sound, methods.²⁴ Logic provides the "general conditions of the attainment of truth" (NEM iv, p.196, n.d.); it teaches whether the effort to produce a final settlement of opinion is "rightly directed or not" (7.316, 1872).²⁵ Its aim is therefore to provide:

a method... by which our beliefs may be determined by nothing human, but by some external permanency-- by something upon which our thinking has no effect... Our external permanency would not be external, in our sense, if it was restricted in its influence to one individual. It must be something which affects, or might affect, every man (5.384, 1877).

Externality, the independence of opinion and truth, is required for "if thinking otherwise is going to make [things] otherwise there is no use in reasoning or studying logic"

(2.135, 1902).

The concepts of objectivity and truth then first emerge, not as metaphysical postulates, but as conceptual commitments;²⁴ conditions for the intelligibility of the pursuit of rational inquiry. Since the aim of Investigation is truth its very practice presumes "that there is such a thing as truth. Otherwise reasoning and thought would be without purpose" (2.135, 1902). But this does not presuppose any substantive theory of truth or reality; this commitment is metaphysically agnostic:

The essence of the opinion is that there is something that is SO, no matter if there be an overwhelming vote against it (2.135, 1902).

Investigation is pointless not only if there is no truth to be discovered, but also if that truth is not discoverable; that is, if it does not have a coherent and realizable aim. To engage in Investigation is therefore to assume that at some level it is capable of meeting with success (or at least that progress can be gauged) (2.139f., 1902; WCP 3, p.18, 1872).²⁷ Since success is the determination of beliefs that will not only prove to be unsettled by doubt, but are in fact unsettleable, it is clear that everyone who investigates:

assumes that the process will, if carried far enough, lead him to a certain conclusion, he knows not what beforehand, but which no further investigation will change (7.327, 1872).

Such a conclusion is predestined, not in any mystical sense (7.334-5, 1872), but in the sense that Investigation will fix at most one answer to a question and that neither the

character of the answer nor the success of the Investigation depends on the opinions of the investigator at the start of inquiry (7.317-20, 1872).

If Investigation effects the transition from any possible state of ignorance to a single state of fixed belief, then it presupposes the possibility of the introduction of new ideas:

during the investigation elements of thought must have sprung up in the mind which were not caused by any thought which was present at the time the investigation was commenced (7.326, 1872).²⁸

The process whereby new "elements of thought" are introduced is termed Experience, the unwilling modification of consciousness.²⁹ So defined, the term Experience is prior to any of the standard epistemological dichotomies. It includes dreams and hallucinations as well as veridical perceptions, true as well as false cognitions.³⁰ It is defined without reference to its causes or to spatial relations among objects; it refers only to "the element of brute force... a direct experience of something reacting against you" (2.138-9, 1902). Experience is an instance of action and reaction-- it is a Second (8.330, 1904). But:

There can be no resistance without effort; there can be no effort without resistance. They are only two ways of describing the same experience. It is a double-consciousness (1.324, 1903).³¹

That which is presented in Experience is a First, "the immediate as it is in its immediacy" (5.44, 1903). Firsts are not to be confused with sense data, brain states or the stimulations of nerve endings for they are neither objects

nor events (1.303-4, 1904; 1.307, 1907). Firsts do not make up facts (although they are "concerned in facts" [1.419, 1896]):

Take what ever is directly and immediately in consciousness at any instant, just as it is, without regard to what it signifies, to what its parts are, to what causes it, or any of its relations to anything else... (7.540, n.d.).

Firstness is thus the "idea of a phenomenon... considered as a monad" (1.424, 1896), it is "a mode of being of that which is such as it is, positively and without reference to anything else" (8.328, 1904); for example, the colour red (NEM iv, p.332, 1898) considered independently of its appearance to any consciousness, "without embodiment" (1.303, 1894) and abstracted from space and time as a pure qualitative possibility (1.310, 1907) or potential consciousness (6.221, 1898), that can become actualized only through its presentation in Experience (1.328, 1894). In the present context then Firstness is Kant's "manifold of sense" (1.302, 1894; 8.229, 1904). Firsts are Kantian "intuitions", that is, they are the uncognized, unobjectified and unconceptualized matter of experience (7.540, n.d.; 5.300n., 1868; 7.619-23, 1903).³²

While Experience is an essential part of Investigation it can only be one part. In the first place, because presentations are "most varied and never exactly repeated or reproduced... they cannot constitute that settled opinion to which investigation leads" (7.331, 1872).³³ Secondly,

Experience considered as uncontrolled, brute presentation is passive.³⁴ A presentation is not something that is true or false, it is something one does or does not have (4.172, 1897; 7.622, 1903). It is beyond deliberation and agency (it merely "is") and is thus uncriticizable (5.55, 1903). As the distinction between right and wrong methods (of what "ought" to be) is a defining characteristic of Investigation, Experience must be supplemented by some other mental process: inference (7.331-5, 1872).³⁵

Inference is the process by which one belief determines another "according to a general rule" (7.349, 1873).³⁶ Such transitions involve changes of beliefs and thereby presuppose the notion of time (7.321-6, 1872) and the unity of a consciousness which persists through time as subject:

The consciousness of the present is then that of a struggle over what shall be; and thus... it is the Nascent state of the actual (5.462, 1905).

The present is the immediate representation we are just learning that brings the future, or non-ego, to be assimilated into the ego. It thus is seen that learning, or representation, is the third Kainopythagorean category (7.536, n.d.).

Thus inference mediates past and present (1.328, 1894) through the mediation of thoughts. Mediation does not involve the separation of cognitions into isolated elements, but rather their synthesis in a unified consciousness (representation) (7.346-53, 1873; 1.381-2, 1890)³⁷:

The consciousness of the present, as the boundary between past and future, involves them both (7.537, n.d.).

Thus the flow of both time and thought is continuous.³⁶

The inferential process of investigation (reasoning) involves not only the causal succession of beliefs in time but their principled determination resulting in the growth of knowledge. Investigative inference "connects something that has just been learned with knowledge already acquired so that we thereby learn what has been unknown" (7.536, n.d.). Thus Investigation is continuous and directed (1.494-9, 1896):

our reasonings begin with the most varied premises... which so determine our beliefs as to lead us at last to one destined conclusion (WCP, 3, p.60, 1872).

The ultimate product of Investigation applied to Experience is, as we have seen, the state of belief to which all inquiry aspires. Since truth is by definition the aim of Investigation it follows that:

The opinion which is fated to be ultimately agreed to by all who investigate, is what we mean by the truth... (5.407, 1878).

While truth is defined in terms of Investigation, reality is defined in terms of truth:

The object at which alone we aim then in the struggle for belief, is to make our belief conform to that final belief... The only thing then which our thoughts strive to picture or represent is the object of final belief (WCP 3, p.45, 1872).

To be real is thus to be the object of the final opinion (5.407, 1878):³⁷

The real, then, is that which sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you (5.311, 1868).

Thus the central problem of Peirce's Logic, "the lock

upon the door of philosophy" is "how synthetical reasoning is possible at all" (5.348, 1868); the domain of Logic is none other than the explication of the formal preconditions of the growth of knowledge (8.332, 1904; 7.587, n.d.).

4. PEIRCE'S INTERNAL REALISM: THE REFUTATION OF IDEALISM.

There is still much to be said before Peirce can claim that it is possible to engage in an investigative process, or that the methods of natural science offer one, if not the only, way of doing so. Whether there is a knowable truth cannot be proven through Investigation since it is necessarily presupposed by it, but Peirce points out that this posit will never be falsified by Investigation, that it is admitted by all inquirers whatever the method to which they subscribe, that science has already had considerable success in fixing opinions and that everyone uses the methods of science to resolve disputes in everyday life (5.384, 1877). However feeble as an epistemological argument, these considerations are sufficient to remove the question from sane doubt for most of us, and indeed they are enough for Peirce who never really doubts the credentials of science. Whether a stronger defence of science is possible or required will be discussed in the next chapter. Of more immediate interest is Peirce's claim that his logical analysis of Investigation provides "the whole statement of facts from which we must infer whatever we can know of the mode of being

of the real" (WCP, 3, p.60, 1873).

Reality for Peirce is not simply that which is presented in Experience, the real is constructed through the ordering of Experiences according to the formal principles of Logic. Experience is the matter to which Logical thought gives a form. Investigation does not simply reveal the real world, its form determines, in part, what it is to be real (or unreal), what reality must mean if it is to have any significance for inquirers at all:

the theory involves a phenomenalism. But it is the phenomenalism of Kant, and not that of Hume... it was the essence of his [Kant's] philosophy to regard the real object as determined by the mind. That was nothing else than to consider every conception and intuition which enters necessarily into the experience of an object, and which is not transitory and accidental as having objective validity. In short, it was to regard the reality as the normal product of mental action, and not as the incognizable cause of it (8.16, 1901).

It should be clear then that the mind-world split is not a difference between the world of Experience and a noumenal order which lies behind it or beyond it as its inaccessible cause; it is a difference within the world of Experience. It is a distinction which accounts for the fact that some Experienced objects disappear when we cease to attend to them, while others endure despite our best efforts to wish them away; indeed the notion of mind can be meaningfully defined only by way of contrast with the Experience of the world (the non-mind):

a man is more or less placidly expecting one result and suddenly finds something in contrast to that

forcing itself upon his recognition. A duality is thus forced upon him: on the one hand, his expectation which he had been attributing to Nature, but which he is now compelled to attribute to some mere inner world, and on the other hand, a strong new phenomenon which shoves that expectation into the background and occupies its place. The old expectation...is his inner world, or Ego. The new phenomenon... is from the exterior world or Non-Ego (5.57, 1903).⁴⁰

The relationship of mind and world is not between two preexistent, separable entities; interaction does not simply reveal their existence, it constitutes it. The mind is not directly intuitable, its identity not only emerges but is formed through the awareness of the limitations of its agency; that is through its encountering resistance. In less psychological terms, the concept of self as an existent presupposes a non-ego which stands against it (1.357f., 1890; 5.429, 1905). Its identity is thus dependent.⁴¹

Experience does not separate mind and world; Experience is a point of intersection where mind and world meet (or better, emerge). Cognition (and Experience) is not to be modelled on the notion of giving, a three-place relation presupposing a giver, given and receiver, but rather on the two-place relation of contact. For Peirce, it is the immediacy of the sense of touch that is the model, not only of all the other senses, but for the theory of the interaction of mind and reality.⁴² Consciousness and reality can be "discriminated" but they cannot be "prescinded"⁴³; like effort and resistance they are distinguishable but not separable (5.607, 1901; 7.562, n.d.). Experience is thus a

"double-barelled" term⁴⁴ that applies to both that which is experienced and the experience of that which is, while experience generally is "what the course of life has compelled me to think" (Peirce 1958, p.385):

To make a distinction between the true conception of a thing and the thing itself is... only to regard one and the same thing from two different points of view; for the immediate object of thought in a true judgement is the reality (8.16, 1901).

In short, "the real world is the world of sensible [veridical] experience..." and because reality is nothing but logically ordered Experience "the sensible world is but a fragment of the ideal world" (3.527, 1897).

That this provides the basis for Peirce's solution to the problem of idealism, that is, the question of whether external objects in space really exist, can be shown by distinguishing two senses in which the question might be intended. At the empirical level the question asks how we can know that particular judgements about objects are correct. This is a question about the causes of our perceptions of spatial objects and about the evidence for specific empirical beliefs about the world. Peirce's logical analysis of Investigation does not rule out the possibility of error, it merely analyzes the meaning of "reality" in relation to which the distinctions between the real and the illusory, the true and the false, are to be drawn. Fictional objects cannot be distinguished from real objects simply on the basis of the content of their presentations (real tables

appear very much like imaginary tables when immediately presented). But the distinction can (and must) be drawn on the basis of the Experiences to which they give rise; it is "a difference in respect of the relations of the two cases to other perceptions [presentations]: it is not a difference in the presentations themselves" (7.644, 1903):

The cognitions which thus reach us by this infinite series of inductions and hypotheses... are of two kinds, the true and the untrue, or cognitions whose objects are real and those whose objects are unreal (5.311, 1868).

The difference is that rational predictions based upon hallucinations will be apt to be falsified,-- as for example, if the person having the hallucination expects another person to see the same thing; while truly sound predictions based on real perceptions are supposed never to be falsified... (7.664, 1903).⁴⁵

Thus while the existence of an object "consists in its reacting against the other things in the universe" (1.436, 1896) its reality consists in the insistency and regularity of these reactions; "what we call a thing is a cluster or habit of reactions... a centre of forces" (4.157, 1897).⁴⁶

An object is thus distinguished as an:

element of existence which, not merely by the likeness between its different apparitions, but by an inward force of identity, manifesting itself in the continuity of its apparitions throughout time and in space, is distinct from everything else (3.460, 1897).

A reality, defined as persistent ordered experience, determines thought; it is "something which is independent of how you or I or any number of persons think about it" (WCP 3, p.49, 1872) or represent it.⁴⁷ A fiction is determined by

thought; it "is something whose character depends upon what we think about it" (WCP 3, p.46, 1872).

The distinction between inner and outer objects is similarly cashed out in terms of their mode of representation:

The internal is that whose real existence depends upon what I (or you or somebody) think of something. The external is that which so far as it is real is independent not only of what I think about it but also of what I think about anything (WCP 3, p.40, 1872).⁴⁶

Emotions and thoughts are internal because their existence depends upon the mental state of their subjects; lumps of matter are external because they have no such dependence. Whether external objects are spatially extended or not cannot be known in advance of investigation; it is an empirical question which may never be answered with certainty, but is fully capable of being settled by investigation. To assert the existence of objects in space is to claim that investigation rightly conducted and pushed far enough would confirm the reality of the extended objects under consideration, at the time in question. In short, external objects are spatial insofar as, and because, they are objectively representable in space. Inner objects are inner objects because they are not so representable.⁴⁷ Thus:

when we say there are external things, and that observations are only the appearances which these things produce upon sense by their relations to us, we have only in an inverted form, asserted the very same fact and no other which we assert when we say that observations inevitably carry us to a predetermined conclusion (WCP, 3, p.47, 1892).⁴⁸

We can be confident of the existence of external objects to the extent that this claim can be supported by empirical investigation; therefore "the realists need not and should not deny that the reality exists externally to the mind" (7.339, 1872).

However, the idealist's question can also be posed as a metaphysical problem involving a more severe form of scepticism. At this level the question asks how we can know that the objective world of experience is truly real, that we are not in fact isolated monads cut off from reality and that what appear to be spatio-temporal objects are not in fact inside the mind after all.

Recall however, that the distinction of self and other is one which is called for by Logic.²¹ Its intellectual import is thus to be explicated by logical criteria of significance which constitute the very method of Pragmaticism:

The doctrine that the whole "meaning" of a conception expresses itself in practical consequences, consequences either in the shape of conduct to be recommended, or in that of experiences to be expected, if the conception be true; which consequences would be different if it were untrue, and must be different from the consequences by which the meaning of other conceptions is in turn expressed (5.2, 1902).

According to this maxim conceptions are meaningful only if they are given content in terms of experience.²² But noumena are by definition beyond all cognition and experience. Since the notion of an uncognizable experience is a contradiction in terms, and since meaning is nothing other than the

conception a term conveys, the term "noumena" has no meaning. The conception of reality presupposed in the sceptic's question is thus nonsensical and need not, indeed cannot, be addressed (5.254-8, 1877).

In other words, the concept of "noumena" has no intellectual import. Since intellectual concepts are just those "upon the structure of which, arguments concerning objective fact may hinge" (5.467, 1906) the question of the reality of noumena cannot be rationally investigated. Since what is true is that which is affirmed by rational investigation, and what is false is the negation of all truths, (that which is denied by rational investigation), the reality of noumena cannot be affirmed or denied; it is neither real nor illusory, it is mere gibberish and the claim that noumena exist cannot have a truth value. Peirce therefore concludes that:

Over against any cognition, there is an unknown but knowable reality; but over against all possible cognition, there is only the self-contradictory. In short cognizability (in its widest sense) and being are not merely metaphysically the same, but are synonymous terms (5.254, 1868).

That is, they convey the same conception.

This construal of Pragmatism as a form of experiential holism also sheds light on Peirce's simultaneous commitment to the correspondence and coherence theories of truth. The fact that the distinction between thought and object, although straightforward at the empirical level, is drawn within the domain of experience at the transcendental level

already suggests that the terms coherence and correspondence must be understood in a sense radically different from that intended by the Nominalist. For Peirce, true propositions do correspond to their objects as they are in themselves (6.95-6, 1903), but this means only that true statements state facts and that facts are true whether or not they are believed to be so at any particular time by any finite collection of investigators. To say that a proposition corresponds to reality is only to say that it would be affirmed through investigation under ideal epistemic conditions.²² There is also a straightforward sense in which the coherence of thought is the criterion by which to judge the correspondence of thoughts to the world. The claim that any particular object is real is defensible only to the extent that we can tell a compelling causal story about its relations to experience and to other objects; but any such story may prove false in the light of future evidence:

We find in this stream of thought, in this succession of images, a certain coherency, harmony or consistency, which can not be due entirely to the laws of association themselves; but which extends into the additions which are made to the body of our thought from without. And it is this coherency of experience which demonstrates the existence of a reality; something permanent and fixed, to which our thought and experience more or less perfectly corresponds (WCP 3, p.34, 1872).

But from an epistemic point of view, coherence is more than a criterion of truth. For, as noted above, the reality to which propositions correspond, and in terms of which they are said to be true, lies within the realm of experience. Reality

is that which is objectively representable through the ordering of experience according to logical rules. Real objects are nothing apart from the sum of their possible effects; they are nothing but law governed clusters of Experiences.⁵⁴ Objects are thus (logically) constituted through the application of inference to Experience.⁵⁵ The articulation of the conditions of coherent experience represents a logical, or epistemological, explication of what correspondence means.

In other words, propositions correspond to reality if and only if they represent objects whose existence coheres with the full run of possible experience. Similarly, representations of these objects are fully coherent if and only if they represent objects as they are in themselves; that is, if and only if they would be affirmed under ideal epistemic conditions. Therefore the conditions of coherence, correspondence and the determination of final belief are identical and these terms are pragmatically equivalent; they are ways of describing the same state of affairs. Truth, for Peirce, as for any holist, is to be understood as ultimate goodness of fit.⁵⁶

Of course all talk of truth is to be further cashed out in terms of the actions to which true beliefs give rise.⁵⁷ Beliefs are habits and habits are dispositions which determine the actions of agents under hypothetical conditions. The notion of true belief is ultimately

expressible as an agreement or harmony between volitions, anticipated consequences and the objective course of events; that is, in terms of the truth of conditional propositions of the form "If act X is performed under conditions C, result R will occur".⁵⁶ Truth is therefore the maximal (rule-governed) coherence of practice (action) and experience (reaction).⁵⁷

It is crucial to note however, that although Pragmatism is a form of idealism, insofar as it insists that the nature of reality is dependent in part upon the form in which it is objectively cognized, it is not a subjective idealism. The method of Investigation defines the conditions under which it makes sense to talk of propositions as being true or false (and thus defines what it means for an object to be real) but it is neutral with respect to the truth values of particular propositions about reality. It is only in relation to reality (the long run course of experience) that propositions are determined to be true or to be false; and this is a matter that cannot be settled a priori, and that is independent of any particular opinion or belief.

Thus reality transcends the experience of any finite collection of individuals at any particular time. Although the concept of an unknowable reality is incoherent, it is still intelligible to say that much about the real world is not known, that is, that future experience and reasoning may result in additions to, or corrections of, the current stock

of beliefs, in ways which cannot be anticipated in advance. The criterion of reality does not require immediate Experience, it requires only the connectability of an object with actual Experience, in accordance with the inferential rules of Investigation. The reality of an object then does not depend on its being experienced on any particular occasion, but rather on its being capable of being experienced, or its being capable of connection with other (real) objects of possible experience. Reality implies only that there be some point of view from which sufficient evidence of the existence of the object could be obtained.⁴² Reality is thus prefigured by reason, but it is not created by reason; and it is the independence of reality and opinions about reality that is the defining characteristic of Truth.

This same conclusion is built into the Pragmatistic maxim itself. While judgements about reality may be formed upon the basis of individual experiences (in Peirce's terminology, Presentations are the objects of our representations) they are true only if vindicated by the objective course of future events (the Interpretant of our representations) (4.539, 1906). The epistemic commitment of assertions carries beyond the scope of individual experience and propositions are therefore vulnerable to the complete range of relevant evidence (attained and attainable) (6.349, 1902). Therefore talk of real objects is still talk of real objects (8.144, 1900), and not subjective mental contents, and assertions

refer to, and are true in virtue of actual states of affairs (5.542, 1902); "The proposition professes to be really affected by the actual existent or real law to which it refers" (2.252, 1903).⁴¹ Thus the universe of discourse for assertive judgements is the totality of "objective and completed experience" (5.30, 1903):⁴²

When an assertion is made, there really is some speaker... or other sign-maker who delivers it; and he supposes there is, or will be, some hearer... or other interpreter who will receive it. It may be a stranger upon a different planet, an aeon later, or it may be that very same man as he will be a second after... The assertion...relates to some object or objects which have forced themselves upon his [the receiver's] attention; and he will miss his mark altogether unless he can succeed in forcing those very same objects upon the attention of the receiver (3.433, 1896).⁴³

While Logic cannot imply the existence of any object, and therefore cannot imply that any inquirers actually exist, it does demonstrate that the notion of assertion involves an epistemic commitment to public evidential vindication. True propositions are true for all possible knowers; the concepts of knowledge and objectivity are fully intersubjective. It is in this sense that knowledge claims involve reference to a potential epistemic community and that "reality consists in the agreement that the whole community would eventually come to" (5.331, 1868)⁴⁴.

The inability to foresee all of "objective and completed experience" assures the fallibility of individual knowers.⁴⁵ Because reality transcends individual experience there can be no privileged access to the truth; knowers are limited in

space and time, their experience is always but a sample of that which is relevant to the verification of knowledge claims. Thus the commitment to intersubjective verifiability combined with the shared limitation on evidential access implies a mutuality among knowers that is incompatible with the authority claimed by the individual Cartesian meditator. And, since there is strong empirical evidence that we are but one among a much larger group of equally endowed epistemic agents, Peirce claims that in the actual world:

We individually cannot reasonably hope to attain the ultimate philosophy which we pursue; we can only seek it, therefore, for the community of philosophers. Hence, if disciplined and candid minds carefully examine a theory and refuse to accept it, this ought to create doubts in the mind of the author of the theory himself (5.265, 1868).

Finally, because reality transcends the knowledge and will of individuals, the interests of the institution of science (and those of its members) must do the same:^^

For he who recognizes the logical necessity of complete self-identification of one's own interests with those of the community, and its potential existence in man, even if he has it not himself, will perceive that only the inferences of that man who has it are logical, and so views his own inferences as being valid only so far as they would be accepted by that man. But so far as he has this belief, he becomes identified with that man. And that ideal perfection of knowledge by which we have seen that reality is constituted must thus belong to a community in which this identification is complete (5.356, 1869)^7.

The individual is a mere negation, manifested by the idiosyncrasy of error and ignorance (5.234-5, 1868),^8 that is, by conflicts with experience and other knowers (1.457-8,

1896). Yet, error can be overcome through Investigation which yields shared, stable beliefs (meanings). As beliefs are nothing other than habits of action, or principles of conduct, Investigation will ultimately lead to the creation of an harmonious community of agents; one in which potential conflicts among individuals will be mediated by shared, rationally grounded principles. The search for truth is not motivated by the selfish desires of autonomous individuals;⁶⁹ Investigation is a collective and (literally) self-less pursuit of epistemic perfection that will in turn point towards the creation of a morally ideal community.⁷⁰

5. SUMMARY

Very early in his career Peirce wrote that:

the very origin of the conception of reality shows that this conception essentially involves the notion of a COMMUNITY, without definite limits, and capable of a definite increase of knowledge (5.311, 1868).

In a single stroke the edifice of Nominalism is circumvented and a new frame is emplaced. Reality essentially involves, that is, it is inseparable from, knowability. If the real simply is that which is knowable then the connection of human knowledge with reality cannot be doubted. If the concept of reality involves the notion of a community capable of knowledge, then both knowledge and reality are intersubjective; the domain of knowledge is shifted from the private space of a detached, epistemic subject into the public arena. Pragmatism thus joins what Nominalism

forever puts asunder by overcoming the rigid dualities of self and other, subject and object, fact and value.

NOTES

1. The axiom is "that whatever objects are different are distinguishable, and that whatever objects are distinguishable are separable by the thought and imagination ...and that whatever objects are separable are also distinguishable, and that whatever objects are distinguishable are also different" (Hume, 1978, p.18).

2. Peirce argues that all modifications of consciousness involve inference, that all inference involves signs and that all signs involve generality. The upshot is that cognition is general and continuous and therefore that absolutely singular cognitions are metaphysical fictions. Hence there can be no faculties which yield such cognitions; all knowledge is inferential. Here as elsewhere Peirce wants to reject the atomism of the Nominalists. See (WCP 3, pp.47-54, 1872; 5.213-317, 1868; 7.651-8, 1903).

3. Peirce denies the existence of, and need for, metaphysical axioms. He claims that axiomatic metaphysics is motivated solely by the desire to model philosophical inquiry on the model of geometry. For Peirce, the discovery of non-euclidean geometries implies a denial of the existence of axioms in metaphysics (1.130-2, 1893).

4. Cartesianism thus reduces to a form of what Peirce calls the method of tenacity (5.377-8, 1877). This method is discussed further later.

5. Peirce writes that the Pragmaticist "acknowledges that what has been indubitable one day has often been proved on the morrow to be false. He grants the preciss [sic] proposition that it may be so with any of the beliefs he holds. He really cannot admit that it may be so with all of them; but here he loses himself in vague unmeaning contradictions" (5.514, 1905).

6. The details of which were apparently worked out six years earlier (7.313-25, 1872; WCP 3, pp.18-28, 1872).

7. "A true doubt is accordingly a doubt which really interferes with the smooth working of the belief-habit" (5.510, 1905). See also (5.265, 1868; 4.70-72, 1893).

8. For Peirce, "a belief... does not consist in anything which is present to the mind, but in an habitual connection among the things which are successively present. That is to say, it consists in ideas succeeding one another according to a general rule; but not in the mere thinking of this general rule, nor in the mere succession of ideas one upon another, nor in both together. A thought must therefore be a sign of a belief; but is never the belief itself" (7.355, 1873).

9. See also (5.370-5, 1877; 5.417, 1905; 7.313, 1873).

10. Peirce at one time claimed that inquiry is pointless once a settled opinion has been reached. However he later acknowledged the utility of hypothetical doubt in investigating the grounds for established beliefs and in finding alternative proofs for accepted conclusions (2.147, 1902; 4.77, 1893). It is the global doubt of Descartes that is his central target. See (5.14, 1905) quoted above.

11. See Fisch (1954). There is considerable irony in Peirce's use of psychology to attack the Nominalism to which even Bain himself was wedded.

12. For an example see (WCP 3, pp.77-81, 1873). Peirce used an amended version of "The Fixation of Belief" as chapter 5 of his "Grand Logic" of 1893 and made further revisions of it in 1903 and 1910 (see the editor's notes to the paper in Collected Papers [5.358-87]). Further discussion of these passages is provided in the next section.

13. The method of tenacity involves believing whatever you please, the method of authority involves the imposition of whatever the state decides should be believed, the method of a priorism involves accepting as true whatever one finds to be agreeable to reason (see [5.358-87, 1878]).

14. Elsewhere Peirce concludes, "the only ground of a fair decision between the methods must be that one actually succeeds while the others break up and dissolve" (7.325, 1872). Murphey (1961, p.164) and Scheffler (1974, pp.70-5) are right to say that Peirce's objections to other methods are not conclusive, but this quote shows Peirce's acknowledgement of this fact and that his early argument is based on instrumental grounds alone (7.324, 1872).

15. He might at (7.324-5, 1872), but nowhere else.
16. Firstness, Secondness and Thirdness are Peirce's Categories. They will be discussed in detail later. They are (somewhat obscurely) defined as follows: "Firstness is the mode of being of that which is such as it is, positively and without reference to anything else. Secondness is the mode of being of that which is such as it is, with respect to a second but regardless of any third. Thirdness is the mode of being of that which is such as it is, bringing a second and third into relation to each other" (7.328, 1904).
17. See the discussion at (5.521, 1905; 2.210, 1902; 8.158, 1901; 8.168, 1903; 2.51, 1902).
18. The classification is presented in detail in (1.180-202, 1903; 1.203-83, 1902; NEM iv, pp.188-99, 1898). Goudge (1950, pp.48-9) has a chart of this classification.
19. Speculative Grammar (the theory of signs) analyzes all beliefs, independently of their stability, into their essential elements. Critic (the theory of argument) deals with the conditions under which assertions correspond to reality (it deals with stable beliefs only) and Methodetic deals with the conditions under which problems present themselves for solution, and those under which the investigation of one question leads to another (3.429-430, 1896). See also (2.229, 1897).
20. This has been recognized before but it continues to be overlooked. Bernstein (1964) finds contradictions about sense impressions in Peirce's theory of perception, without recognizing that some claims are intended as psychology and others as epistemology. In Almeder's (1985) discussion of Peirce's realism, metaphysical claims are cited as evidence that Peirce is an epistemological idealist.
21. "A science cannot have for its fundamental problem to distribute objects among categories of its own creation; for underlying that problem must be the task of establishing those categories" (2.198, 1902). "As to Metaphysics, if the theory of logic which is to be developed in this book has any truth, the position of the two greatest of all metaphysicians, Aristotle and Kant, will herein be supported by satisfactory proof, that that science can only rest upon the theory of logic" (2.121, 1902). See (WCP 3, p.38, 1872).
22. Almeder objects to all attempts to characterize Pragmaticism as transcending the dichotomy of correspondence and coherence since they "refuse to ask the question that needs to be asked if we are to determine whether Peirce's system is classically realist or in some basic sense

classically idealist" (1985, p.93). But forcing the "classic" distinction on Peirce obliterates the point of his work. I agree with Almeder, Goudge (1950) and Singer (1985) that we cannot make sense of Peirce's realism in classical terms. But if Pragmatism is correctly labelled by Peirce as Kantianism without the noumenon (5.525, 1905; 5.245, 1905) and as Hegelism with the "outward clash" of experience added (8.41, 1885), then it seems that it is the dichotomy and not Peirce that stands in the way of an understanding of his views.

23. Beliefs are habits, habits determine conduct and therefore these methods of determining beliefs enjoin the pursuit of subjective interests, whatever they may be. Conduct is moral so long as it is determined by a belief-habit held by the appropriate body, and any disagreement about belief-habits is by definition the result of the error of one's opponents. Therefore, "cruelties always accompany this system; and when it is consistently carried out, they become atrocities of the most horrible kind in the eyes of any rational man" (5.379, 1877). See also (5.386, 1877). Peirce argued that Pearson's empiricism reduced to authoritarianism and thus "is historically false, in that it does not accord with the predominant sentiment of scientific men... it is bad ethics; and... its propagation would retard the progress of science" (8.135, 1901).

24. Thus Peirce writes, "what he [an inquirer] adores if he is a good pragmatist, is power; not the sham of brute force... but the creative power of reasonableness, which subdues all other powers, and rules over them with its sceptre, knowledge, and its globe, love. It is as one of the chief lieutenants of reasonableness that he highly esteems doubt, although it is not amiable" (5.520, 1905).

25. "Logic may be defined as the science of the laws of the stable establishment of beliefs" (3.429, 1896).

26. The articulation of these concepts is thus a Logical matter governed by the pragmatistic maxim "Consider what effects, that 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" (5.402, 1878). The importance of this maxim for Peirce's rejection of Nominalism is discussed later.

27. In what sense success is presumed or guaranteed will be explored in detail later. Investigation need not presume that it will answer every and all questions but if we investigate we must presume an answer would be arrived at (WCP 3, p.18, 1872). We "are going on the hope that there is an answer, which can be called... the final answer. It may be there is none" (4.61, 1893). See also (5.461, 1905).

28. Peirce argues that synthetic reasoning cannot be reduced to analytic reasoning in "The Problem of Induction" (2.669-93, 1878). He does not require that these new elements come from something external to mind, but he does require that they not be determined by association or reasoning from existing states of belief. Again his view is intended to be metaphysically agnostic. Of course, because thought is continuous Peirce recognized that the distinction between what is given in thought and what is inferred from it is "very difficult, if not impossible to draw" (WCP 3, p.34, 1872; 2.141, 1902; 7.538, n.d.). See Bernstein (1964).

29. Throughout Peirce's writings the process is also called observation (WCP 3, p.48, 1872), sensation (1.332, 1905; 7.328, 1872), and mental affection (WCP 3, p.48, 1872). In each case it is the modification of consciousness that is meant. Peirce also uses the terms experience, perception and sensation in a narrower sense, meaning experience of the real (1.321, 1910; 1.324, 1903; 1.333, 1905; 7.543, n.d.). In some cases "experience" refers to the instantiation of an element of thought only, but in others it refers to what Peirce calls the percipium; that is, the percept combined with the perceptual (phenomenological) judgement to which it gives rise (7.538, n.d.). The element of thought that is introduced is variously called a sensation (WCP 3 p.48, 1872), a feeling (WCP 3, pp.35-7, 1872; 7.540-2, n.d.) and a percept (7.619-26, 1903). Each of these has undesirable psychological connotations that are independent of Peirce's logical analysis of thought. As Peirce's analysis covers all investigators, not just humans, nothing about the physical processes associated with experience as defined here can be inferred. Peirce's terminology is tracked carefully by Buchler (1939) (although he tends to proliferate the senses of terms unnecessarily). I shall use "Experience" for the process whereby elements are presented to the mind, "presentation" for that which is introduced in experience, "veridical experience" for experience of the real and the simple term "experience" for "the total cognitive result of living" (7.538, n.d.). "Perceptual judgement" and "percipium" are used consistently by Peirce and that use is retained here.

30. Peirce insists that "in high philosophy, experience is the entire cognitive result of living, and illusion is, for its purposes, just as much experience as is real perception" (7.527, n.d.). See also (1.337, 1905; 7.639-44, 1903). Although some experiences may be of external objects, such objects are not given as external in Experience itself; this is evident from the fact that we are often deluded by dreams and hallucinations (WCP 3, p.33, 1872). The empiricism to which this analysis gives rise is exceedingly weak for it insists only that "investigation involves observation

[Experience] as one part of it, and in fact, the conclusion to which we finally come ultimately depends entirely upon the observations [Experiences]" (7.320, 1872). From which it follows as a corollary that "No argument can possibly be a correct one which pretends to disclose to us a fact wholly new without being based on evidence which is new" (7.329, 1872). To insist that evidence must be Experiential is, thus far at any rate, to insist only that it is determined by something other than one's current stock of beliefs, whatever the nature of that "other" may be.

31. See also (8.330, 1904; 5.52-3, 1903; 7.538, n.d.).

32. Note that the term Firsts is misleading because they cannot be individuated and remain Firsts (1.303, 1894; 7.538, n.d.). Nonetheless Firsts are cognizable, analyzable and conceptualizable. They are also complete in themselves and perfectly definite (7.625, 1903). Firstness has (monadic) being (and is a mode of being [1.329, 1894]) but does not have either existence (which involves Secondness) or reality (which involves Thirdness) (1.328-9, 1894; 8.330, 1904). It should also be noted that although Firsts and Seconds are distinguishable, they are not separable, "they are so inextricably mixed together that no one can be isolated, yet it is manifest that their characters are quite disparate..." (1.286, 1904). See also (1.353, 1880; 5.44, 1903). The importance of this will be demonstrated presently. On the irreducibility of Secondness to Firstness see (1.320, 1910).

33. It appears that there is nothing in Peirce's definition of Experience to suggest that it must be private. However, Experience is clearly an instance of Secondness; thus each Experience is a unique dyadic relation between an experiencer and that which is experienced (7.532-8, n.d.). Furthermore, Peirce is trying to show that investigation does not presuppose any limit to the variability of the starting point of the inquirers involved; "in few cases, if in any, is it necessary that the first products of observation [Experience] should be the same for all successful investigators of any one question" (WCP 3, p.48, 1872). And of course Experiences are not presented as shared, public, or as similar to anything else in themselves (WCP 3, pp.32-5, 1872; 7.331-2, 1872).

34. It is passive only in a relative sense, since the action of Experience necessarily implies reaction in the perceiver, "there must be an element of effort in experience; and it is this which gives it its peculiar character. But we are so disposed to yield to it as soon as we can detect it, that it is extremely difficult to convince ourselves that we have exerted any resistance at all" (1.336, 1905).

35. For Experience to serve as the basis for inference it must be translatable into propositional form, or "perceptual judgements" (5.54, 1903; 5.568-9, 1906); "We know nothing about the percept otherwise than by the testimony of the perceptual judgement, excepting that we feel the blow of it..." (7.643, 1903). Such judgements represent presentations, they unify the presented manifold through the attribution of qualities to subjects in a propositional representation. This representation is not in the presentation for "this percept [presentation] does not describe itself... description involves analysis, while the percept is whole and undivided" (7.626, 1903) and "the percept [presentation]... is not itself a judgement" (5.54, 1903). Although it is tantamount to a judgement (8.65, 1890) it makes no professions about reality (7.631, 1903). As a representation the perceptual judgement is a Third (albeit of a degenerate type [1.383, 1890]) but its formation is forced on the subject; "if one looks, one cannot avoid the perceptual judgement. Once apprehended, it absolutely compels assent" (7.627, 1903). As representations of the manifold, perceptual judgements are immune from criticisms; they are not inferred, for the manifold is not propositional and thus cannot serve as a premise in any argument. The judgement represents the presentation "just as a weather-cock indicates the direction of the wind or a thermometer the temperature" (7.628, 1903); it is an index. Thus to say "that the perceptual judgement is an infallible symptom of the character of the percept [presentation] means only that in some unaccountable manner we find ourselves impotent to refuse our assent to it in the presence of the percept, and that there is no appeal from it" (7.628, 1903). Although we may misdescribe presentations, we cannot be mistaken about the way things seem to us, not because they are private, but because judgements are not true or false with respect to appearances, but rather in relation to reality, they are "indubitable in the sense of being acritical" (5.440, 1905). I shall avoid further details and problems and simply acknowledge that Peirce is arguing for the immediacy of experience as an input into reasoning which is nonetheless consistent with his thorough-going fallibilism. It should also be noted that because judgement is involved in the conceptualization of Experience, experience is always theory-laden for Peirce (7.538, n.d.). See Hookway (1985, pp.151-80) and Bernstein (1964).

36. "Every argument implies the truth of a general principle of inferential procedure...according to which it is a valid argument" (5.280, 1868). See also (3.161, 1880; 4.70, 1893). If presentations are not "subject to law, at all, it would be a matter of indifference what our general ideas were. It might be convenient to act and think according to rules; but one set of rules would be superior to another set merely as

being more conveniently carried out. It is safe to say that nobody ever did believe that percepts [presentations] are in no degree subject to law, whatever nominalists may have persuaded themselves they believed" (2.149, 1902).

37. "That element of cognition which is neither feeling nor the polar sense, is the consciousness of a process, and this in the form of the sense of learning, of acquiring, of mental growth is eminently characteristic of cognition. This is a kind of consciousness which cannot be immediate because it covers a time... it cannot be contracted into an instant... This is the consciousness that binds our life together. It is the consciousness of synthesis" (1.381, 1890) (see also [1.377, 1890]). For the distinction between immediate and mediate knowledge see (5.606, 1901).

Note also that, for Peirce, all propositions are of the subject/predicate form; a proposition is a Third which synthesizes a predicate (First) and an existent subject (Second). Even relational propositions such as "A gave B to C" has three subjects (nominative, dative and accusative) and the relational predicate "gave to" (5.542, 1902).

38. Peirce argues that if time were not continuous then no idea could determine another and thus Investigation would not be possible (7.535, n.d.). "At no one instant in my state of mind is there cognition or representation, but in the relation of my states of mind at different instants there is. In short, the Immediate... (the Unanalyzable, the Inexplicable, the Unintellectual) runs in a continuous stream through our lives..." (5.287, 1868). See also (WCP 3, pp.102-6, 1873; 6.105-112, 1892; 7.652, n.d.).

39. In summary, investigation presumes that "There are real things whose characters are entirely independent of our opinions about them; those reals affect our sense according to regular laws, and, though our sensations are as different as our relations to the objects, yet... we can ascertain by reasoning how things really and truly are; and any man if he have sufficient experience and he reason enough about it, will be led to one True conclusion" (5.384, 1878).

40. See also (8.144-5, 1901; 7.531, n.d.; 8.330, 1904).

41. "Existence is that mode of being which lies in opposition to another" (1.457, 1896). Just as we do not have awareness of the outer limit of our bodies (like the ends of our fingers for example) unless we feel the resistance of other things; we have no sense of self except in contrast to an other which the self is not. In fact Peirce says the self does not exist fully formed and prior to such interaction, rather it is constituted by its interactions with the not self; "part of [our knowledge is] forced upon us from without

from Nature's mind and part [comes] from the depths of that inward aspect of mind, which we egoistically call ours; though in truth it is we who float upon its surface and belong to it more than it belongs to us. Nor can we affirm that the inwardly seen mind is altogether independent of the outward mind which is its Creator" [7.556;n.d.]. For a recent defence of this view see Bergmann (1977).

There is no noumenal self behind the phenomena of consciousness; "the content of consciousness, the entire phenomenal manifestation of mind, is a sign resulting from inference. Upon our principle... that the phenomenal manifestation of a substance is the substance, we must conclude that the mind is a sign developing according to laws of inference... consciousness is sometimes used to signify the I think, or unity in thought; but the unity is nothing but consistency, or the recognition of it" (5.313, 1869). Thus "the unity of the I think is the unity of symbolization - the unity of consistency..." (7.594, n.d.); "The ego ... is nothing but a holder together of ideas" (4.72, 1893). See also (7.543, n.d.; 7.558, n.d.; 1.317, 1910; 5.283, 1868; 5.440, 1905)].

42. It is no accident that Peirce's favorite example of Secondness is pressing one's shoulder against a door; which involves the simultaneous awareness of self and other through unmediated contact. Giving, because it involves mediation, is used by Peirce as an example of Thirdness (3.464, 1897; 1.345, 1903; 5.542, 1902; 8.331, 1904). Peirce avoids the sceptical problems of Nominalism since, on his model, there is no middle term in the knowledge relation to separate knower and known.

43. They can be "discriminated" because they differ in meaning, but they cannot be "prescinded"; just as one cannot think of something coloured and non-spatial, one cannot think of unknowable reality. It follows therefore that they cannot be "dissociated" either, (one cannot have the consciousness of one without the necessary simultaneous consciousness of the other). For these distinctions see (1.549, 1867; 1.353, 1880). It should be noted that "Duality, thought abstractly, no doubt requires the intervention of reflection; but that upon which this reflection is based, the concrete duality, is there in the very experience itself" (5.539, 1902). Thus we have direct contact with reality although exactly what we contact with is known only inferentially. Therefore "an idealist need not deny the reality of the external world... for [its] reality... means nothing except that real experience of duality... Is not the transition a direct experience of the duality of the inward past and the outward present?" (5.539, 1902).

44. The term is from James who shares Peirce's views about the relation of mind and world. Both argue that we directly perceive reality because reality is that which is the object of veridical perception. See James's paper "Does Consciousness Exist?" (in James [1976, pp.3-19]) and (NEM iv, pp. 332-3, 1898).

45. This does not conflict with Peirce's fallibilism for this quote continues "although we have no positive reason for assuring so much as that... We all know, only too well, how terribly insistent perception may be; and yet, for all that, in its most insistent degrees, it may be utterly false-- that is, it may not fit into the general mass of experience, but be a wretched hallucination" (7.647, 1903) (see also [5.116-9, 1903]).

46. "In the idea of reality, Secondness is predominant; for the real is that which insists upon forcing its way to recognition as something other than the mind's creation...The real is active..." (1.326, n.d.). "Whatever exists, exists, that is, really reacts upon other existents, so obtains a self-identity, and is definitely individual" (5.430, 1905) (see also [5.96, 1903; 7.666, 1903]). "Actuality without any regularity whatever is nullity (5.431, 1905). "A generalized reaction is a law" (7.532, n.d.). "A permanent fact is less purely individual; yet so far as it is actual its permanence and generality only consist in its being there at every individual instant" (1.419, 1896). For similar passages and more on the distinction between existence and reality see (5.47-58, 1903; 5.503, 1905; 6.349, 1902; 7.532-4, n.d.; 8.144, 1900; 8.191-2, 1904; 4.542, 1906).

47. "To say that a table exists is to say that it is hard, heavy, opaque, resonant... that is, produces immediate effects upon the senses, and also that it produces purely physical effects, attracts the earth (that is, is heavy), dynamically reacts against other things (that is, has inertia), resists pressure (that is, is elastic), has a definite capacity for heat, etc. To say that there is a phantom table by the side of it incapable of effecting any senses or of producing any physical effects whatever, is to speak of an imaginary table. A thing without oppositions ipso facto does not exist... Not only is this opposition essential to an individual thing or subject, but also to an individual fact. Its truth, or existence, is the sum of its effects" (1.457, 1896).

48. "The main distinction between the Inner and the Outer Worlds is that inner objects promptly take any modifications we wish, while outer objects are hard facts that no man can make to be other than they are" (5.45, 1903).

49. Peirce writes "if two individual things are exactly like in all other respects, they must... differ in their spatial relations, since space is nothing but the intuitional presentation of the conditions of reaction, or some of them" (3.613, 1911). "Thus an emotion of the mind is real, in the sense that it exists in the mind whether we are distinctly conscious of it or not. But it is not external because although it does not depend upon what we think about it, it does depend upon the state of our thoughts about something" (7.339, 1872). Likewise "the substance of a dream is not Real... but the fact of a dream is Real... since... its date, the name of the dreamer, etc. make up a set of circumstances sufficient to distinguish it from all other events; and these belong to it, i.e. would be true if predicated of it; whether A, B, or C actually ascertains them or not" (6.453, 1908). See also (6.327-8, 1909).

50. "For to be contiguous means to be near in space at one time; and nothing can crowd a place for itself but an act of reaction. The mind, by its instinctive adaptation to the Outer World, represents things as being in space, which is its intuitive representation of the clustering of reactions" (4.157, 1897); "we cannot choose how we will arrange our ideas in reference to time and space, but are compelled to think certain things as nearer together than others. It would be putting the cart before the horse to say that we are compelled to think certain things together because they are together in time and space; the true way of stating it is that there is an exterior compulsion upon us to put them together in our construction of time and space, in our perspective" (7.534, n.d; 1.383, 1890).

51. The real is "a conception which we must first have had when we discovered that there was an unreal, an illusion; that is, when we first corrected ourselves. Now the distinction for which alone this fact logically called was between an ens relative to private inward determinations, to the negations belonging to idiosyncrasy, and an ens such as would stand in the long run" (5.311, 1868). See (5.234, 1868; WCP 3, pp.50-4, 1872; 2.176, 1902).

52. "Knowledge which should have no possible bearing upon any future experience-- bring no expectation whatever-- would be information concerning a dream... We expect that in time it will produce, or reinforce, or weaken some definite expectation" (5.542, 1902).

53. "That truth is the correspondence of a rerepresentation with its object is, as Kant says, merely the nominal definition of it" (5.553, 1906); a nominal definition "merely explains the meaning of a term which is adopted for convenience" as opposed to a real definition which "analyzes

a conception" and contributes 'to the development of the thought...' (NEM iv, p.286, 1903). Correspondence means only that "Truth is that concordance of an abstract statement with the ideal limit towards which endless investigation would tend to bring scientific belief..." (5.565, 1903).

54. "We have particularly drawn attention to the point to which thought flows, and that it finally reaches: a certain level, as it were-- a certain basin, where reality becomes unchanging. It has reached its destination, and that permanency, that fixed reality, which every thought strives to represent and image, we have placed in this point towards which the current of thought flows" (7.337, 1872).

55. The upshot of every assertion is that one "will find that common experience to connect itself with a new experience after a fashion analogous to other connections of experiences, which have made this mode of connection familiar to both parties" (8.112, 1900, emphasis added). The determinacy and permanence of this mode of connection is definitive of truth, not only for claims about the spatio-temporal, but mathematical objects as well (7.659, 1903).

56. Of Pearson, Peirce writes "when he has proved the content of an idea to be mental, he seems to think he has proved it's object to be of human origin... If he had thoroughly accepted the truth that all realities, as well as all figments, are alike of purely mental composition, he would have seen that the question was, not whether natural law is of an intellectual nature or not, but whether it is of the number of those intellectual objects that are destined ultimately to be exploded from the spectacle of our universe, or whether, as far as we can judge, it has the stuff to stand its ground in spite of all attacks" (8.145, 1900). "There are three elements of reality: that by which ideas spring up that have concealed within them an accord with the mass of ideas; that by which one idea acts directly upon another; that force from without that weeds out a part of the ideas and strengthens the rest... I do not know what idea we can form of reality except that it is that threefold force; or what the real can be except that which the whole process tends, as we hope, to induce our thoughts to rest upon" (7.668-9, 1903) (see also [8.14, 1901]).

57. The pragmatistic maxim states that "the rational purport of a word or other expression, lies exclusively in its conceivable bearing upon the conduct of life; so that... if one can define accurately all the conceivable experimental phenomena which the affirmation or denial of a concept could imply, one will have therein a complete definition of the concept, and there is absolutely nothing more in it" (5.412, 1905). Therefore, "that ultimate state of habit to which the

action of self-control ultimately tends, where no room is left for further self-control, is, in the case of thought, the state of fixed belief, or perfect knowledge" (5.421, 1905).

58. "To say that a proposition is true is to say that every interpretation of it is true... When we speak of truth and falsity, we refer to the possibility of the proposition being refuted; and this refutation (roughly speaking) takes place in but one way. Namely, an interpretant of the proposition would, if believed, produce the expectation of a certain description of percept [presentation] on a certain occasion. The occasion arrives: the percept forced upon us is different. This constitutes the falsity of every proposition of which the disappointing prediction was the interpretant. ...A true proposition is a proposition belief in which would never lead to such disappointment so long as the proposition is not understood otherwise than it was intended" (5.569, 1901).

59. "For it cannot be denied that one, at least, of the functions of intelligence is to adapt to circumstances, so as to subserve desire. If the argument is correct, this applies to any concept whatsoever..." (5.548, 1902). The Pragmaticist takes "rational meaning to consist in an experiment" (5.425, 1905); "the two chief parts of the event itself are the action [of the experimenter] and the reaction [of the world], yet the unity of essence of the experiment lies in its purpose and plan..." (5.424, 1905).

60. Early on Peirce insisted that there is no fact of the matter about whether a diamond is hard or not until its hardness has actually been verified; he later corrected this view so that hardness depends on what would take place if one tested the diamond for hardness (see [5.403, 1878; 5.455-7, 1905]). With this move Peirce preserved his realism about the past; "The fact that Napoleon did run his marvellous career consists in the fact that anybody who looks for them will find a thousand and one vestiges of that career" (8.194, 1904). Therefore "there is nothing extraordinary... in saying that the existence of external realities depends upon the fact, that opinion will finally settle in the belief in them. And yet that those realities existed before the belief took rise, and were even the cause of that belief..." (7.344, 1872). "Consequently, the only meaning which an assertion of a past fact can have is that, if in the future the truth be ascertained, so it shall be ascertained to be" (5.543, 1902). See also (WCP 3, p.49, 1872).

61. "Even lies invariably contain this much truth that they represent themselves to be referring to something whose mode of being is independent of its being represented" (6.96,

1903). See also (5.429, 1905).

62. See also (3.621, 1911; 5.542, 1905).

63. See (2.252, 1903; 5.29-31, 1903; 5.506, 1905; 5.546-7, 1902). Making an assertion is akin to swearing an affidavit; "Here a man goes before a notary or magistrate and takes such action that if what he says is not true, evil consequences will be visited upon him, and this he does with a view to thus causing other men to be affected just as they would be if the proposition sworn to had presented itself to them as a perceptual fact" (5.30, 1903).

64. "We know that man is not whole as long as he is single, that he is essentially a possible member of society. Especially, one man's experience is nothing, if it stands alone. If he sees what others cannot, we call it hallucination. It is not 'my' experience but 'our' experience that has to be thought of and this 'us' has indefinite possibilities" (5.402 n2, 1893). See also (NEM, iii, p.882).

65. It follows from the analysis of assertion that a "person is not absolutely an individual. His thoughts are what he is 'saying to himself', that is, saying to that other self that is just coming into life in the flow of time. When one reasons, it is that critical self that one is trying to persuade... The second thing to remember is that the man's circle of society... is a sort of loosely compacted person, in some respects of higher rank than the person of an individual organism. It is these two things alone that render it possible for you-- but only in the abstract...-- to distinguish between absolute truth and what you do not doubt" (5.421, 1905).

66. "When I communicate my thought and my sentiments to a friend with whom I am in full sympathy, so that my feelings pass into him and I am conscious of what he feels, do I not live in his brain as well as my own...? ...Each man has an identity which far transcends the mere animal;-- an essence, a meaning subtle as it may be... that he truly has this outreaching identity... is the true and exact expression of the fact of sympathy, fellow feeling-- together with all unselfish interests-- and all that makes us feel that he has an absolute worth" (7.591, n.d.).

67. Thus science advances "by cooperation, by each researcher's taking advantage of his predecessors' achievements, and by his joining his own work in one continuous piece to that already done" (2.159, 1902).

68. See also (5.283, 1868; 5.317, 1868).

69. "Individual action is a means and not our end. Individual pleasure is not our end; we are all putting our shoulders to the wheel for an end that none of us can catch more than a glimpse at-- that which generations are working out. But we can see that the development of embodied ideas is what it will consist in" (5.402 n2 1893).

70. It only points towards this community since action presupposes value and thus involves moral rules (5.533, 1906). Values must be objective for Peirce lest his Pragmaticism collapse into Nominalism, according to which the merit of actions lies solely in their efficiency in satisfying subjective self-interests. Moral principles are based on Ethics (the science of right and wrong in general), which in turn rests on Esthetics (the determination of the summum bonum) (1.191, 1903). In fact, Logic, as a species of principled action rests on both Ethics and Esthetics. Thus "since pragmaticism makes the purport to consist in a conditional proposition concerning conduct, a sufficiently deliberate consideration of that purport will reflect that the conditional conduct ought to be regulated by an ethical principle, which by further self-criticism may be made to accord with an esthetical ideal. ...So, although I do not think that an esthetic valuation is essentially involved, actualiter (so to speak) in every intellectual purport, I do think that it is a virtual factor of a duly rationalized purport, since conduct may depend upon its being appealed to. Yet in ordinary cases, it will not be needful that this should be done" (5.535, 1905).

CHAPTER IV - PEIRCE AND THE PROGRESS OF SCIENCE

1. INTRODUCTION.

The last chapter left two unresolved problems for Peirce. The first is whether and to what degree principles of human reason constitute an investigative process; that is, whether there is a method which will, from any state of initial belief, converge on the truth. This general problem of scientific progress is for Peirce the problem of the self-correctiveness of scientific method.

Secondly, Peirce's early defence of the scientific method of fixing belief begged the question against other methods by appealing to empirical claims about the success of science; claims which were established by the very method in dispute. More needs to be said therefore if Peirce is to vindicate science as the ultimate epistemic authority, exhaustive of rationality itself.

Before considering the solutions to these problems, a discussion of Peirce's conception of the validity of scientific inferences is required.

2. THE NATURE AND VALIDITY OF SCIENTIFIC INFERENCE.

A. The Validation of Forms of Inference.

As shown in the last chapter inference, for Peirce, is the determination of belief according to a general rule. Since the aim of investigation is truth:

Every argument or inference professes to conform to a general method or type of reasoning, which method, it is held, has one kind of virtue or another in producing truth (2.780, 1902).

The inference rule, termed by Peirce a leading principle, is a belief-habit that relates premises to conclusions in some determinate fashion. Each leading principle defines a genus of arguments. Peirce's concept of validity changed as his inventory of methods and inference rules changed, but in a relatively late passage he wrote that:

in order to be valid the argument or inference must really pursue the method it professes to pursue, and furthermore, that method must have the kind of truth-producing virtue which it is supposed to have (2.780, 1902).

To be valid, the premises and conclusion of an argument must really bear the relation to each other that the leading principle requires, whether they are recognized as doing so or not; arguments must be formally correct and whether they are or not is a matter of fact, not opinion. Furthermore, the leading principle must be true, that is, the argument must "have that sort of efficiency in leading to the truth which it professes to have" (2.779, 1902).

For Peirce, arguments are reducible to three forms: Deduction, Induction and Abduction. It should follow that for each distinct form of inference there must be a distinct leading principle and each such principle must profess to lead to truth in a distinctive fashion. Finally, to be valid (a better term might be "warranted") each form of inference must be shown to lead to truth in the way it professes.

If this is a correct description of Peirce's view, as will be argued, then Laudan (1981, p.226-51) is wrong to assume that Peirce needed, or intended, to show that every inference is warranted in the same way; specifically that it is self-corrective. Furthermore Fann (1970, p.54) must also be wrong to claim that Peirce is unable to show that Abduction is a valid inference in itself. Finally, Cheng's (1970) attempt to show that Induction and Deduction are warranted in precisely the same sense must be misguided.¹ In each case distinct senses of validity have been overlooked and misapplied.

B. Peirce on Probability.

If synthetic inference is the key to the lock on the door of philosophy, probability is the mold in which the key is cast. The problem of synthetic reasoning is how to move from any state of current belief to true belief, that is, to beliefs that would be supported by an indefinite totality of possible experience. As gathered evidence is always finite and partial, synthetic inferences make claims about an inexhaustible series of experiences based only on some portion of it. The problem of synthetic inference is the problem of inferring the character of an infinite universe from finite samples; a problem which falls fully within the domain of probability theory.

As a branch of mathematics probability theory is prior to Philosophy in general and Logic in particular.² Mathematics

deduces necessary conclusions from assumed principles in an attempt to reveal implicit, though perhaps unnoticed, relations among them. Mathematics trades exclusively in logical entailments, revealing deductively what would be under conditions presumed, but not asserted, to be true. Its results are purely hypothetical. In fact, as will be demonstrated, it is because neither premises nor conclusions are asserted to be true that mathematics can stand as a non-empirical foundation for Logic.

For Peirce, early and late, probabilities are aleatory rather than epistemic; they refer to objective courses of experience not subjective degrees of belief. Probability is:

[the] ratio of frequency in the "long run" of experience of designated species among experiences designated, or obviously designable, genera over those species... (2.763, 1905).

By the long run Peirce means an indefinite experiential series. Thus the frequencies referred to are not those that will be observed but rather those that would be observed over the infinite totality of possible experience. Since the possible trials in the long run are infinite the definition is amended to refer not to the value of a particular ratio of successes to trials but rather to the limit of observed relative frequencies in an endless series (2.261, 1910). To say that the probability of a species of event is p is to say that p :

is the only value of [the] quotient that it will not sooner or later become larger than or smaller than for the last time... (NEM iii, p.175).³

Because probabilities refer to the frequencies of species of events in relation to some broader containing class, they are not definable for individual occurrences. Individual events either happen or they do not, probabilities express the frequency with which instances of a kind of event would occur in the long run.⁴

Because the long run is a hypothetical series which need not be actualized, probability claims are expressible as subjunctive conditionals of the form "If act X were performed under conditions Y, result R would occur in p% of the trials". This is precisely the form of belief-habits which we have seen are Thirds; they are "would be's" or laws. Thus to affirm a probability claim is to attribute a habit or law to an indefinite sequence of events. For universal laws $p = 100\%$ (if affirmative) or $p = 0\%$ (if negative), and for statistical laws p ranges from 0% to 100%.⁵

Since probabilities are ratios whose values would be endorsed over the totality of possible experiences, they are matters of fact and thus fully objective features of reality. This analysis therefore leaves open the possibility of objective chance in the universe, expressible in terms of statistical laws; probabilities in general are well-founded statistical generalizations (7.177, 1901). Since, according to the pragmatistic maxim, beliefs assert nothing other than regularities of experience in the long run, probabilities can also be construed as meanings quantitatively treated.

C. Probability and Deduction.

The key features of deductive reasoning have already been revealed. It consists of drawing logical consequences from premises. It is necessary reasoning since it is logically valid. It concludes what would be true given the truth of premises. Conclusions thus derived can be seen to be predictive consequences of the premises and the set of such consequences, according to the pragmatistic maxim, constitutes the meaning of those premises. Therefore deductive reasoning is analytic. While deduction may lead to the discovery of previously unnoticed logical consequences, and thus add to our understanding of premises, it is explicative, not ampliative, reasoning since neither the premises nor the conclusions are asserted to be true and since no true synthetic proposition can be derived from such reasoning alone. Deduction is thus reasoning about consequences of possibilities and its results are purely hypothetical. Although necessary, such reasoning is still fallible since in particular instances one is never entitled to claim with absolute certainty that deductions have not been fallaciously drawn.

All deductions are necessary, yet Peirce distinguishes Necessary Deductions (those that do not involve reasoning about probabilities) and Probable Deductions (those that do) (2.267, c.1903). The latter class consists of deductions of probabilities, as in the calculation of ratios of frequency

according to the axioms of the probability calculus, and Statistical Deductions,⁶ or inferences from the known character of some population to the unknown character of some sample of that population as follows:

$p\%$ of M 's are P .

S_1, \dots, S_n are numerous and randomly drawn M 's.

Thus, probably and approximately $p\%$ of S_1, \dots, S_n are P .

Such inferences require that the sample be sufficiently large, that it be random (that is, chosen by a method that in the long run would select each subset of members of M with equal frequency [2.726, 1873]), and that P be "pre designate" (that is, the character, P , of M 's under investigation must be specified independently of any examination of the facts). This last constraint is required since, after the fact, it is always possible to discover points of agreement among the members of the sample which when used as a basis for inductions yield implausible and fallacious inferences.⁷

Under such conditions statistical deductions are still necessary since one cannot accept the premises without endorsing the conclusion on pain of contradiction.⁸ The conclusion here is not that any particular sample will contain $p\%$ of S 's that are P . Rather it is inferred that, in the long run, the sample proportions would lie within a specifiable range of the proportion of the population in a majority of cases; in other words, more samples of this size would be reliable than not. As Cheng (1970) notes, this follows by virtue of the Law of Large Numbers which is a

purely arithmetic result entailing that among the possible random samples of sufficient size "small deviations from p... are probable, large deviations, improbable..." (NEM iv, p.356, 1893-5).⁷ Statistical deductions are justified as valid therefore since "precisely analogous reasonings would from true premises produce true conclusions in the majority of cases, in the long run of experience" (2.268, c.1903).

D. Probability and Induction.¹⁰

For Peirce Inductions are of three kinds. Crude Induction infers the truth of a universal generalization from the absence of known counterexamples; "it is the only kind of induction that is capable of inferring the truth of... a universal proposition" (2.757, 1905). Quantitative Induction infers "the 'real probability' that an individual member of a certain experiential class, say the S's, will have a certain character, say that of being P" (2.758, 1905). Such an induction is quantitative since the sampled elements can be individuated and thus their distribution within a class can be expressed as a definite numerical ratio. In Qualitative Induction the sampled elements are properties, not objects. From the possession by an object of a subset of properties definitive of a general class it infers the possession by that object of the full set of defining characteristics of that class.

Induction in general is reasoning from parts to wholes. It is probable, not necessary, since one can deny inductive

conclusions while admitting the premises without contradiction. It is ampliative, not explicative, since the conclusion implies more than what is contained in the premises. It is synthetic since it infers truths of fact, rather than meaning. And its conclusions refer to actual, rather than hypothetical courses of experience; to what is true rather than what would be true.¹¹

Although induction is in a sense continuous with deduction (since enumerative induction is a deductive inference) there is an unbridgeable gap between the two, in cases where the set of sampled elements is less than the entire population.¹² It follows therefore that:

as soon as it is shown that a supposedly inductive conclusion can be proved, either certainly or probably, according to my definition of probability, from a copulative premiss, so soon is it proved that the reasoning was not (or need not have been) inductive (NEM iii, p.182, 1911).

In fact this lies behind Peirce's chief complaint with Laplace's use of the "Succession Rule" as a vindication of induction. For Laplace, given observations of some phenomenon on N occasions, the probability that the phenomenon will occur on the next occasion is $(N+1)/(N+2)$. However, when $N=0$, the expected probability is $1/2$. But:

That is to say that on a wholly new occasion it would be a reasonable thing to make an even bet that an unheard of event would take place. That is the nonsense that results from trying to reason mathematically on matters of fact on the basis of pure ignorance (NEM iii, p.173, 1911).

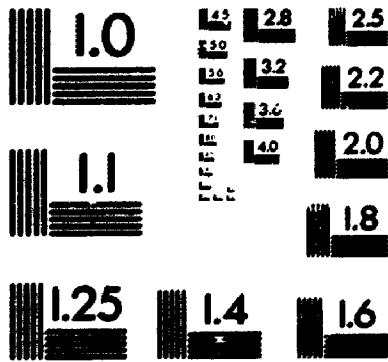
Laplace's view depends on the claim that equal possibility,

where a possibility is defined as something which we do not know to be true, implies equal probability. As Peirce notes this method of assigning probabilities yields different and sometimes contradictory results for different partitions of the outcome space and therefore renders probabilities subjective not objective. More importantly for Peirce the argument infers empirical conclusions about actual events from a statistical deduction thus committing the logical fallacy of drawing factual, synthetic conclusions on the basis of hypothetical, analytic reasoning.¹³ In the case where $N = 0$ a definite probability is inferred from a position of complete ignorance, where "what ought to be said is that the chance is entirely indefinite" (2.667, 1910).

The irreducibility of induction and deduction is exemplified by the fact that the two forms of inference are valid in different ways. In the deductive case, the inference is valid if it leads to a single conclusion which is (approximately) true all, or at least most, of the time. But this cannot be said of induction; "it is by no means certain that the conclusion actually drawn in any given case would turn out true in the majority of cases where precisely such a method was followed" (2.781, 1902). Nonetheless induction is valid since, through its repeated application any false conclusion about the distribution of members in a population, would eventually be replaced by a different, more accurate one:

2

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The validity of an inductive argument consists, then, in the fact that it pursues a method which, if duly persisted in, must, in the very nature of things, lead to a result indefinitely approximating to the truth in the long run (2.781, 1902).

In short, induction is self-corrective.

Crude induction, the weakest form of induction, is trivially self-corrective since any incorrect universal generalization would, over the totality of experience, ultimately be falsified by some counterexample, thereby leading us from a false belief to a true one.¹⁴

The case for Quantitative and Qualitative Induction is more complex. Like statistical deduction, induction¹⁵ requires that the sample under consideration be random and numerous and that the character under consideration be predesignate. More importantly the validity of induction and statistical deduction both rest on the Law of Large Numbers:

The principle of statistical deduction is that two proportions-- namely, that of the P's among the M's and that of the P's among the S's-- are probably and approximately equal. If, then, this principle justifies our inferring the value of the second proportion from the known value of the first, it equally justifies our inferring the value of the first from that of the second, if the first is unknown but the second has been observed. We thus obtain the following form of inference:

S', S'', S''', etc. form a numerous set taken at random from among the M's,

S', S'', S''', etc. are found to be -- the proportion [r] of them -- P's;

Hence, probably and approximately the same proportion [r] of the M's are P's. (2.702, 1867).

The inductive conclusion is approximate, as in the case of statistical deduction, for the conclusion is not that the true composition ratio of the population (p) is exactly equal

to that of the sample (r), but rather that it lies within some specifiable range; that is, for some small number e ,
 $r - e < p < r + e$.

The inductive inference is probable in a different sense than in the deductive case. In the latter we infer, for each sample, that its composition ratio will approximate that of the general population, and we will be right more often than not in repeated applications of this inference. We will go wrong some of the time but "on continuing the drawings sufficiently, our prediction of the ratio will be vindicated at last" (2.703, 1883). In fact, it is because the population proportion (p) is known, that the exact frequency with which that conclusion is true can be calculated.

In the inductive case we infer the composition ratio of the population based on some sample. Each sample will yield a different estimate of the population's composition. Each such estimate cannot be said to be true (or false) more often than not, since it is either true or else it is false. Nonetheless, induction is probable because if a specific conclusion, " $r_1\%$ of M 's are P 's", based on a specific sample, S_1 , of size n is wrong, it would, upon repeated inductions in the long run, be replaced by a different conclusion, " $r_2\%$ of the M 's are P 's", based on a different sample S_2 of the same size, which is approximately true. Therefore, if a particular conclusion is wrong:

then on continuing the drawings the inference will be, not vindicated as in the other case [of

statistical deduction], but modified so as to become true (2.703, 1883).

In short, in the deductive case, the same value (p) is inferred on each occasion and it is true more often than not whereas in the inductive case, different values are inferred each time, yet among the set of inferred values (r_1, \dots, r_n), more are true than not and thus the way of proceeding, though not any specific conclusion, is trustworthy.¹⁶

The importance of this case to Peirce should already be clear. If right, it shows that inductions are not determined by contingent features of human cognition, that is by contingent habitual associations of instrumental value only, rather induction is a determinant of habits (beliefs) with cognitive value as a method for ascertaining truths about the world. Secondly, because the argument follows analytically, from the Law of Large Numbers, induction does not rest on any empirical assumptions such as Mill's Principle of the Uniformity of Nature. The argument thus refutes the claim that justifications of induction are unavoidably circular.¹⁷

It is interesting, however, that it is on this last point that Peirce has been said to fail. Goudge (1950) argues that induction is valid only if the world is nomologically governed; attempts to infer a law governing a phenomenon are valid only if there is a law to discover. He further notes that Peirce's only argument for the existence of laws rests on the weak claim that a world in which induction would be misleading is inconceivable. If so, then the validity of

induction seems to rest on what amounts to a "material assumption about the constitution of nature" (p.193), specifically Mill's principle of uniformity. Goudge is right, as was shown in Chapter 3, that inquiry presupposes the existence of an ascertainable truth and that, according to the pragmatistic maxim, this is equivalent to the assumption of a real, law-governed world. It is also true that the existence of reality is an inescapable inference, the moment we have any experience. However, the pragmatistic maxim is a purely logical thesis and it cannot follow from logic alone that there are any experiences or any real experiencers since these are empirical matters.¹⁸ But the justification of induction as self-corrective does not require that there be a reality, only that if there is a reality then induction would lead inquirers to a correct characterization of it in an ideal limit (1.608, 1903). Were there no reality induction would not be invalid, it would only be futile and inapplicable for there would be no truth to which it could in fact lead. Since induction is justified deductively and deductions do not assert the truth of premises or conclusions, the validity of induction requires no empirical assumptions.

Madden (1970) makes the same error when he suggests that because samples must be random, inquirers must assume that the particular method of sampling exploited ensures an equal antecedent probability of selecting each possible sample.

This assumption is by Peirce's own lights a postulate, "a proposition that we hope to be true", with the same import as the principle of the uniformity of nature "namely... assuming that the character of the already observed is, under certain circumstances, more or less reliable evidence of some realm of the as yet unobserved" (Madden, pp.254-55).

First, the questions of what, if any, methods of sampling are truly random and what effect departures from randomness will have is a problem within statistical inference itself and is not unique to Peirce's account. More importantly, it is an empirical question subject to scientific investigation. While it is true that any particular induction rests on further inductions about sampling methods this means only that what underlies any particular belief is simply more beliefs; that we cannot stop the regress of explanations for our beliefs and that all inferences require some form of bootstrapping. But the validity of induction does not rest on our ability to satisfy its principles in any particular case; it rests solely on the claim that if induction is correctly and sufficiently prosecuted its conclusions would lead to conclusions approximating the truth.¹⁷ Thus whatever else its problems the vindication of induction is consistent and not circular.

E. Probability and Abduction.

Abduction is the "invention, selection and entertainment" of explanatory hypotheses (HP 2, p.895, 1901); it covers "all

the operations by which theories are engendered" (5.590, 1903). Like induction, abduction is ampliative, and non-necessary. It is the only truly synthetic inference in the sense that it "is the only kind of reasoning that supplies new ideas" (2.777, 1902) and for that reason it is the "most important kind of reasoning" (NEM iii, p.206, 1911). Deductions explicate, inductions verify, abductions create; they are "spontaneous conjectures of instinctive reason" (6.47, 1908), they are guesses at the truth:

A phenomenon is observed as having something peculiar about it. Ruminating leads me to see that if a certain state of things existed, of whose actual existence I know nothing, that phenomenon would certainly occur, or, or at any rate, would in all probability occur. I say, By George, I wonder if that is not the very state of the case (HP 2, p.878, 1900).

As guesses, abductions can range from the wildly speculative to the educated; the force of their conclusions ranges from the mere suggestion of a possibility (in inferring the origins of the universe, for example) to the strong inclination to believe (in inferring the existence of historical figures such as Napoleon).

All abductions are of the same logical form; they are inferences from consequents to antecedents. Minimally, then, every abduction must offer an explanation of the observed facts (5.189, 1903; 7.220, 1901). Furthermore, abductions must be governed by the pragmatistic maxim. They are meaningful only to the extent that they entail experiential consequences; untestable hypotheses are nonsensical.☞

Finally, since abductions are by definition explanatory, "we must not make hypotheses that will absolutely stop inquiry..." (7.480, c.1898); that is, it can never be inferred that any phenomena are absolutely inexplicable (1.139, c.1899).

Since hypotheses are always underdetermined by available evidence, there is a potentially limitless number of possible hypotheses imaginable at a given time. Therefore in choosing a working hypothesis from the set of possibilities, the logical constraints on abduction must be supplemented by principles of economy; for, "if [one] examines all the foolish theories [one] might imagine, [one] never will (short of a miracle) light upon the true one" (2.776, 1902). Glossing the details, Peirce claims that all other things being equal the merit of an hypothesis is inversely proportional to the cost (in terms of time, money and energy) of bringing it to test; "the best hypothesis, in the sense of the one most recommending itself to the inquirer, is the one which can be most readily refuted if false" (1.120, c.1896). Hypotheses are also to be preferred if they are logically simpler and more intuitive than their rivals (5.60, 1903).¹ Finally "because very rarely can we positively expect a given hypothesis to prove entirely satisfactory...we must always consider what will happen when the hypothesis proposed breaks down" (7.220, 1901); therefore the more cautious the hypothesis on this score the better."²

Unlike deduction and induction, the reliability of abduction cannot be established by logic alone.²³ Each abduction infers only one of a large number of possible explanations of phenomena²⁴ and, as noted above, it is fallacious to attempt to infer synthetic truths (knowledge) from mere possibility (ignorance) (5.172, 1903; 5.591, 1898). Furthermore in any comparison of abductions prior to test, it is never certain that all possible hypotheses are considered and there can be no logical guarantee that the hypotheses imaginable at a particular time are exhaustive. To insist on the infallibility of abduction is to posit a faculty of intuition and to return to the method of tenacity. As already shown intuition cannot serve as the basis of reason since its credentials must first be established empirically (1.145, c.1897). Finally, there can be no logical basis for the assumption that the most economical hypothesis in a given situation is more likely to be true.

Nonetheless, Abduction is warranted on a number of grounds. First, it provides what other inferences cannot, namely new hypotheses:

neither Deduction or Induction can furnish me with any new idea. Unless I can get to the bottom of things by hypothesis, I may as well give up trying to comprehend them (HP 2, p.878, 1900).²⁵

In fact "Abduction furnishes all our ideas concerning real things" (8.210, c.1905).

Second, it would seem that Abduction is valid in the sense described above; it provides only that which it

professes to provide, namely a possible explanation (8.238, c.1910). Since possibility is indifferent to truth values, Abduction does not claim to be truth preserving in any definite proportion of cases; "Abduction commits us to nothing. It merely causes a hypothesis to be set down upon our docket of cases to be tried" (5.602, 1898).²⁴

Third, Abduction is inescapable. Although particular abductive inferences need not be true, guessing correctly must be possible if inquiry is ever to succeed. Whether or not this possibility exists, it must be presumed in the undertaking of any investigation:

the reasoner's being disposed to believe in his proposition... goes toward warranting the belief, since the very undertaking to find out a truth one does not directly perceive assumes that things conform in a measure to what our reason thinks they should. In other words our Reason is akin to the Reason that governs the universe, we must assume that or despair of finding out anything. Now despair is always illogical; and we are warranted in thinking so since otherwise all reasoning must be in vain. If it be so, a strong inward impulse to Believe a given proposition tends to show that proposition to be true; and if it be not so, we never can discover what we don't directly perceive, do what we may (NEM iii, p.869, 1909).²⁷

In short, Logic cannot establish that the universe conforms to reason in the required way. The most it can establish is that the reliability of Abduction is a necessary presupposition of rational inquiry and that to investigate rationally:

man must trust to his powers of getting at the truth simply because it is all that he has to guide him (NEM iii, p.203, 1911).

In fact the formation of perceptual judgments (that is the translation of phenomenological "seemings" to propositional assertions) is itself an abductive-like process.²⁰ To question the reliability of abduction is thus to question the very cornerstone of knowledge.

Finally, adherence to the principles of economy in choosing among competing hypotheses though not justifiable as trustworthy, is warranted on instrumental grounds. Economy ensures the maximum epistemic value of the output of investigation, for a minimum cost. Thus the more economical the proceeding the more expedient the path to truth (7.200, 1901):

Suppose we find we can think out, say 32 ways... of explaining the phenomenon. We must go on the assumption that one of these will turn out satisfactory, or, at least, will be susceptible of modification so as to make it so... Experiments cost money, time, etc. We must continue to find some observable consequence which would follow from 16 of the 32 and would not follow from the other 16. If we can manage that way, 5 experiments will suffice. This is a supposition pretty remote from anything likely to happen. But the moral holds good... hypotheses are to be considered as propositions to be disproved by experiment and... our choice of experiments is to be determined by questions of economy (HP 2, p.878, n.d.).

In summary then, Abduction is "mere conjecture without probative force" (8.210, c.1905). Abductions are not self-corrective, nor true most or all of the time; logically, their "only justification is that if we are ever to understand things at all it must be in that way" (5.145, 1903).²¹

3. SCIENCE AS SELF-CORRECTIVE INQUIRY.

The forms of inference correspond to distinct stages of inquiry. In fact they are developmental stages; starting from mere possibilities (ignorance) the interaction of these inferential rules leads progressively towards the ascertainment of truth (knowledge). But to vindicate the progressiveness of science two questions require further attention. First, progress depends on the reliability of abduction, and therefore a stronger case for its trustworthiness must be provided against sceptical challenges. Second, Peirce must establish the self-corrective nature of experimental testing, on analogy with induction from a random sample.

A. The Reliability of Abduction.

It has been shown that Abduction can at best provide hypotheses that are plausible; that is, hypotheses that fit well with current beliefs, towards which we have a strong inclination to believe.³⁰ However, it also establishes that plausibility cannot be uncritically accepted as a guide to truth without lapsing into the dogmatism of the method of tenacity. Logic guarantees the intelligibility of reality if it exists and the existence of reality must be inferred as soon as we are conscious of having experiences, but these two conclusions do not entail the reliability of guessing at the truth from the point of view of human knowers firmly rooted

in space and time:

The only method by which it can be proved that a method, without necessarily leading to the truth, has some tolerable chance of doing so, is evidently the empirical, or inductive, method. Hence as induction is proved to be valid by necessary deduction, so this presumptive inference must be proved valid by induction from experience (2.786, 1902).

Whether Abduction is trustworthy is thus a matter of fact, not logic, which is to be verified by an induction on the history of ideas.

The reliability of instinctive conjectures is evidenced by the ability of agents to negotiate successfully in the world of macro objects and our ability to learn to avoid the general dangers of day to day living.³¹ Indeed Peirce believes that it is because human instincts have been shaped by the natural laws governing the macro objects that they prove to be so reliable (NEM iii, p.204, 1911). Reliance on instinct is of course not infallible, prejudice can always be taken for genuine instinct and knowers may erroneously extend their instinctive judgements into domains radically different from that in which they were formed (such as the world of very large or very small objects), but in general there is considerable evidence for the reliability of instinctive judgments as a basis for action (prediction and control). Even in domains distant in space and time or beyond the range of our perceptual faculties the history of science demonstrates that among the limitless possible hypotheses that might be conjectured, science has been directed to

increasingly more successful and accurate scientific theories:

You cannot say that it happened by chance, because the possible theories, if not strictly innumerable, at any rate exceed a trillion-- or the third power of a million; and therefore the chances are too overwhelmingly against the single true theory in the twenty or thirty thousand years during which man has been a thinking animal, ever having come into any man's head...If you carefully consider with an unbiased mind all the circumstances of the early years of the history of science and all the other facts bearing on the question... I am quite sure you must be brought to acknowledge that man's mind has a natural adaptation to imagining correct theories of some kinds... But if that be so, it must be good reasoning to say that a given hypothesis is good, as a hypothesis, because it is a natural one, or one readily embraced by the human mind (5.591-2, 1898).³²

Nothing in Logic guarantees that knowers will always be able to formulate a hypothesis to explain the phenomena, but Peirce thinks that after sufficient rumination one will emerge from the force of experience.³³ And in fact history shows us that the problem is typically one of having too many possible explanations for a phenomenon, rather than too few.

In short then, the reliability of Abduction is affirmed by the fact that it explains the surprising phenomenon of the success of science; specifically its progress to truth. It is confirmed by the fact that when treated as a hypothesis it correctly predicts the role of Abduction in a large number of cases of successful theorizing in the past.³⁴

Thus although abduction need not carry true conclusions all or most of the time, it is both essential to inquiry and "induction from past experience gives us strong encouragement

to hope that it will be successful in the future" (2.270, 1902):

it is one thing to say that the human mind has a sufficient magnetic turning toward the truth to cause the right guess to be made in the course of centuries during which a hundred good guessers have been unceasingly occupied in endeavouring to make such a guess, and a far different thing to say that the first guess that may happen to possess Tom, Dick or Harry has any appreciably greater probability of being true than false (HP 2, p.901, 1901).²⁵

Because induction is itself justified by deduction, apart from any empirical assumptions about reality and without presupposing the reliability of abduction, the justification, although empirical, is not circular:

The validity of a presumptive adoption of a hypothesis for examination consists in this, that the hypothesis being such that its consequences are capable of being tested by experimentation, and being such that the observed facts would follow from it as necessary conclusions that hypothesis is selected according to a method which must ultimately lead to the discovery of the truth, so far as the truth is capable of being discovered, with an indefinite approximation to accuracy (2.787, 1902).

B. Experimental Reasoning as Self-Corrective.

The above argument of course depends on the cognitive credentials of empirical inquiry; inquiry which for Peirce is reducible to the method of experiments. Empirical testing is a form of qualitative induction;²⁶ from a finite sample of possible trials one infers the ratio of successful outcomes to trials in the long run. However, the analogy with reasoning from samples is not exact. In particular test situations knowers are fixed in space and time and thus cannot sample from the full range of objects in a population,

nor from the full range of test situations. Knowers can extrapolate the results of inductions under these conditions only on the assumption of a homogeneous population, and the uniformity of test conditions.³⁷ The self-correctiveness of experiment seems to rely on something like a principle of uniformity, which would result once again in a circularity.

Peirce acknowledges that the assumption of uniformity is an inductive conclusion that can be known only through experience but he insists it is not required to vindicate the process of inductive testing.³⁸ For given any such extrapolation, by crude induction, then if it is false, it would be discovered as counterexamples pile up thorough the continued testing of the theory.³⁹ This too follows from logic, and from the pragmatistic maxim in particular.

Recall that a law is nothing other than the character of an infinite series of experiences.⁴⁰ Laws must be expressible as rules, or formulae, since it is only by means of a formula that one can describe an infinite series and an undescribable law is not an object of possible knowledge and therefore cannot be real [5.170; 1903]. Since the notion of a real law with a character distinct from that exemplified by the relations of its instances is incoherent, it follows that the character ordained by a law would, of necessity, be exemplified at some point by the instances subsumed under it:

For that endless series must have some character; and it would be absurd to say that experience has a character which is never manifested. But there is no other way in which the character of that series can

manifest itself than while the endless series is still incomplete. Therefore, if the character manifested by the series up to a certain point is not the character which the entire series possesses, still, as the series goes on, it must eventually tend, however irregularly, towards becoming so; and all the rest of the reasoner's life will be a continuation of this inferential process. (2.784, 1902).⁴¹

What validates the process of inductive testing is the analytic argument that the character of a population is always exemplified in some sample less than the complete set of its instances; a conclusion which "depends upon the necessary relation between the general and the singular. It is precisely this which is the support of Pragmatism" (5.170;1905).⁴²

Induction on the basis of experimental tests is not self-corrective in the same way as reasoning from random samples; it cannot be said to be correct more often than not in the long run of experience. But it is self-corrective in the sense that persistent application of the method in the investigation of any hypothesis (whether true or false) would yield the truth of the matter. Even in cases where there is no limit to the observed relative frequencies of events; that is, in cases where there is no law governing the phenomenon in question, this too will be revealed through persistent testing, and the hypothesis that the events under consideration are not nomologically related in any direct way will eventually be adopted.

Peirce's defence of empirical testing is not only immune

from the charge of circularity, but it ensures what Hegelians deny, namely that one need not know everything to know anything; that is, the epistemic limitations on individual finite knowers do not preclude the infinite approximation of collective belief to truth.⁴³

C. Science is Self-Corrective.

On the basis of the forgoing Peirce's claim that science constitutes an investigative process can now be made clear. First it should be apparent that the connection between the forms of inference and the theory of investigation presented in Chapter 3 is direct. The trio of Abduction, Deduction and Induction corresponds to the trio of initial states of beliefs (hypotheses), the actions to which they give rise (predictions) and the mediation of conflicts of beliefs and experience (experiment). Abduction provides hypotheses from which deduction derives predictions, the reliability of which is discovered by induction. Positive results support the hypothesis and lead to further testing and the extension of the theory into other scientific domains. Negative results narrow the range of possible hypotheses and provide new data which constrain the formation of new theories. Repeated testing will yield a true assessment of each hypothesis since induction is self-corrective. And, by adhering to the principles of economy to maximize epistemic payoffs, science will proceed to ever more comprehensive theories with a minimum of cost. From pure possibilities inquirers will be

led to increasingly well-confirmed hypotheses. As the data provided by inductive testing indefinitely approach (without reaching) complete enumeration, confirmation indefinitely approaches (but never reaches) deductive certainty. Thus if there is a reality and if knowers are endowed with sufficiently reliable abductive instincts then science, properly conducted and sufficiently persisted in would lead from any state of initial belief to truth. Because we are warranted in asserting the truth of the antecedent, science can be said to have progressed towards the truth and can be expected to continue to do so.

4. THE AUTHORITY AND UNIVERSALITY OF SCIENTIFIC REASON.

The foregoing makes explicit Peirce's early claim that science is superior to other methods of fixing belief because it resolves conflicts by converging on the truth. But once again it shows that scientific progress cannot be established without recourse to the results of science itself. To establish the authority of science over other methods more than the claim of progress seems to be required.

Peirce's answer to the question of what makes the scientific method authoritative and binding on knowers lies in its derivation from the Categories. That this derivation is extremely complex is admitted by Peirce himself, for he often claimed that he was not quite able to complete it.⁴⁴ But whatever its difficulties the intuition seems clear.

To begin with, as already noted, each form of inference corresponds to an element in the theory of investigation, each of which exemplifies one of the Categories. Furthermore the forms of inference correspond to the Categories interpreted as modalities; Abduction infers a "can-be" (First), Induction an "is" (Second) and Deduction a "would-be" (Third). Finally each inference form can be generated by permuting the elements of a standard syllogism; that is, a Case (First), Result (Second) and a Rule (Third).⁴⁵

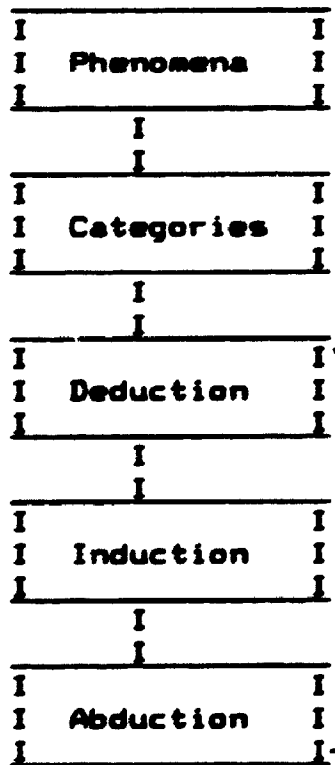
Secondly, the enterprise of science is justified as a form of social practice in a similar fashion. Logic, for Peirce, rests on the authority of higher order Normative Sciences of Ethics and Esthetics. Inquiry is a goal-directed process of belief-habit formation and evaluation. Logic is the study of the means by which this process achieves its professed end, namely truth. Logical goodness is thus a specific case of moral goodness; which for Peirce consists in the fitness of a deliberately adopted means in achieving deliberately adopted ends (5.130, 1903). The very pursuit of the end of truth presupposes identification with an indefinite community of inquirers, a willingness to surrender prejudice to the authority of evidence, faith that there is a truth to behold and that science will prevail in its discovery. Thus scientific reason presupposes an open, communal, and self-contained form of intellectual life.

The objectivity of ethics requires the evaluation of ends

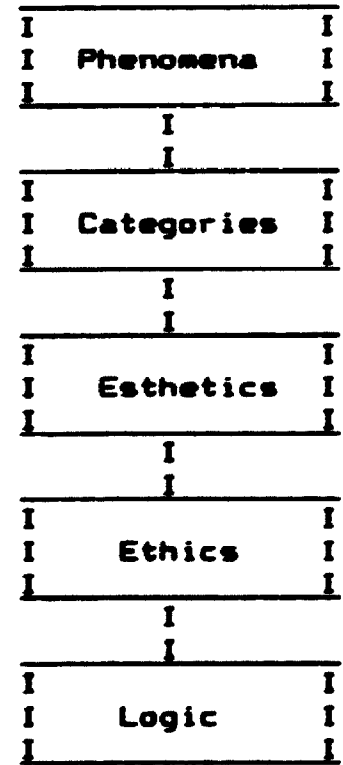
as well as means and not just in terms of further ends, but in terms of a summum bonum. The goodness of ends themselves is referred to Esthetics which provides a unitary, ultimate and universal aim which, by definition must be desirable in itself "aside from any ulterior consideration" (5.130, 1903). The only end that fulfills these criteria is reasonableness itself.

Each of these attempted reductions when ordered logically yields a hierarchical justification of science and its methods as follows:

Derivation of Methods



Derivation of Normative Sciences



The hierarchies are informative for a number of reasons.

First, reading from the bottom to the top yields the temporal order by which investigation yields progress; science leads from Abduction (possibility) to Induction (truth) on the one hand, from true belief, through rational action towards perfect reasonableness in the universe, on the other.

Secondly, reading from the top down yields a hierarchy of epistemic authority mirroring Peirce's classification of the sciences. Each component is thereby vindicated by a higher and more authoritative element. Thus the mere guesses of abduction are vindicated by induction which is demonstrated to be self-corrective by deduction.⁴⁶ Furthermore the aims of science are grounded by the larger more encompassing aim of pursuing reasonableness; science is thus the path through which as knowers humans fulfill their ultimate purpose.

The methods of science are exhaustive since the Categories are exhaustive of the elements in the universe; any putatively higher order elements can be reduced to a combination of Firsts, Seconds and Thirds.⁴⁷ They are universal, and therefore binding, since they are revealed, not empirically, but by Phenomenology; that is they are present in "whatever is present in the mind in any way" (1.186, 1903) regardless of the relationship of those presentations to reality. Therefore, at least implicitly, the Categories are "present at all times to all minds" (1.284, 1905) whether they are in fact recognized or not and as elements they are "simple concepts applicable to every

subject" (1.1, c.1898).⁴⁰ For similar reasons the list of Normative Sciences is exhaustive and universal. Therefore since Logic is the only Normative Science devoted solely to that species of action directed at attaining true belief, it is autonomous over the domain of belief, corrections to scientific beliefs must come only from more science. Any putative correction to science presupposes a method whose aim is attaining truth and is to be evaluated as such.

Thus in establishing the credentials of science Peirce avoids the charge of circularity by appealing, not to scientific discoveries themselves, but to the self-evidence of phenomenological reflection. The Categories form a:

philosophical edifice that shall outlast the vicissitudes of time...a theory so comprehensive that, for a long time to come, the entire work of human reason, in philosophy of every school and kind, in mathematics, in psychology, in physical science, in history, in sociology, and in whatever other department there may be, shall appear as the filling up of its details (1.1, c.1898).

Peirce's methods are intended as a complete theory of epistemic rationality; they are universal and exhaustive criteria of warranted belief, whether acknowledged as such or not. Insofar as the pursuit of science requires the pursuit of virtues scientific success presupposes moral success as well. The indefinite community of inquirers is united, not by contingently shared interests as the Nominalist insists, but by a common rational essence.

NOTES

1. In fact it has been shown to fail by Pinkham (1967). Each of these is discussed in more detail later, at which time the force of the criticism will become apparent.

2. Peirce says "the reasonings of mathematics are perfectly evident and have no need of any separate theory of logic to reinforce them. Mathematics is its own Logic" (NEM iv, p.37, 1902).

3. In short the sequence of observed relative frequencies is convergent on a limit. Such a series is definable as follows:

a series of values, x_1, x_2, x_3 , etc. converges toward a limiting value x , provided, after any discrepancy ϵ has been named it is possible to find one of the members of the series, x_n such that, for every value of n greater than v , $(x_n - x)^2 < \epsilon^2$. This ought to be called definite convergence. No such member x_n can, in the indefinite convergence with which we have to do, be fixed in advance of the experiment. Nevertheless, there will be some such value (7.210, c.1901).

4. As Peirce himself notes, because probabilistic reasoning makes essential reference to the long run, to base actions on such reasoning is to act on what would be successful only over the long run. Since in the long run we are all dead, to so act is to forgo selfish finitary interests and to identify with the interests of an indefinite community of inquirers. It "is not necessary for logicality that a man should himself be capable of the heroism of self-sacrifice. It is sufficient that he should... perceive that only that man's inferences who has it are really logical, and should consequently regard his own as being only so far valid as they would be accepted by the hero. So far as he thus refers his inference to that standard, he becomes identified with such a mind" (2.654, 1910). From this it follows that "no man can be logical whose supreme desire is the well-being of himself or any other existing person or collection of persons" (2.661, 1878/1910). The result is a logical refutation of the hedonism and solipsism of Nominalism.

5. As Peirce points out a series can converge on $p = 100\%$ (or $p = 0\%$) without being universal. If there is a fixed, finite number of counterexamples to the law it would not be universal and yet the observed relative frequencies of events

under this law would still indefinitely approximate 100% (or 0%); (of course, while the mathematics is sound the metaphysics maybe somewhat bizarre). In the case of a universal law the observed relative frequencies would never be other than 100% (or 0%) (1.141, c.1897).

6. Peirce's terminology is not consistent here. He sometimes refers to the first of these forms of deduction as Statistical Deduction and the second as Probable Deduction proper (2.267, 1903). That usage will not be followed here.

7. These constraints also apply to induction as will be noted later. They are discussed in detail by Cheng (1970, p.39-53) and Goudge (1950, p.159-63). See also (2.735-40, 1893; 2.788-90, 1902).

8. In accepting the premises while denying the conclusion "though he might not directly deny anything stated explicitly in the copulate premiss... yet he would deny the reality of a state of things the reality of which had been affirmed, though perhaps not in one sentence, yet in the copulate premiss taken in its entirety" (NEM iii, p.180, 1911).

9. The conclusion is approximate since the number of samples with a distribution exactly equal to the population is small, but this number increases as the permissible bounds on p increase; that is the probability that the proportion of the sample will fall within ϵ of p increases with ϵ . See Cheng (1970, p. 20-8).

10. The discussion of the validity of Quantitative induction in this section owes much to Cheng (1970), Levi (1980) and Pinkham (1967).

11. In fact for Peirce induction "is the only way there is of assuring oneself of the real truth beyond what direct perception furnishes" (NEM iii, p.189, 1911). "It essentially refers to a course of experience, or at least of real events; because mere possibilities are not capable of being counted" (5.169, 1903).

12. "The first step toward a comprehension of Logical Critics must be the recognition of the gulf which separates Deduction,-- exemplified on the one hand in the reasoning from the recognition of a character of a chemical species to the recognition that that character must belong to any specimen known to belong to that species, and on the other hand the reasoning from the fact that the character belongs to the specimen either to the conclusion that the same character belongs to the whole species or to the conclusion that the specimen belongs to the species" (NEM iii, pp.179-180, 1911).

13. For further examples of criticisms of Laplace based on this line of argument see (NEM iii, p.187, 1911). See also Goudge (1950).

14. Peirce says that in the case of crude induction the condition of self-correction is "most imperfectly fulfilled... For here the unexpected, when it comes, comes with a bang. But then, on the other hand, until the fatal day arrives, this argument causes us to anticipate just what does happen and prevents us from anticipating a thousand things that don't happen" (2.751 n1, 1902). "In short this rudimentary kind of induction is justified where there is no other way of reasoning; but it is of all sound arguments the weakest and must disappear as soon as any positive evidence is forthcoming" (7.113, 1902). See also (7.215, 1901).

15. For ease of exposition "induction" means quantitative induction for the remainder of this section, unless otherwise specified. But as both quantitative and qualitative induction rely on sampling, the argument for their validity is virtually the same. There are important differences between these two types of induction, however these are well catalogued in Goudge (1950, pp.158-9) and need not detain us here. See also (7.216f., 1901).

16. "In the case of analytic inference we know the probability of our conclusion (if the premisses are true), but in the case of synthetic inferences we only know the degree of trustworthiness of our proceeding" (2.693, 1883).

17. Peirce states that the key feature of his case is that it "does not depend upon any assumption that the series will be endless, or that the future will be like the past, or that nature is uniform, nor upon any material assumption whatever" (2.784, 1902).

18. Of course even the inference that there is a reality does not imply that for every phenomenon in question there is a law which constitutes the truth about the phenomenon. In any one instance "all that Logic warrants is a hope and not a belief... when we discuss a vexed question, we hope that there is some ascertainable truth about it, and that the discussion is not to go on forever and to no purpose" (2.113, 1902). "We can calculate mathematically and therefore deductively... though not precisely, yet within certain limits of accuracy... that ratio" (HP 2, p.878, 1900).

19. On this point see also Skagestad (1981, pp.176-81).

20. "That is, pragmatism proposes a certain maxim which, if sound, must render needless any further rule as to the admissibility of hypotheses to rank as hypotheses, that is to

say, as explanations of phenomena held as hopeful suggestions..." (5.196, 1903). "The presumptive conclusion is accepted only problematically, that is to say, as meriting an inductive examination. The principle rule of presumption is that its conclusion should be such that definite consequences can be plentifully deduced from it of a kind which can be checked by observation..." (2.787, 1902). "A verifiable hypothesis is one which presents an abundance of necessary consequences open to experimental tests, and which involves no more than is necessary to furnish a source of those consequences" (7.89, 1902). See also (7.220, 1901; 1.120, 1901).

21. Logical simplicity is usually explicated in terms of Ockham's razor, intuitiveness is simply initial plausibility in light of current beliefs. Both are discussed in detail by Goudge (1950) and Reilly (1970).

22. A much more extensive discussion of Peirce's economy of research is available in Goudge (1950, pp.195-203), Rescher (1978, pp.30-39 and pp.65f), Fann (1970, pp.47f) and Reilly (1970, pp.38f).

23. Abduction "proves nothing but the ingenuity with which the hypothesis has been adapted to the facts of the case. To take this for Induction, as a great proportion of students do, is one of the greatest errors of necessary reasoning that can be made" (7.114, c.1902).

24. "The mode of suggestion by which, in abduction, the facts suggest the hypothesis is by resemblance,-- the resemblance of the facts to the consequences of the hypothesis" (2.219, 1901).

25. "All that experiment can do is tell us when we have surmised wrong. The right surmise is left for us to produce" (7.88, 1902). See also (2.270, 1902; NEM ii, p.203, 1911).

26. In other words, "the conclusion is accepted as having some chance of being true, and as being put in such a form as to suggest experimentation by which the degree of its truth can be ascertained...[but its] conclusion is accepted only problematically, that is to say, as meriting an inductive examination" (7.786, 1902). Furthermore "it can never be justifiable to accept the hypothesis otherwise than as an interrogation. But as long as that condition is observed, no positive falsity is to be feared" (6.529, c.1901).

27. Abduction presupposes that things are intelligible to knowers like us, "that the facts in hand admit of rationalization. We are therefore bound to hope that, although the possible explanations of facts may be strictly

innumerable, yet our mind will be able, in some finite number of guesses, to guess the sole true explanation of them. That we are bound to assume, independent of any evidence that it is true. Animated by the hope, we are to proceed to the construction of a hypothesis" (7.219, 1901). See also (7.220, 1901; 1.80-1, 1896; 1.609, 1903; HP 2, p.903, 1901).

28. It is only like abduction, since it is not voluntary and cannot be subjected to criticism which are Peirce's two defining characteristics of inference. Nonetheless Peirce says that abduction and perception are continuous and that the one shades into the other (5.182, 1903).

29. See also (5.172, 1903; 5.602, 1903).

30. "By a plausibility I mean the degree to which a theory ought to recommend itself to our belief independently of any kind of evidence other than our instinct urging us to regard it favorably" (8.223, c.1910).

31. "It is evident that unless man had had some inward light tending to make guesses on these subjects much more often true than they would be by mere chance, the human race would long ago have been extirpated for its utter incapacity in the struggle for existence..." (HP 2, p.901, 1901).

32. Of guesses Peirce says that "the frequency with which that turns out to be an actual fact is to me quite the most surprising of all the wonders of the universe" (8.232; 1910).

33. He does say that "it remains true that there is, after all, nothing but imagination that can ever supply him with an inkling of the truth. He can stare stupidly at phenomena; but in the absence of imagination they will not connect themselves together in any rational way... for thousands of men a falling apple was nothing but a falling apple; and to compare it to the moon would by them be deemed 'fanciful'" (1.46, c.1896).

34. Peirce's favourite example of abductive inference is Kepler. See (1.80, c.1896) and the numerous articles discussing Kepler in (HP volumes 1 and 2).

35. The quote continues, "It is necessary to remember that among the swarms who have covered the globe, there have not been above three individuals, Archimedes, Galileo, and Thomas Young whose mechanical and physical guesses were mostly correct in the first instance. It is necessary to remember that even those unparalleled intelligences would certainly not have guessed right if they had not all possessed a great art of so subdividing their guesses as to give each one almost the character of self-evidence".

36. Peirce says it is qualitative since predictions are not units, and therefore are not enumerable, and furthermore the success of predictions must be weighted since novel predictions are considered more important than the reoccurrence of events which led to the adoption of the hypothesis in the first place. These are precisely the characteristics of qualitative induction. See Fann (1970, p.33) and (2.759, 1905; 7.114-21, 1902; 8.233, 1910; 7.210, 1901; 7.233, c.1910).

37. For this reason Peirce at one point calls this process gradual induction (6.473, 1908).

38. Peirce does acknowledge "of course where we are confident (by induction) of a direct connection between clusters of properties we can be confident of our extrapolations. But here the generality assists induction, it does not ground it however (NEM iii, pp.202-3, 1911). See also (1.141, c.1897).

39. Peirce writes, "this is certainly very weak justification; and were it possible to dispense with this method of reasoning, I would certainly not recommend it [abduction]" (7.111, 1902). See also (7.215, 1901) for the importance of crude induction in scientific testing.

40. Recall that though the categories are distinct and irreducible, they are not separable; higher order categories depend on lower order categories. Since, therefore, there can be no thirds without seconds laws are not separable from their instances. Just as an equation is empty without a specification of its variables a law separated from its instances is indefinite and to that extent unreal.

41. Peirce reiterates this argument in the following way: "What I mean is that if there be a series of objects, say crosses and circles, this series having a beginning but no end, then whatever may be the arrangement or want of arrangement of these crosses and circles in the entire endless series must be discoverable to an infinite degree of approximation by examining a sufficient finite number of successive ones beginning at the beginning of the series. This is a theorem capable of strict demonstration. The principle of this demonstration is that whatever has no end can have no mode of being other than that of law, and therefore whatever general character it may have must be describable, but the only way of describing an endless series is by stating explicitly or implicitly the law of succession of one term upon another. But every such term has a finite ordinal place from the beginning and therefore if it presents any regularity for all finite successions from the beginning, it presents the same regularity throughout. Thus the

validity of induction depends upon the necessary relation between the general and the singular. It is precisely this which is the support of Pragmatism" (5.170, 1905).

42. Peirce elsewhere writes that, "the justification for believing that an experimental theory which has been subject to a number of experimental tests will be in the near future sustained about as well by further such tests as it has hitherto been, is that by steadily pursuing that method we must in the long run find out how the matter really stands. The reason that we must do so is that our theory, if it be admissible even as a theory, simply consists in supposing that such experiments will in the long run have a certain character" (2.170, 1903). And finally, "its justification is that if the prediction does not tend in the long run to be verified in any approximately determinate proportion of cases, experiment must, in the long run, ascertain this; while if the prediction will, in the long run, be verified in any determinate, or approximately determinate, proportion of cases, experiment must in the long run, approximately, ascertain what that proportion is" (2.269, c.1897).

43. It also rebuts the Platonist who holds that generals are separable from their instances, and thus refutes the claim that there can be laws that are not objects of possible experience. Such laws would be noumenal; and are thus the assertion of their existence is meaningless.

44. "Unfortunately, I am unable to make this [derivation] as evident as would be desirable, although I think there is very little room for doubting it..." (7.98, c.1910). "I am unable yet quite to prove that the three kinds of reasoning I mean are the only kinds of sound reasoning; though I can show reason to think that it can be proved, and very strong probable reasons for thinking that there is no fourth kind" (NEM iii, pp.177-8, 1911).

45. For example each is of the following form (2.623, 1878):

Deduction: Rule	Induction: Case	Abduction: Rule
<u>Case</u>	<u>Result</u>	<u>Result</u>
∴ Result	∴ Rule	∴ Case

46. "From the first type [of reasoning] to the third the security decreases while the uberty [i.e. the productiveness of the method] as greatly increases" (8.387, 1913).

47. "[I]n the course of a very long life of active study of reasonings... if I had ever met with an argument not of one of these three kinds, I must certainly have perceived it.... Therefore, it may be taken as substantially certain that I have never in 50 years met with a reasoning of any fourth

type... and if anybody in the civilized world had found such an argument, I should have heard of it" (7.98-9, c.1910).

48. In response to James's praise of the originality of the Categories Peirce writes, "It rather annoys me to be told that there is anything novel in my three categories; for if they have not, however, confusedly been recognized by men since man began to think, that condemns them at once. To make them as distinct as it is in their nature to be is, however no small task" (8.263, 1903).

CHAPTER V - THE RELEVANCE OF PRAGMATICISM.

1. INTRODUCTION.

It has been argued that Peirce presents a view of rationality which recognizes the fact that science is historically situated, culturally conditioned and fallible, yet capable of rational vindication as a knowledge-producing institution. The centrepiece of Peirce's view is the claim that science is self-corrective. This in turn rests on three theses; the reliability of abduction, the self-correctiveness of experimentation and the categorical grounding of the method: and practice of science.

In this chapter each of these theses is examined. It is argued that Peirce's view of truth and inquiry, even by its own lights, fails in its attempt to reconcile the immanence and the transcendence of scientific reason. The resulting tension yields consequences with which Peirce should not be comfortable.

It is further argued that recent attempts to resurrect Peirce's pragmatic realism are not immune from these tensions. On this basis it is concluded that Peirce's problems remain, and in some cases are amplified, even when some of his more controversial views are amended.

2. PROGRESS AND THE PROBLEM OF INDUCTION.

In his discussion of Peirce's methodology Laudan

formulates the thesis that science is self-corrective (SCT), as follows:

- (1) Scientific method is such that, in the long run, its use will refute a false theory;
- (2) Science possesses a method for finding an alternative T' which is closer to the truth than a refuted theory (Laudan 1981a, p.229).

Laudan blasts Peirce for failing to establish that the methods of science fulfill these criteria. He charges that although Peirce may have been successful in the case of quantitative induction, he offered no arguments to support the claim for the other kinds of induction or for the other forms of inference. He intimates that Peirce surreptitiously slides from claiming success in the quantitative case, to claiming success in every case and thence to claiming that science in general is self-corrective.

By now it should be clear that Laudan demands too much. Peirce thinks that science is self-corrective because induction is self-corrective; and that this is sufficient since only induction determines matters of fact. If induction alone can ensure that science would converge on the truth then Peirce need not show other forms of inference are also self-corrective. Nor in failing to do the latter does Peirce commit himself to the view that "science is self-corrective... because all the methods of science can be reduced to enumerative induction" (Laudan 1981a, p. 243) for induction can be applied to new techniques of investigation as well. These techniques can be calibrated, in the manner

of scientific instruments, by inductive testing, provided the test does not presuppose the method in question. The method of tenacity is determined to be invalid in precisely this fashion.² What is more, in the "Fixation of Belief", Peirce recognizes that scientific methods have developed in conjunction with scientific theories and that "each chief step in science has been a lesson in logic" (5.363, 1878).

This monitoring role of induction has been pointed out by Rescher (1978). Recognizing further that Peirce does not hold thesis (2) above, Rescher claims that Peirce does accept Laudan's weaker formulation of SCT. In that version (2) is replaced by:

(2') Science possesses techniques for determining unambiguously whether an alternative T' is closer to the truth than a refuted T (Laudan 1981a, p.246 n9).

The required criterion of progress, according to Rescher, is predictive success; which can be expressed as a ratio of successful applications of a theory to total experimental trials. Such a ratio will take values from 0, in the case of complete failure, to 1 in cases where the theory is correct, and thus serve as a quantitative measure suitable for evaluating competing theories. Writes Rescher:

Scientific progress is preeminently the change of adopted theories, and statistical controls can be used both (1) to determine that an improvement is necessary at this level (because the old theories are no longer 100 percent effective), and (2) to determine whether a proposed or supposed improvement is a real improvement (actually or probably) (Rescher 1978, p. 12).

Therefore the criterion of prediction and control "provides an implicit and immanent standard of scientific progress, and a very reasonable one at that" (Rescher 1978, p.17).

This approach is of interest not only because it saves Peirce from Laudan's charge but because predictive success is widely accepted by philosophers of science as perhaps the only universal criterion of progress in the natural sciences.² However, it is by no means free from problems.

To begin with, predictive success is not a universal standard of cognitive progress. Biology and the social sciences have contributed to human understanding despite their failure to develop robust laws. It is not obvious that these sciences would become irrational were it possible to prove that biological or cultural phenomena could never be reduced to the laws of the physical sciences. Furthermore, as Habermas (1968, pp.161-86) points out against Peirce, the scientific method does not even do justice to the way scientists understand and communicate with themselves; hermeneutic considerations and methods are crucial to the understanding and explanation of the practice of scientists.

Even ignoring these contemporary considerations, it is not obvious that Rescher's solution is even acceptable to Peirce. It is clear that for Peirce truth entails perfect predictive success; in fact the two are synonymous. But, at any time short of the ideal limit, predictive success does not license an inference to the truth of a theory; nor does

Peirce ever state otherwise.

First, because time is continuous, possible experimental trials are not strictly enumerable, thus the actual probability of a theory cannot be precisely determined. Similarly not all predictive successes are created equal; novel predictions are accorded more weight than the reoccurrence of results that led to the formulation of the theory in the first place. In Peirce's words, testing is a matter of qualitative, not quantitative induction. As the novelty of a prediction is a theory-relative notion, much more needs to be said before predictive success provides an unambiguous criterion of intertheoretic evaluation.⁹

More importantly Peirce recognizes that even if the observed relative frequency of predictive successes is 1 at a particular time this does not permit us to infer the truth of the theory. Since no finite segment of actual trials can exhaust the domain of events governed by a law (a "would be"), at each point in time there remains an infinite amount of future time in which an indefinite number of trials relevant to the testing of the theory is possible. Peirce's justification of induction vindicates only the repeated use of the method, not any particular inductive conclusion. While Logic establishes that induction will eventually lead to the truth (if there is one), it cannot determine when testing has gone far enough. Even if the observed relative frequency of trials appears to converge, there is no way to

determine whether this is a chance result, whether the results represent only an initial segment of a more complex experiential series, or whether in fact it is due to a convergence on the truth. All that can be said is that if the theory in question is true then the observed relative frequency will continue to oscillate around the current value and if not then it would change at some point, but only further testing can reveal which of these is the case.

Therefore the determination of the status of even correctly drawn inductive conclusions is not just in doubt but in fact beyond the scope of any available evidence. In any situation, short of the limit of inquiry, the truth of an inductive conclusion cannot be determined in advance of further testing. The most that induction can establish is, in Peirce's words, the verisimilitude or likelihood of a hypothesis (8.224, c.1910). Here "likely" does not mean likely to be true, but rather that the hypothesis resembles the actual truth in so far as it yields correct predictions:

By verisimilitude I mean that kind of recommendation of a proposition which consists in evidence which is insufficient because there is not enough of it, but which will amount to proof if that evidence which is not yet examined continues to be of the same virtue as that already examined, or if the evidence not at hand and that never will be complete, should be like that which is at hand. All determinations of probability ultimately rest on such verisimilitudes (8.224, c.1910).

To infer the truth of a theory from its versimilitude is to make a crude induction that the hypothesis tested thus far will survive further tests (8.235, c.1910). But as we have

seen crude induction is justified only by virtue of the fact that if it is wrong it will be found to be so. Crude induction is not only the logically weakest form of support for an hypothesis, it has proven unreliable in the history of science itself:⁴

Retroduction goes upon the hope that there is sufficient affinity between the research mind and nature's to render guessing not altogether hopeless, provided each guess is checked by comparison with observation. It is true that agreement does not show the guess is right; but if it wrong it must ultimately get found out (1.120, 1903).

Peirce's wariness of such inductions is well supported by the history of science. Laudan (1981b) has argued persuasively that predictive success is not a reliable indicator of truth. There are important cases in which successful theories have proven to be false; indeed success does not even demand that the entities posited by theories actually exist. The same appeal to history by which the claim to science's increasing predictive success is established tells against adopting predictive success as evidence of progress to truth.

This leaves Peirce with two alternatives. On the one hand if predictive success is accepted as a criterion of scientific progress, then he is forced to separate the notion of progress from the notion of truth and to deny that progress provides warrant for the claim that science is approaching the truth.⁵ On the other hand insisting that progress means progress to truth forces him to deny that inductive success at a particular time provides evidence for

scientific progress. The most we can say is that if science is not progressing then current results will be discovered to be false and that progress would result from continued investigation, although it is not known when.

Since for Peirce scientific rationality demands deferment to the limit of inquiry he must reject the former alternative. And although Peirce seems more than willing to accept the latter horn of this dilemma this leaves him no way to bridge the gap between current science and truth. Peirce needs the strong claim of progress to truth to vindicate abductive inferences as reliable over the long run (7.220, 1901). Yet, given the above analysis, we cannot be sure, or even warranted in believing, that progress has occurred, much less that reliable abduction explains this occurrence. The result is a greater role for faith in the ultimate verdict of science and the existence of truth than Peirce seems to acknowledge. Truth becomes a mere regulative ideal which can do no work in the evaluation of the cognitive merits of hypotheses at any given stage of inquiry. With no way to bridge the gap between current science and truth Peirce has no resources to ensure that science has succeeded or is capable of doing so. The intelligibility of science is left to rest on the rather weak claim that total scepticism is not a live option for agents.

3. THE ANTINOMY BETWEEN THEORY AND PRACTICE.

Peirce's inability to vindicate conclusions at particular stages of inquiry is often cited as a flaw in his solution to the problem of induction.⁴ But in fact it cuts much deeper; the argument reveals a more pervasive tension in Peirce's attempt to accommodate the immanence and the transcendence of epistemic authority.

The difficulty at issue can also be formulated in terms of Peirce's account of action and belief; the very core of the theory of investigation. Recall that belief carries a commitment to truth, and that beliefs are defined as those conceptions upon which an agent is prepared to act. According to Peirce's account of methodology, inductive inferences are warranted, not because there is (even fallible) good reasons to think them true, but rather only because they will be replaced if incorrect, at some unknown (and unknowable) point in the future.

But these two views pull in opposite directions. The closer the concept of rational belief is tied to action, the less the relevance of scientific inference to belief in concrete historical situations. The closer the connection between rational belief and truth, the less is scientific practice intelligible as an historically conditioned social practice and the more are scientists cast as ahistorical spectators rather than situated agents. In fact Peirce, at different times, seems to embrace both horns of this dilemma. In a letter to William James he writes that crude induction:

is a kind with which we cannot dispense in science and still less in practical matters (-- in science because practical considerations enter into scientific reasoning unavoidably) (NEM iii, p.874, 1909).

Since beliefs are that upon which agents act, it would seem that belief formation is inescapable in science. Yet elsewhere Peirce moves to the other extreme and claims "belief has no place in science at all" (1.620, 1898). This latter view is not only at odds with his earlier theory of inquiry but it seems to reinstitute a strong separation between action and knowledge, theory and practice, that pragmatism was designed to overcome. Thus neither horn of the dilemma is a particularly happy one for Peirce to adopt.

4. THE IMMANENCE OF REASON & THE TRANSCENDENCE OF AUTHORITY.

It should be no surprise that the tension that occurs at the levels of inquiry and Logic arises at the level of the categories. Recall that the universality of the categories ensures their authority as formal constraints on lower order scientific and metaphysical theory, that are binding on all knowers.

Granting the existence of such categories, which is controversial enough given recent anthropological and historical data, it is clear that their status as universals is at odds with their instantiation in particular historical interpretations. To the extent they are present in all thought the categories cannot adjudicate between competing

conceptions in different historical epochs. For example, the concept of law in its most general form encompasses the conceptions of Aristotle, Newton and Maxwell; in fact it is this generality that underwrites its universality. However, the more definite we take the notion of law the more its universality is in question and the closer its linkage to specific, historically conditioned and fallible theories of the world. In short, the looser the fit between concepts and conceptions, the less meaningful are the constraints imposed by the categories; the tighter the fit, the weaker the force with which Peirce's construals can be claimed to be universal and authoritative.

It is open to Peirce to demonstrate that his interpretation of the categories has the required authority, but it is not clear he has the resources to do this. The only test of phenomenological results is that they will be seen to be self-evident by anyone who carefully and honestly reflects on the elements of experience. Yet because such analysis is difficult (one can always mistake contingent prejudice for self-evidence) the results of phenomenology are fully fallible. Though he concedes that he too might be deceived by contingent distorting historical influences, Peirce's claim to have it right means that his is a privileged account of the categories which corrects centuries of past failed attempts. However, since Phenomenology is prior to empirical science, there is no empirical way to test

Peirce's reliability on this score. The most he can offer is an account of natural and human phenomena that renders his list of categories plausible, and that agents will be compelled to acknowledge through their own phenomenological ruminations. But this establishes no more than the coherence of the categories with the fallible science of his day; the truth of which not even induction can vindicate.⁷ Once again there is no way to bridge the gap between belief in specific contexts and the ultimate standard of truth. Thus the very foundation of science is reduced to a faith in reason and the incoherence of global scepticism.

5. PROGRESS AND EVOLUTION; THE DEFENCE OF ABDUCTION.

At times Peirce seems to propose a further vindication of science; namely through appeal to the teleological and controlling mechanisms of evolution. Peirce explains the ability of knowers to discern the laws of nature by the fact that human cognitive instincts have been shaped by those laws. The adaptation of mind to nature that results renders knowers (to varying degrees) reliable instruments of knowledge. The natural light of reason is not an innate intuitive faculty, but a set of instinctive belief-habits shaped by nature itself; the reliability of which is evidenced by the ability of humans to learn and to survive. By actively searching for relevant phenomena which are then passively recorded in inductive tests, the evolutionary

process by which nature selects beliefs and hones the ability to discern and apply scientific methods can in fact be speeded up.

Therefore Inquiry holds promise of success since it has a determinate and universal form, which when combined with the determinate matter contributed through the force of experience, will ultimately yield a reasoned consensus equivalent to truth. If past scientific successes are traceable to the correct use of a common method and if new science differs only in the range of and number of phenomena discerned, and in the ability to unify, and extend the scope of scientific theories then science can be seen to be cumulatively progressing.

This view is also at odds with recent history of science which has cast doubt on the notion that there is a universal method of science. There is considerable evidence of a multiplicity of incommensurable styles of reasoning that constrain even observation and experiment. Science appears to develop in fits and starts, with deep theoretical discontinuities at odds with the thesis of linear accumulation.²⁵

Similarly, Peirce's appeal to evolution fails to stand up under contemporary scrutiny. His reduction of history to evolution omits culture as a key explanatory mechanism. It is clear now that there is no simple correspondence between cultural forms and species, or racial types. Furthermore

cultural legacies evolve much more rapidly than biological legacies; and cultural differences are often far more dramatic than biological ones. Finally, cultures interact with nature to produce and shape the environment in which knowers develop. Institutions play a much more direct role in selecting, strengthening and favouring traits, practices and talents than the forces of adaptation to natural environments.* Thus the attempt to place cultures on a single, naturalized, trajectory of cognitive development by appeal to the causal influence of evolution alone fails. Peirce cannot vindicate the science of his day merely by its position as the most recent episode in the history of human development.

But once again we need not go outside Peirce's own philosophy to reveal problems with his view. First, the theory of evolution is itself an inductive product which does not get around the problem of warrant described above. But more importantly, Peirce himself recognizes that there is no logical or empirical guarantee that instincts will be reliable outside the domain in which they were formed. Given the scope of phenomena outside the limited range of these instincts (such as those distant in space and time) to which theories are vulnerable it is not clear that evolution can guarantee progress to truth; the available evidence at a given time cannot determine whether or not the current level of adaptive success represents only a local optimum rather

than the truth. Once again the gap between success and truth remains unbridged and the assessment of theory remains beyond the range of available evidence.

6. UPDATING PEIRCEAN REALISM: JARDINE AND PUTNAM.

Peirce's realism encompasses a semantic component and an empirical component. The former articulates a conception of what it is for a theory to be true, the level of commitment in claiming truth, and an account of what cognitive progress means. The latter addresses the evidence for claiming that truth has been attained or that progress has been achieved.

Recently Hilary Putnam (1981) and Nicholas Jardine (1986) have exploited key features of Peirce's realism to vindicate both claims. Unlike Peirce, Jardine and Putnam reject the categorical framework and the historiographical claims that it is intended to support. History does not show evidence of a linear accumulation of truth, nor is there evidence of convergence on a single all-encompassing theory. There is neither a fixed agenda of scientific questions, nor a universally valid method of scientific inquiry. Rather styles of reasoning emerge and evolve within particular social-epistemic traditions and there is a plurality of both styles of reasoning and traditions in the ancestry of modern science.

Despite these differences both Putnam and Jardine, along with Peirce, endorse a limit theory of truth and deny the

intelligibility of metaphysical realism. Both agree that the content of beliefs cannot be separated from the styles of reasoning by which they are determined. They therefore reject the notion of a perspective-free conception of truth. Finally, they agree that theories are to be interpreted literally, that the aim of science is truth and that truth (though not independent of all standpoints) is independent of the nature and standpoint of particular types of inquirers; relativism must therefore be rejected.

A. PUTNAM'S INTERNAL REALISM.

Putnam's intuitions about truth stem from his earlier work on reference and natural kinds. Despite the fact that there has been a number of different conceptions of the nature of substances such as water it is nonetheless intelligible to speak of the discovery of the nature of water by modern science. Such a claim implies that though scientists of the past made different claims about water, they were nonetheless referring to the same thing currently known as water. But because current science offers robust explanations of its properties it is claimed with some confidence that more is known about water than in the past and that its nature has been correctly discerned. Putnam acknowledges that the fact that water has been singled out as a separate class of entities reflects human interests; classification schemes depend on criteria of relevant similarities used to sort things in the world. But within

the context of those practices, it makes sense to say that the nature of water is (roughly) H_2O ; and that earlier theories of water were simply incorrect. Of course current theory is subject to revision; one can imagine circumstances in which it might have to be altered or given up but should this occur this would mean that current science had been wrong about water not that it had been discovered that there was no such thing as water, or that scientists had not been speaking of anything. To consider the sorts of reasons that would force a change in the conception of water suggests that it at least makes sense to talk about which among the possible water theories is true.

With considerable qualification, Putnam extends this analysis to the case of rationality. The chief disanalogy is that the problem of rationality is much more complicated than that of water. It seems unlikely that science will develop powerful generalizations which are obeyed by all instances of rational behavior. As a result, any conception of rationality is likely to be limited in scope and highly controversial; it is not to be expected that there will be the same level of consensus or convergence on a theory of rationality that has been attained in the theory of water. But for Putnam, this does not force us to abandon the search for a theory of rationality, or to deny reason exists. The complexity of rationality is an important discovery; one of which any adequate theory must take account. The difficulty

of the task and the failure to complete it thus far is no argument that the task is senseless.¹⁰ In fact the ability to understand different conceptions of rationality and debate their merits as conceptions of rationality presupposes an object of debate:

Is there a true conception of rationality, a true morality, even if all we ever have are our conceptions of these?... the very fact that we speak of our different conceptions as different conceptions of rationality posits a Grenzbegriff, a limit-concept of the ideal truth (Putnam 1981, p.216).

Thus truth for Putnam is what ideally rational humans would accept; "objectivity and rationality humanly speaking are what we have; they are better than nothing" (Putnam 1981, p.53).

Of course no claim to progress follows from this view alone. The posit of an ideal perspective does not serve to vindicate the current perspective to any degree. Even if reliance on our present lights commits us to the claim of truth under idealized epistemic conditions, we cannot assume that warrant in terms of current criteria entails truth. Therefore it is not clear by what authority Putnam can claim that scientific progress can be construed as progress to the truth; that rationality by our lights can be taken as indicative of ultimate rationality.

Putnam himself admits that:

We cannot really attain epistemically ideal conditions, or even be absolutely sure that we have come sufficiently close to them. But frictionless planes cannot really be attained either, and yet talk of frictionless planes has 'cash value' because we

can approximate them to a very high degree of approximation (Putnam 1981, p.55).

But this only lands him in the Peircean dilemma. The more abstract the notion of the limit, the more we are in the dark about our progress towards it. The more closely the limit is tied to specific practices of evaluation, the more it is rooted in the particular standpoint of fallible, historically conditioned and epistemically limited knowers. As Okruhlik points out:

We know in what ways a frictionless plane differs from those of ordinary experience and we can tell when we are approximating a frictionless plane more or less closely. But on Putnam's account we don't know in what ways rational acceptability in the epistemic, ideal limit differs from rational acceptability by our present lights; and we can't know whether we are approximating the ideal limit or not. This is because theories of rationality themselves are subject to change and evolution (Okruhlik 1984, p.693).

Of course at times Putnam wants only to vindicate the process of theoretical criticism itself. Since members of every culture must act in the world they must have beliefs and methods of determining and evaluating those beliefs. Thus even if we do not have access to the final theory of cognition, Putnam can claim that it makes sense to subject the methods of other cultures to criticism in light of current evidence. But since criticism must proceed without access to ideal epistemic conditions, once again, as in the case of Peirce, this means that the limit is a wheel that does no work in the mechanism of theoretical criticism. As Rorty charges:

what is such a posit supposed to do, except to say that from God's point-of-view the human race is heading in the right direction? Surely Putnam's "internalism" should forbid him to say anything like that... Positing Grenzbegriffe seems merely a way of telling ourselves that a non-existent God would if he did exist, be pleased with us (Rorty 1986, p.10).

B. JARDINE'S HISTORICAL DEFENCE OF PROGRESS.

Although Putnam, unlike Peirce, provides little in the way of a characterization of ideal epistemic conditions, Nicholas Jardine offers a somewhat more detailed discussion. What is more, he attempts to defend the claim to scientific progress, which Putnam has yet to do. Jardine's limit theory is based on extrapolations from features and processes prevalent in the development of science; such as, the uncovering sources of error, the resolving and dissolving of questions, and the occurrence of both assimilation and domination of divergent traditions of inquiry.

For Jardine S is true in an infinite temporally indexed series of theories (or, inquiry series for short) if and only if there is a stage in the series beyond which every subsequent theory contains S. S is true simpliciter if there is an absolute inquiry series (an AIS) in which S is true.

An AIS is an inquiry series which is (i) infinitely transcendent of error (from the standpoint of the AIS there are no ineluctable sources of error); (ii) infinitely resolute of questions (there are no questions well-posed from the standpoint of the AIS, that are not either dissolvable or answerable; and, (iii) absolutely dominant of

all other inquiry series (the AIS explains away (in its own terms) all disagreements over the verdicts assigned to questions (as well-posed or not or as answerable or not) with rival series, while the converse is not true of the rivals). Condition (i) captures the intuition that truth implies freedom from error, (ii) that truth is independent of the nature and standpoints of particular kinds of inquirers, and (iii) that what is true in one AIS is true in all AIS's. This follows from the definition. Any AIS can explain away any divergence from any other inquiry series and yet cannot be explained away from the standpoint of any such divergent series. To have two divergent yet absolute inquiry series each would have to dominate the other and each must be undominated by the other, per impossible.

To account for questions with determinate, yet for humans undeterminable, answers Jardine insists that the notion of an AIS involves both infinite protraction in time and unlimited evidence-gathering capacity. Thus an AIS, like the limit of Peirce and Putnam, is a conceptual idealization, not necessarily a humanly accessible bit of space-time.¹¹

Based on his definition of truth Jardine's argues that science shows evidence of an accumulation of truth; the key feature of the case is its appeal to historical evidence.¹²

Two direct strategies for establishing progress, somewhat reminiscent of Peirce, are rejected by Jardine. First, he does not argue that human scientific inquiry has generated

the initial segment of an AIS, since humans do not have unlimited evidence-gathering capacity. Second, Jardine is careful not to appeal only to the standards of current science as criteria of rational progress for this presumes the authority of those standards without establishing their authority.

Instead Jardine develops an indirect case consisting of three steps. First, arguing by induction on the history of science Jardine claims that (1) a human inquiry series indefinitely prosecuted under optimal conditions (an IHS) would show all the features of an AIS except the infinite resolution of singular questions.¹³ It is then claimed that (2) despite this difference, an IHS would be sufficiently similar to an AIS that it can still be claimed that what is true from the standpoint of an IHS would be true from the standpoint of an AIS. Finally, it is argued, again by induction on the history of science, that (3) the progress apparent from the current standpoint of science would be apparent from the standpoint of an IHS and therefore, by claim (2), would be apparent from an AIS. Therefore science shows an accumulation of truth. In short then, human truth is equivalent to absolute truth, evidence of progress now would be vindicated in the human limit and therefore in the absolute limit. Thus science has progressed to truth.

Claim (2), the congruity of an IHS and an AIS is established by a two-stage extrapolation on the history of

science. Imagine a temporally indexed series of histories of science culminating in a history told from the current point of view. It is to be expected that later histories would expand upon and revise both the factual and evaluative claims of earlier ones. What was taken as progressive in the middle ages might well fail to seem progressive in the nineteenth century. Nonetheless, Jardine suggests it is reasonable to expect that a substantial part of the earlier histories would also be preserved in later histories. From this continuity Jardine extrapolates to the general claim that a substantial portion of what appear to be successes from our current standpoint would likely appear as such from the standpoint of an IHS. If this is correct then the processes (though not necessarily any particular scientific results) typical in the creation, criticism and evolution of theories can be reliably used to characterize an IHS. Thus the metahistorical induction justifies the move from cases of successive posing and resolution of general questions to the conclusion that an IHS would be infinitely resolute of general questions; from the successive refinements in data and the uncovering of source of error to the infinite transcendence of error by an IHS; and from the assimilation and domination of divergent traditions of inquiry to the absolute dominance of an IHS.¹⁴

In short the indefinite prolongation, under optimal conditions, of processes typical of the history of science would yield an inquiry series very similar to an AIS.¹⁵

While acknowledging that an IHS would not resolve all singular questions Jardine claims that this limitation does not affect the ability of an IHS to resolve all general questions. This is established by appeal to what he calls an "Evidential Compensation Thesis", formulated as follows:

whenever entirely inaccessible evidence of some particular type appears to be indispensable for the reliable resolution of a general question, some other reliable way of resolving the issue would in due course be discovered were inquiry to proceed for long enough under favourable circumstances (p.42).

This too is defended by general types of cases in history; cases in which questions once thought unsolvable were solved after the discovery of new types of relevant evidence, and cases, such as Avogadro's number where the result in question can be determined in a number of independent ways. Generalizing from these cases it is concluded that the ability of an IHS to resolve general questions is not affected by the limits on human powers to resolve singular questions.¹⁴ Therefore generalizations true from the standpoint of an IHS would be true from the standpoint of an AIS, hence true simpliciter.

Finally, the argument for the progress of science is assembled from the above results. It was argued above that part, at least, of the cumulative resolution of general theoretical questions apparent from the standpoint of current science, would be preserved in an account of the history of science told from the standpoint of an IHS. Therefore an IHS would show an accumulation of general truths. Since what is

true from the standpoint of an IHS is true simpliciter; the history of science shows an accumulation of general truths.

Jardine's case is instructive because he acknowledges the severity of the historicist charge to traditional conceptions of progressive scientific realism. It is remarkable if only because it shows how far some are willing to go in defending the progress of science.

To begin with it should be noted that the claim Jardine is entitled to is exceedingly weak. He establishes only that some part of what is taken as scientific success today would be seen to be such in the limit. This does not legitimate any particular scientific results as successful; it provides no guidance in assessing current theory as closer to the truth than any other. That portion of science which is to be vindicated in the limit is unknown and, since we cannot anticipate future objections unknowable. The sole merit of relying on current science is the obvious fact that we have nothing else on which to go, combined with the faith that indefinite prosecution of our science will yield improved methods and improved results; but the final verdict on what is successful and what is not is reserved for the unattainable limit. Of course if all that is being claimed is that science is our best grasp on the truth, then this is implicit in the characterization of truth in terms of processes typical of scientific debate; it is not established empirically. Once again the force of the conclusion comes

only at the expense of its specificity and content and the limit does no work in explaining scientific practice and criticism.

Furthermore it is not clear that historical evidence supports even this weak extrapolation to the limit. Recall that Jardine relies on a hypothetical history of the history of science to determine a perspective-neutral consensus on answers to general theoretical questions. But this way of proceeding is controversial at best.

First more needs to be said about the kind of consensus Jardine has in mind. It is of course small comfort to share beliefs if the reasons or methods by which those beliefs are supported are not also shared.

More importantly, it is not exactly clear what this consensus is supposed to establish. That consensus is not sufficient to license the inference to truth is admitted by both Putnam and Jardine; in fact, it would seem the limit theory is designed with precisely this intuition in mind. Nor is it a constraint on claims to have improved the state of current science that solutions to questions be rooted in a consensus about the past. As Laudan (1981) has pointed out there is no universal constraint on new theories that they preserve even important results of prior theories as limiting cases. Jardine endorses this by denying that the approach to truth by science has been linear.

Finally, even granting Jardine's more general claims it

is not clear what evidence could be advanced for the move from the existence of past consensus to the likelihood of future consensus. On this the historical evidence is at least ambiguous. Relativity theory and Newtonian mechanics were relatively short-lived in comparison to Aristotelean science. And all three are extremely short-lived in comparison with the infinite prolongation of inquiry in space and time, and across all possible species of knowers that Jardine takes as his standard of truth. Given this level of commitment it is hard to know what could count as evidence for the truth of any extant theory, for at each stage the thesis that our best theories are false seems much more likely than the thesis that they are true.

A final concern addresses the artificiality of the metahistory to which Jardine appeals. First, that history itself must be written from a particular perspective; the worries that prohibited a straightforward appeal to first order history in establishing the claim to progress seem to reappear at the meta-level. This is particularly dramatic given the lack of consensus even among contemporary historians on the style and method of the writing of history. The work of Martin Rudwick and Robert Young immediately comes to mind. Both are acknowledged to be leading historians of science and yet both deny that the history of science can be fully understood independently of the whole network of ideas transcending the split between science, religion, politics

and value theory. Thus the abstraction of the history of science in purely intellectual terms that Jardine enjoins builds in a particular view about the interrelationship of science and culture. While Jardine acknowledges that his interest in history is philosophical and not historical this lays him open to the charge that his realism drives his history and not the other way around.

This seems particularly important in Jardine's construal of the interaction of divergent traditions in purely intellectualist terms; that is, as clashes of beliefs whose epistemic credentials are subject to the challenges by the methods of science.¹⁷ Such a construal is a highly abstract account of the actual history of the merging of cultures. To suggest that only cognitive dominance and assimilation is at stake in these episodes is again to impose an idealized explanatory framework on the historical record.¹⁸

7. SUMMARY.

Peirce's realism fails as an attempt to reconcile the immanence and the transcendence of epistemic authority. What is more, recent attempts to resurrect central components of that realism while attempting to accommodate criticism of Peirce's most radical claims, fail to avoid his most pressing problems. The posit of ideal epistemic conditions, when combined with a thoroughgoing fallibilism and historicism, serves only to restate the dilemma it is designed to avoid.

However, even if the empirical claim to progress is not as strong as these writers might like, it could still be argued that this criticism has not addressed the more fundamental motivation for the position. Each of these writers concedes at times that as historically conditioned knowers we cannot attain an ideal perspective. Yet each seems to think that we cannot do without positing one. As Putnam notes:

We speak as if there were such things as epistemically ideal conditions and we call such a statement "true" if it would be justified under such conditions (Putnam 1981, p.55).

The central function of the limit, for Peirce as well as for Putnam and Jardine, seems to be to preserve the gap between warranted assertability at a particular time and truth. To preserve this gap is to preserve the realist intuition that a statement might be false even though it follows from the best theory currently available. This intuition ensures that fallibilism, criticism and the possibility of progress in knowledge remain intelligible. Close the gap between truth and justification and critical activity collapses; to say someone is wrong is to say they disagree. Truth and falsity mark the boundary between those who share evaluative standards and those who do not. Cultural imperialism is the only recourse in transcultural or transtheoretical comparison. Thus according to these realists a limit notion of truth must be adopted on pain of being forced to radical relativism.

In this, as in all transcendental arguments, the cogency of critical practices must be taken for granted. The argument presupposes that rational criticism is possible, that there can be reasoned belief change and that there is more to criticism than emotive grunts and brute force. This combined with the argument that relativism is self-refuting renders the costs of the appeal to a limit attractive. However, the argument also depends on the contention that the limit notion of truth is the only option in preserving intuitions about normative claims and critical practices. But if this can be done without recourse to idealized standards of epistemic authority, it would be possible to reject the limit theory of truth while avoiding the slide into relativism. The approach toward such a view lies at the heart of Dewey's pragmatism and constitutes its most radical departure from Peirce's pragmaticism. Bringing the details of this view to light is the object of the remainder of this thesis.

NOTES

1. Tenacity might have proved successful, so might reading tea leaves. Although such methods are not vindicated by logic alone, and thus are not valid in all possible worlds, Peirce can admit them as contingently successful methods of research in this world.

2. It is acknowledged as such even by writers such as Kuhn and Hesse who have severe misgivings about realism.

3. For example Newton claimed that his corpuscular theory of light predicted the differential refrangibility of light rays of different colours, subsequently verified in his experimentum crucis. However, Hooke insisted his wave theory could also account for the phenomena. Thus while Newton is able to claim novel prediction, Hooke is only able to claim a retrodution and for Peirce the former is a more significant result than the latter.

4. "[D]efining induction as the sort of inference which produces verisimilitude, or likelihood (that is, which regards an endless series of actualities as conclusive evidence of a 'would-be' since it is the best evidence possible when we are not behind the scenes... any plausible proposition that is supported by instances in every respect is justifiable so long as one keeps on the alert for the first exception. Of course, such an induction has the very minimum of likelihood, yet it has some; and we may very often find ourselves driven to accept it" (8.235, c. 1910).

5. In fairness, Rescher only claims that prediction is a useful indicator of scientific progress and not progress to truth. However, Peirce is not willing to uncouple truth and progress and thus Rescher's solution to Laudan's challenge cannot be Peirce's.

6. See Lenz (1960; 1964), Madden (1980) and von Wright (1957, pp.159-75).

7. Thus Peirce's Phenomenological method fails for the same reasons he argued that introspection fails. Yet Peirce has no other move to make here.

8. See Kuhn (1960) and Hesse (1980).

9. The above is a summary of Levi-Strauss (1985, p.3-36). Biologists are now remarking that even in natural systems eating, reproductive and migratory habits of species can actually alter the environment in which species develop and thereby alter the environmental pressures they face. The idea that evolution is unidirectional is giving way to much more interactive and dynamic models.

10. "The way to develop a better understanding of the nature of rationality-- the only way we know how-- is... to develop better philosophical conceptions of rationality (an unending process but that is as it should be)" (Putnam 1981, p.105).

11. In characterizing the limit Putnam sides with Kant in speaking of objectivity humanly-speaking while Jardine sides with Peirce and extends the notion of objectivity to include all possible knowers whatever their constitution. The cash value of this difference is not clear; (although it would seem that Putnam is more circumspect since he thinks rationality is more closely tied to specific forms of life than either Peirce or Jardine seems to). Fortunately this difference is of no consequence in the present discussion.

12. While Putnam never addresses the question of progress his transcendental argument for the limit clearly presupposes the cogency of human inquiry practices as knowledge-producing; the reliance on paradigm instances of rationality and knowledge in developing theories would seem to depend on his confidence that knowledge has been attained and is not merely a regulative ideal. He has confirmed this to me in a conversation in the fall of 1984.

13. Again this is due to limits on humans evidence gathering capacity; it is unlikely we will ever be able to determine the precise number of dinosaurs that roamed the earth, for example.

14. Jardine acknowledges that this extrapolation must include considerations of clashes with traditions of inquiry of non-human knowers about which there is no historical evidence. By rejecting the strong form of incommensurability (on independent grounds) and by allowing for the assimilation of divergent traditions (as well as cognitive domination) Jardine thinks that such an extrapolation can be made with plausibility (see pp.48-50; and chapter 5).

15. Jardine does provide what he calls a crude and incomplete list of error sources under the headings of "observational error" and "methodological error"; as well as an extensive argument that methodologies can be calibrated against well-known results to test their reliability, without appeal to a transhistorical canon of scientific principles.

These details will not be considered here. See Jardine (1986, pp. 42-44; chapters 7-8).

16. As a further complication Jardine acknowledges that some general cosmological questions (about space and time for instance) may prove unsolvable but he again argues that this does not affect the case for progress he outlines (see Jardine 1986, chapters 6 and 9).

17. Putnam's reading of cultural interaction is difficult to gauge since all his examples are drawn from within western culture.

18. There is a considerable body of evidence that suggests that the very conception of knowledge in conceptual and representational terms is of relatively recent origin. While the case is tremendously detailed, and far from controversial, it suggests that the Jardine's intellectualist abstraction may be unjustified. For example, as Winch points out, to characterize ritual practices such as Azande magic as either naive science or as merely a form of symbolic expression forces on the practice a dichotomy in terms of which it cannot be understood adequately. As Winch writes:

we do not initially have a category that looks at all like the Zande category of magic. Since it is we who want to understand the Zande category, it appears that the onus is on us to extend our understanding so as to make room for the Zande category, rather than to insist on seeing it in terms of our own ready-made distinction between science and non-science (Winch 1970, p.102).

Winch's argument has in fact been vindicated by recent studies of oral traditions. Goody (1986), Ong (1984) and Havelock (1954) argue persuasively that the transition from orality to literacy is as much a social and technological revolution, with enormous impact on styles of reasoning, as it is an intellectual revolution with social consequences. Similarly to judge oral traditions by the cognitive criteria of literate cultures is to misunderstand the constraints imposed on styles of reasoning in oral traditions. They further argue that it is exceedingly difficult to cast the difference between oral and literate cultures in terms of superior or inferior intelligence or rationality.

CHAPTER VI - DEWEY'S CULTURAL NATURALISM

1. INTRODUCTION.

Dewey shares Peirce's concern with overthrowing the dichotomies generated by Nominalism and with unifying the lived world of experience with the results of physics, biology, art and social science. In developing his version of pragmatism Dewey is also accused of equivocating on the realism-idealism question and of either failing to complete his project or of attempting the inherently incoherent. However, as with Peirce, it is his attempt to join what philosophical tradition and vocabulary insist must be separated that makes Dewey of interest.

Despite the kinship between Dewey and Peirce, in many ways their thought moves in opposite directions.¹ Peirce was trained in the natural sciences and logic, Dewey in psychology. Peirce moved from early flirtations with Nominalism to Hegelian naturalism, Dewey from Hegelianism towards instrumentalism and empiricism. Most importantly, as will be shown, rather than use logic and method to ground a theory of community and action, Dewey exploits notions of community and action to explicate reason, method and science.

Treatments of Dewey's writings under traditional philosophical headings abound. Such an approach is doomed to an ironic failure for the very division of philosophy into isolated specialties is for Dewey a disease to be cured not a

practice to be encouraged. Construing a particular, contingent, and socially-conditioned division of labour as fixed in ontological categories constitutes:

[a] conversion of eventual functions into antecedent existence: a conversion that may be said to be the philosophic fallacy, whether it be performed in behalf of mathematical subsistences, esthetic essences, the purely physical order of nature, or God (EN p.27-8).²

Recapturing the interdependence of diverse cultural practices is the core of Dewey's attempt to lend coherence to what has become a fragmented cultural tradition.³

The shift in perspective that Dewey effects is already implicit in his formulation of the problems his pragmatism is designed to address. Of the first, the relationship of moral and factual knowledge, Dewey writes that:

The problem of restoring integration and cooperation between man's beliefs about the world in which he lives and his beliefs about the values and purposes that should direct his conduct is the deepest problem of modern life. It is the problem of any philosophy that is not isolated from that life (QC p.255; PD p.523).

The problem of the place of values in a world of facts is entrenched in conceptual oppositions (the split of "ought" from "is", theory and practice, mind and body), in philosophical oppositions (empiricism versus idealism, scientism versus humanism), and in institutional oppositions (in debates for and against technology, disputes about the role of arts and sciences in culture and education, and in conflicts between religion and science).

The second of Dewey's problems does not concern knowledge

per se but its connection with living; it is:

the problem of the relation of physical science to the things of ordinary experience (QC p.252; PD p.523).

Insofar as ordinary experience includes matters involving values this problem overlaps the first; but Dewey's concern here is with intellectualism: the reification of objects of scientific knowledge as exhaustive of the real. This results in the subordination, exclusion or separation of the bulk of ordinary experience from science (and thereby from reality). This too is entrenched in conceptual dichotomies (appearance and reality, subject and object, the "inner" and "outer" worlds), philosophical positions (idealism, realism and romanticism), and cultural institutions (in the isolation of philosophy and knowledge from cultural, moral and political affairs).

According to Dewey these dichotomies, which constitute the intellectual and cultural heritage of the west, are interrelated. What is more they are rooted not in ultimate categories of the universe but in specific historical developments. They are the products of an unresolved conflict between the Aristotelean and enlightenment traditions. The notions of essence and teleology (more generally, a hierarchy of ends) pervade contemporary moral concepts and practices (insofar as they depend on the idea of an absolute moral authority and a universal human purpose definitive of the

good life). And yet these concepts have been repudiated by modern science, replaced by efficient causes and directionless laws (more generally, by a vocabulary of means).⁴ This combined with the pretensions of philosophy to erect a permanent hierarchical framework of inquiry yields a range of competing worldviews whose insistence on an exclusive claim to ultimate authority precludes serious consideration of the force of their rivals. The result is a cultural crisis resulting, not from an absence of authority, but from an overabundance.⁵

The basis of Dewey's attempt to reweave the fabric of western institutions and practices (as I shall argue) is his concept of conduct. Conduct circumvents the dichotomies imposed by these competing models of the world by renegotiating the relationship of means and ends. The result is a transformation of cultural practice in general and of knowledge-producing enterprises in particular. Uncovering the notion of authority that emerges from his reconstruction is the aim of what follows.

2. HUMAN CONDUCT AS THE CENTRAL PHILOSOPHICAL PROBLEM.

One aspect of the fragmentation described above emerges in the tensions among three "plateaus" from which humans are viewed: the physical, the biological (or, the psychophysiological) and the social (that is, the behavioral or symbolic) (DC pp.300f.; EN p.222; LI p. 9-85). Construed

hierarchically these stances are mutually exclusive and therefore must compete for primacy. Either mind (individual or collective) is selected as the metaphysical condition of matter, or matter is used to account for mind. For Dewey, these options share a single failing:

namely, the breaking up of a continuity of historical change into two separate parts, together with the necessity which follows from the breaking-in-two for some device by which to bring them together again (EN p.224).

Dewey's solution is to contrive these plateaus as functional distinctions drawn within an unified domain of experience. Epistemically, they represent:

Differentiations of the techniques of inquiry, marking off subject-matters as sciences under development, and not constricted to conform to primitive pre-views of "materials" of "reality" (DC p.306).

Ontologically, the plateaus are not to be ranked in a hierarchy of Being, but are to be affirmed with equal validity:

Each of [sic] one of these levels having its own characteristic empirical traits has its own categories. They are however categories of description, conceptions required to state the fact in question. They are not "explanatory" categories, as explanation is sometimes understood; they do not designate, that is, the operation of forces as "causes". They stick to empirical facts noting and denoting characteristic qualities and consequences peculiar to various levels of interaction (EN p.223).

Dewey firmly holds onto the qualitative differences among the plateaus yet he is equally adamant in rejecting any attempt to view them as representations of distinct ontological realms or as unrelated conceptual schemes-- in Dewey's words,

the plateaus are "continuous":⁶

continuity is not self-explanatory. But its meaning excludes complete rupture on one side and mere repetition of identities on the other; it precludes the reduction of the "higher" to the "lower" just as it precludes complete breaks and gaps (LI p.30).⁷

Negatively, the thesis of continuity rules out the postulation of isolated faculties of Reason, Mind, or Pure Intuition in accounting for phenomena at any level; the result is to break down the separation of mind and world and the separation of the natural and the social sciences. Positively, the thesis demands a unified framework to account for the development of human symbolic behaviour out of biological activities not marked by those traits (LI p.1).⁸ Because the plateaus are neither reducible nor separable, their interrelationship is set as a problem to be solved, both intellectually, in terms of an integrated view of humanity, and practically, as the unavoidable task of defining oneself in relation to nature, to the members of one's species and to the members of one's culture in the context of a single life. It is this role that Dewey's notion of conduct is intended to fulfill.

3. CONDUCT AS ORGANIC.

To view organic activity in terms of the causal properties of physical (inanimate) objects is to overlook its distinguishing features. Unlike physical objects, organisms are (i) integrated in an environment (continuous with their

spatial surroundings) and (ii) they are adaptive, that is, they are products of specific developmental histories (continuous with their temporal surroundings).

(i) While physical objects exist in, and are connected with, their surroundings, organisms exist by means of their surroundings; they constitute their surroundings as an "environment". Breathing requires both lungs and air, sight requires eyes and contrasts of light. But the relationship is not merely additive or conjunctive, it is transactional since:

The processes of living are enacted by the environment as truly as by the organism; for they are an integration (LI p.32).

These activities implicate the organism in its surroundings (DE p.11); they are in a sense "things done by the environment by means of organic structures or acquired dispositions" (HNC p.18).

The notion of environment is therefore much stronger than that of surroundings.⁷ The very character of intra-organic functions is dependent in part on the extra-organic situation in which they are embedded. Birds and fish are different in character not merely because one lives in water and the other in air, rather the "characteristic functions of these animals are what they are because of the special way in which water and air enter into their respective activities" (LI p.32)-- they live in different environments. At the same time, however, the character of the surroundings is dependent upon

organic functions. Thus air and water would not be conditions of survival were there not creatures with specific organs capable of exploiting them for life support.¹⁰

An organism and its outer environment¹¹ are interdependent and interdefined, they are two inseparable aspects of a unified totality to be construed as functionally, not ontologically, distinct:

the distinction is a practical and temporal one, arising out of the state of tension in which the organism at a given time, in a given phase of life-activity, is set over against the environment as it then and there exists (LI p.40).

(ii) Organic functions are not only defined with respect to their objects, but with respect to each other; breathing implicates the nervous system and the blood as well as the lungs. Such functions are mutually supportive and integrated. Their interaction secures a balance of intra-organic and extra-organic energies--a unified environment. This unity is not a static property or state, it is a process. Environments as totalities evolve through both intra-organic and extra-organic change:

with every differentiation of structure the environment expands. For a new organ provides a new way of interacting in which things in the world that were previously indifferent enter into life-functions (LI p.32).

The central element of this life process is what Dewey calls the cycle of need-effort-fulfillment.¹² In hunger, for example, there is an imbalance between organic and environmental factors; the energy demands of motor activity

are at odds with the production of nutrients by digestion. This state passes into a search to restore the balance so as to sustain the activities of the organism. The removal (fulfillment) of the tension (need) by means of an alteration in environment (effort) constitutes satisfaction.

Physical objects are indifferent to their relationships with their surroundings; future states, though rationally determinable, do not determine the behavior of such objects. But organisms act to sustain relationships with an environment throughout its changes; they attempt to turn energies which act upon them into means for their own further existence (DE p.1):

the interactions in which organic and environmental energies enter are such as to maintain the conditions in both of them needed for later interactions. The processes, in other words, are self-maintaining, in a sense in which they are not in the case of the interactions of non-living things (LI p.33).

Self-maintenance does not imply the recovery of a prior state, but rather the reinstatement or renewal of an integrated relation in response to changes in the relation. Thus the ability to act so as to preserve favourable future transactions with the surroundings, that is, the ability to renew itself through the reconstruction of the environment, is the defining characteristic of organic behavior.¹⁷

The process of adaptation does not abrogate or transcend physical energy flows, rather it concerns the manner in which they are organized and deployed:

it lies in the way in which physico-chemical energies

are interconnected and operate, whence different consequences mark inanimate and animate activity respectively... Organization is a fact, though it is not an original organizing force (EN pp.207-8).

To repeat, organisms are not ontologically separate from physical objects, only functionally different; they are distinct yet continuous with the physical world.¹⁴

Dewey's view of the need-effort-fulfillment cycle is explicitly designed to refute theories of organic behavior that rule out its temporal quality; those, for example, that take reflex response or passive sensory stimulation (what Dewey calls "excitation-reactions") as the model of interaction between organism and surroundings. Excitation-reactions are transactions involving tensions between the surface and the interior of the organism at the level of direct contact with environing energies (LI p.35). They are isolated, immediate and self-contained modes of response (LI p.36). Such transactions involves a specific reaction to a specific excitation and they are completed with the execution of that response. If all behavior is reduced to causal transactions of this form it:

becomes simply a succession of isolated and independent units of excitation-reaction, which would be comparable, say, to a succession of muscular twitches due to a disordered nervous mechanism (LI p.37).

The required supplementation is provided by Dewey's reconception of "stimulus-response". In complex organisms activity arises not only in reaction to direct contact with immediate surroundings, but also in relation to things at a

distance. In such cases the time lag between the occurrence of need and its fulfillment increases:

A definite order of initial, of intermediate, and of final or closing activities, is thus instituted. The terminus ab quo is fixed by such a condition of imbalance in the organism that integration of organic factors cannot be attained by any material with which the organism is in direct contact (LI p.36).

In such cases excitation-reactions occur but they are not self-contained. They become integrated in a course of action, implicating the entire organism, that is directed toward a state of equilibrium not attainable from the immediate surroundings:

This co-ordination, which is a state of the total organism, constitutes a stimulus (LI p.36).

The sight of prey, for example, involves excitation-reactions, but these become incorporated into the process of pursuit which implicates the entire organism. Pursuit is a response not merely to the seeing of an animal but to seeing it as prey; that is, in relation to the prior (anticipatory) state of the total organism (hunger). Throughout the pursuit, excitation-reactions change in both quality and intensity but the stimulus (the tension between contact-activities and those activities occasioned by means of distance receptors) remains. In other words, an excitation-reaction is integrated into a stimulus by the total state of the organism, that is, by its incorporation within a course of action that is coherent, cumulative and continuous:

Because behavior is in fact a function of the total state of the organism in relation to environment, stimuli are functionally constant in spite of changes in specific content (LI p.37).

Stimulus and response are not distinct entities or events, they are states of the entire organism in which its activities are organized in a context of directed action. They form more than a conjunctive sequence, for they are phases in a continuous series. They are two aspects of a totality that are functionally not ontologically distinct:

the distinction between what has been called stimulus and response is made only by analytic reflection. The so-called stimulus, being the total state of the organism, moves of itself, because of tensions contained, into those activities of pursuit which are called the response. The stimulus is simply the earlier part of the total coordinated serial behavior and the response the later part (LI pp.36-7).¹⁵

In summary, organic action is a developmental circuit, the open phase of which is the tension of various elements of organic energy (need), while the final, closed phase is the (re)institution of an integrated interaction of organism and outer environment (fulfillment); that is the equilibration of organic energies brought about by the existence of satisfying conditions (adaptation). The restoration of integration typically involves the modification of environment (at least, a change in the conditions relevant to future behavior) and a change in organic structures that condition future behavior; the latter modification Dewey claims constitutes "habit" and it is the basis of organic learning (LI p.38).

4. CONDUCT AS HABITUAL.

Habits are changes in organic structures resulting from the reintegration of an equilibrium of environmental energies that condition future behavior. The ability to acquire habits is nothing other than the ability to learn since it is:

the power to retain from one experience something which is of avail in coping with the difficulties of a later situation. This means the power to modify actions on the basis of results of prior experiences. the power to develop dispositions. Without it, the acquisition of habits is impossible (DE p.44).

What is acquired in learning is the ability to effect changes in the environment, to transform it (DE p.46). Habits are organized ways of using the environment (HNC p.17). They involve the ability to "find" in one's surroundings things to guide and sustain action; the ability to exploit things as possibilities for integration and use:

In the first place, a habit is a form of executive skill, of efficiency in doing. A habit means an ability to use natural conditions as means to ends. It is an active control of the environment through control of the organs of action... To be able to walk is to have certain properties of nature at our disposal-- and so with all other habits (DE p.46).

As dispositions habits involve routinization; a tendency to assimilate new situations to established patterns of action, treating them as relevantly analogous to previous experiences. But, for Dewey, habits involve more than simply the intensification of activity through repetition; repetition is the result, not the source of habits. Learning is effected not by the presence of certain experiences which

merely follow actions, but by the achievement of specific results which flow from actions as definite outcomes.¹⁴ The resultant modification gives definite direction to future actions and it is this that makes repetition possible.

While repetition is the effect of habits acting under similar conditions, no two situations are strictly identical and thus repetition is merely a limiting case of habitual response. Dewey's habits are not exceptionless mechanical laws, they are rules of performance, or acts, as he elsewhere calls them:

In organisms of the higher order, the special and more definite pattern of recurrent behavior thus formed does not become completely rigid. It enters as a factorial agency, along with other patterns, in a total adaptive response, and hence retains a certain amount of flexible capacity to undergo further modifications as the organism meets new environing conditions (LI p.39).

As propensities, habits are demands for a certain kind of activity, they are "affections, that all have a projectile power..." (HNC p.26). This is especially apparent when they emerge as external forces; that is, when they are experienced as unwanted, yet compelling tendencies. As noted above, even when impeded in overt operation habits continue to operate as needs-- as demands for a changed environment (HNC p.51; p.70). Thus habits are assertive, insistent and self-perpetuating. "Every habit creates an unconscious expectation. It forms a certain outlook" (HNC p.70).

But habits are not projections onto a separate, neutral or noumenal reality. They do not provide a veil between the

experiencer and the experienced; rather subject and object are phases of a single integrated totality. Habits mediate situations through the incorporation of excitation-reactions in a continuous experiential series, constitutive of a context of action (HNC p.35). They are not attached to the subject, they constitute it. An organism just is the totality of its working capacities (HNC p.26), the repertoire of means by which experience is controlled and its possibilities brought to fruition and fulfillment. Because they assimilate and direct objective energies in (inter)active use, habits are processes that have "a beginning, a middle and end" (HNC p.18).¹⁷

Habits constitute and qualify interactions with surroundings as experiences (stimuli) and are therefore interpretive structures:

Habit means special sensitiveness or accessibility to certain classes of stimuli, standing predilections and aversions, rather than bare recurrence of specific acts (HNC p.41).

Sensitivity involves organization, selection, and exclusion which are manifested in experience as focus and interest, a tendency to interact with the environment in particular ways. Thus habits embody criteria of relevance; they are valuations:

Responses are not merely selective, but are discriminatory, in behalf of some results rather than others. This discrimination is the essence of sensitivity. Thus with organization, bias becomes interest, and satisfaction a good or value and not a mere satiation of wants or repletion of deficiencies (EN p.210).

It is because habits are selective that they are also subject to change. First, because the habits which constitute an organism are diverse, internal conflict is an ever-present possibility:

[Habits] are adjustments of the environment, not merely to it. At the same time the environment is many, not one... Diversity does not of itself imply conflict, but it implies the possibility of conflict... Life, for example, involves the habit of eating, which in turn involves a unification of organism and nature. But nevertheless this habit comes into conflict with other habits which are also "objective", or in equilibrium with their environments. Because the environment is not all of one piece, man's house is divided within itself, against itself (HNC p.50).

Activity implicates the entire organism in pursuit of some need. It requires the coordinated deployment of a plurality of habits; the integration of a complex network of abilities, through the reconciliation or suppression of diverse and competing needs of shifting strength and urgency.

Secondly, as modes of interaction with the surroundings habits, are partial and approximate. Selectivity implies exclusion, yet the organism remains vulnerable to those aspects of the surroundings that are ignored.¹² In projecting contexts as they assimilate experiences habits embody expectations. But those expectations may be wrong. Conflict with the outer surroundings is always a possibility:

The word "tendency" is an attempt to combine two facts, one that habits have a certain causal efficacy, the other that their outworking in any particular case is subject to contingencies, to circumstances which are unforeseeable and which carry an act one side of its usual effect (HNC p.47).

This is even more significant in light of the fact that the acquisition of habits is often pre-reflective; experience is often had before it is known, skills are often acquired in experience before they are reflected upon (EN p.21).¹⁷ This means that at any given time a large number of habits are taken for granted and therefore that the organism is committed by habitual integrations with the surroundings of which it is not always conscious.

Thus the life of an organism is precarious as well as stable; it involves a world in which there is destruction as well as growth, success as well as failure, cooperation as well as conflict.²⁰ These are ineliminable features of experience, not the subjective appearances of some underlying harmonious reality:

For every habit incorporates within itself some part of the objective environment, and no habit and no amount of habits can incorporate the entire environment within itself or themselves. There will always be disparity between them and the results actually attained... The assumption of a stably uniform environment (even the hankering for one) expresses a fiction due to attachment to old habits. (HNC p.49).

Organisms exist in an irreducible tension between the novel and the established. Experience for Dewey is precisely this interface; it is a matter of doing and undergoing, a confrontation of the novel and the stable, which are themselves interdefined. Since the world is precarious there is need to render it definite and secure. In problematic situations not only is the appropriate action and its

consequences uncertain but so is the stimulus, for experience is constituted as a stimulus only through its integration in a course of action that renders the situation stable. Habits, by exploiting environmental regularities, free the organism up for confrontation with the novel and the disturbing to enable it to cope; that is, to accommodate itself to that which it cannot assimilate, and thereby to attempt to restore the continuity of experience that is constitutive of life. For Dewey then, failure is as important as success to the growth of an organism:

Life itself consists of phases in which the organism falls out of step with the march of surrounding things and then recovers unison with it-- either through effort or by some happy chance. And, in a growing life, the recovery is never mere return to a prior state, for it is enriched by the state of disparity and resistance through which it has successfully passed. If the gap between organism and environment is too wide, the creature dies. If its activity is not enhanced by the temporary alienation, it merely subsists. Life grows when a temporary falling out is a transition to a more extensive balance of the energies of the organism with those of the conditions under which it lives (AE p.14).

For Dewey, then, habits guide behavior but are themselves (re)defined through their creative extension into new contexts, in terms of the consequences that result.²¹ Through reenactment and readaptation in new circumstances, organisms are reconstructed. The repertoire of responses is reinterpreted as it interprets, assimilates or accommodates the present moment. In learning, indeed in any creative activity, past habits are brought to bear on new situations in such a way that both grow in meaning; the environment is

enriched as habits grow in complexity, as new possibilities are revealed. The integration of organism and world is thus not fixed ontologically or given prior to experience, it is a constant problem to be solved, an achievement secured through the activities of the organism, that, when successful, grows in subtlety and significance.

5. CONDUCT AS CULTURAL ARTIFACT.

The inseparability of cultures and persons forms the basis of Dewey's social psychology. Culture, though emergent from biological activities (i) adds the complexities of language and meaning which (ii) underlie the creation of communal practices and institutions typified by sharing and participation rather than the mere association of individuals; that is, forms of social activity dependent upon communication.

(i) An important consequence of Dewey's theory of organic behavior is his rejection of attempts to account for human action by appeal to a fixed, universal, biologically determined repertoire of instincts or needs. Dewey claims that the attribution of diverse activities to unitary instincts serves merely to substitute a single label for a much more complex psychology. Attributing war to a single aggressive instinct, for instance, overlooks the diversity of motives for participating in war (duty, courage, need for money, racism, and deference to law) many of which are

present in a single individual and some of which are not necessarily aggressive impulses at all (HNC pp.106-7). Furthermore, because these instincts are said to constitute a repertoire of needs that are prior to particular courses of action, the qualitative differences among the situations in which needs arise are ignored:

There is no one fear having diverse manifestations; there are as many qualitatively different fears as there are objects responded to and different consequences sensed and observed. Fear of the dark is different from fear of publicity, fear of the dentist from fear of ghosts... They all have certain physical organic acts in common... But each is qualitatively unique. Each is what it is in virtue of its total interactions or correlations with other acts and with the environing medium, with consequences (HNC p.145).²³

There is no such thing as an environment per se, there are only specific, changing objects and events. As the environment is never exactly the same on two occasions terms such as fear, hunger, and love are at best family resemblance terms that cannot be defined in relation to a fixed state of affairs. Because they are, in part, defined with reference to their objects and their consequences, new, qualitatively unique fears, hungers and loves can arise in the course of changes in the environment.²⁴ The appeal to a fixed set of instincts thus ignores the natural, social, political and historical conditions in which needs arise, conditions which are anything but unitary²⁵.

For the same reasons this view is unable to account for the fact that allegedly the same instincts are capable of

expression in a diversity of ways and to recognize the qualitative differences among the means by which they are satisfied. The impulse to aggression can expend itself on the tennis court, in a dissertation, as well as in combat. Social needs are capable of satisfaction in a wide variety of institutional arrangements-- "[t]he same original fears, angers, loves and hates are hopelessly entangled in the most opposite institutions" (HNC p.88).²⁶

In short this theory substitutes a set of vague concepts for a complex set of conditions and causes of phenomena and thus achieves explanatory unity only at the expense of information about the character and conditions of human action; information which is crucial to identifying as well as understanding the actions under consideration.²⁷ From Dewey's perspective, to attempt to attribute the outcomes of specific, and complex historical processes to a permanent, self-contained, and detached set of instincts, is to reify social and historical artifacts as necessary natural outcomes. The source of the error is the separation of instincts from their conditions (historical and cultural) and from their objects; that is the violation of spatial and temporal continuity of actions.

In place of the partition of the self into autonomous faculties and instincts, Dewey offers a functional classification of impulses, habits and intelligence;²⁸ construed not as isolated entities, but as kinds of activity

or modes of response. Impulses are the unlearned activities which form part of any person's endowment at birth. The term is intended to suggest "something primitive, yet loose, undirected, initial" (HNC p.99n)²⁷. The flexibility and plasticity of impulsive activity is evidenced by the diversity of practices and forms of life in which (roughly) the same natural endowment can be mobilized (HNC p.91). Impulsive activity lacks organization and thus determinate meaning. Therefore although impulsive activity (the innate) is temporally prior to habitual activity (the acquired), the priority is reversed in matters of human conduct:

Impulses are the pivots upon which the re-organization of activities turn [sic]... [they] are merely starting points for assimilation of the knowledge and skill of the more matured beings upon whom he depends (HNC pp.88-9).

The infant, endowed with impulses, remains dependent upon its environment (DE p.2). As with other organisms its habits are built up and thus defined in interaction with the surroundings as "ways of using and incorporating the environment in which the latter has its say as surely as the former" (HNC p.18). But for humans the environment is cultural as well as natural. Human children are not self-sufficient, they depend on others for survival. In the formation of their habits the encouragement and discouragement of encultured adults upon whom their existence depends is crucial (DE p.12):

The activities of the group are already there, and some assimilation of his own acts to their pattern is

a prerequisite of a share therein, and hence of having a part in what is going on (HNC p.55).

Learning to communicate is a precondition of entering into effective relationships with others, including making wants known and getting them satisfied (HNC p.56; LI p.49). It is only through participation in a culture that the means to communicate are learned. Learning what things mean is a matter of learning how to deploy one's abilities in transactions with one's cultural peers.

But socialization does not transcend, override or merely add to native abilities; rather it provides a context of use in which those activities are organized to become meaningful. By being embedded in a set of institutionalized meanings isolated actions and physical events (a slamming door, a clenched fist, the shouting of certain sounds) acquire significance and thereby become vehicles for expression (of anger), opportunities for communicative action.²⁰ In animals, anger "may be identified with a serviceable life-activity, with attack and defence" (HNC p.86) but in humans, anger is expressive of social relations:

[impulsive activity] gets quality, significance, when it becomes a smouldering sullenness, an annoying interruption... And although these phenomena which have a meaning spring from original native reactions to stimuli, yet they depend also upon the responsive behavior of others. They... are not pure impulses; they are habits formed under the influence of association with others who have habits already and who show their habits in the treatment which converts a blind physical discharge into a significant anger (HNC p.86).²¹

The attribution of greed to a child's grasp at cake, for

example, involves the judgement that it is contextually inappropriate. Assigning greed as a conscious motive is an attempt to induce her to refrain from such acts by calling attention to their undesirable consequences (HNC p.112). In internalizing and assimilating the network of social meanings and the criteria by which acts are assessed, individuals come to view their own behavior as others view it and to regulate their conduct accordingly³²; that is, they come to interpret observed patterns of behavior as manifestations of character (as meaningful acts) and to act on that basis:

Instead then of saying that a man requires a motive in order to induce him to act, we should say that when a man is going to act he needs to know what he is going to do-- what the quality of his act is in terms of consequences to follow. In order to act properly he needs to view his act as others view it; namely, as a manifestation of character or will which is good or bad according as it is bent upon specific things which are desirable or obnoxious (HNC p.114).

Motives are not private mental entities to which an individual has privileged access; rather they are evaluative interpretations of the significance of actions in terms of the traits of character they manifest:

An element in an act viewed as a tendency to produce such and such consequences is a motive. A motive does not exist prior to an act and produce it. It is an act plus a judgement upon some element of it, the judgement being made in the light of the consequences of the act (HNC p.113).³³

The concept of motive is thus inseparable from that of interpretation. Its general content is fixed by its cultural role in justifying and explaining acts. Interpretation of individual actions involves essential reference to social

practices of explaining and evaluating behavior (assigning praise and blame, apportioning responsibility) and to the institutions and traditions through which those practices develop, are sustained and are rendered meaningful:³⁴

The whole concept of motives is in truth extra-psychological. It is an outcome of the attempt of men to influence human action, first that of others, then of a man to influence his own behavior (HNC p.112).

Thus, even as an adult the outcome of one's actions is dependent on prevailing institutions and customs, and the actions and responses of others. For this reason it is no less separable from its cultural conditions:

since habits involve the support of environing conditions, a society or some specific group of fellow-men, is always accessory before and after the fact... Conduct is always shared; this is the difference between it and a physiological process. It is not an ethical "ought" that conduct should be social. It is social, whether bad or good (HNC p.19).³⁵

Dewey does not deny the existence of individuality and consciousness, he insists only that the individual is defined by its identifications with actions that flow from habits formed in transaction with the physical and social environment:³⁶

(ii) Communication is distinct from non-communicative organic response in that it involves participation, cooperation and sharing.³⁷ A sound, a gesture or a written mark is the raw material of language but it becomes meaningful through its organized deployment in the context of shared practices, that is "when its use establishes a genuine

community of action" (EN p.153). Physical objects become meaningful insofar as they serve to evoke, regulate and coordinate activities performed by different persons so as to produce shared consequences. Responding to a request for an object, for example, involves more than a reaction to an isolated sound, a gesture or even to the object indicated:

the stimulus is [the] anticipatory share in the consummation of a transaction in which both participate. The heart of language is not "expression" of something antecedent, much less expression of antecedent thought. It is communication; the establishment of cooperation in an activity in which there are partners, and in which the activity of each is modified and regulated by partnership (EN p.148).

Communication thus "depends upon connection with shared experience" (DE p.15) in specific concrete situations involving transactions with the surroundings. In communication things are made common between participants through the appeal to shared responses; "Understanding one another means that objects, including sounds, have the same value for both with respect to carrying on a common pursuit" (DE p.15):³⁸

To fail to understand is to fail to come into agreement in action; to misunderstand is to set up action at cross purposes (EN p. 149).

Communication thus requires more than the mere coincidence of behavior between participants, it involves participation in a shared pursuit, a mutual identification, at varying levels of generality, with the aims and meaning of the activities involved.³⁹ Thus communication is

fundamentally public.⁴⁰

For Dewey, communication also has an irreducible, hermeneutic component. In conversational transactions both speaker and hearer are transformed through their participation:

Not only is social life identical with communication, but all communication (and hence all genuine social life) is educative. To be a recipient of a communication is to have an enlarged and changed experience. One shares in what another has thought and felt and in so far, meagerly or amply, has his own attitude modified. Nor is one who communicates unaffected... experience has to be formulated in order to be communicated. To formulate requires getting outside of it, seeing it as another would see it, considering what points of contact it has with the life of another so that it may be got into such a form that he can appreciate its meaning. Except in dealing with commonplaces and catch phrases one has to assimilate, imaginatively, something of another's experience in order to tell him intelligently of one's own experience (DE pp.5-6).⁴¹

In short then, communication is securing cooperation in shared activity that involve transactions with the environment (EN p.153). Language is a form of social practice, a skill, which is participatory, cooperative and reconstructive. It is a product of culture, for both the form and content of language vary temporally within traditions and spatially across diverse traditions (LI p.62). Therefore language is expressive of social relations. But language is also a condition of culture, insofar as communication is the means of retaining and transmitting practices and meanings across generations. Thus language is also constitutive of social relations. The tools of

discourse are tools for the formation and transformation of cultural life:

Society... may fairly be said to exist in transmission, in communication. There is more than a verbal tie between the words common, community, and communication. Men live in a community in virtue of the things which they have in common; and communication is the way in which they come to possess things in common. What they must have in common in order to form a community or society are aims, beliefs, aspirations, knowledge-- a common understanding... The communication which insures participation in a common understanding is one which secures similar emotional and intellectual dispositions -- like ways of responding to expectations and requirements (DE p.4).⁴²

4. CONCLUSION: THE IMPACT OF DEWEY'S RECONSTRUCTION.

The foregoing offers a general overview of Dewey's portrait of the situated subject. While many conceptual subtleties have been omitted, enough has been provided to outline the intent and force of the position, particularly with respect to Nominalism as it has been portrayed throughout this dissertation.

Dewey rejects the Nominalist's view of the subject as a self-contained asocial being. For Dewey, personal identity does not inhere in an abstract, isolated entity, rather it is a relation. A shifting network of habits which constitute the self and which are defined in interaction with its environment. On this view self-identity is achieved, not given. Its unity is not a primary datum, it is constructed through the integration of all the things a person is into a coherent life history. The personal powers that constitute

the self develop through acting in the social and natural world. Actions performed by the self, are expressions of personal identity-- they are enactments of past modes of relating to the world in new experiential contexts. At the same time actions constitute the self, personal identity emerges and is continuously modified as it is acted out, in light of its past, present and anticipated impact in the world. The Deweyan subject is perpetually defined in relation to that which it is not. Reality thus completes the self, it is not merely set against it; subject and object are mutually interacting phases of an integrated, though dynamic, totality. The trajectory of this interaction is not fixed in advance by some native essence. The history of action is the history of the development and growth of an organism; not the unfolding of a fixed potentiality. Education, the process of self-formation, is a continual process, not one that ends at maturation, or at some pre-determined stage. It is the indeterminate development of a self-in-the-world; the result of constant, contextual and open-ended reconstruction in negotiation with the supports, frustrations and transformations of the socio-cultural environment.

Dewey's view is equally devastating to the conception of the subject as a passive knower of isolated facts-- the ideas of experience. For Dewey the subject is an active participant rather than a passive spectator. Even the receptivity of sense perception involves a transformation of

one's surroundings through interpretation. As a result objects and events are never confronted in isolation, they emerge within a surrounding context. Experience is a confrontation through which self and world emerge; it is a matter of action and reaction, of doing and undergoing (RP p.86). Experience in its immediacy is primarily urgent, rather than cognitive in quality. Knowing is only one (and a highly specialized one at that) of myriad ways in which humans define themselves in relation to the world. The content of experience is inseparable from the habits (including pre-reflective habits), in relation to which it has significance, "the shocks of experience are transitions in courses of behavior, points of readjustment in the life-process" (RP p.89). What is grasped in experience are cues to action, opportunities to carry the efforts and projects of the subject forward to fulfillment. Living is not a matter of receiving the fixed, antecedently existing, meaning of events; it is a matter of finding meanings in reality through the creative and continuous exploration of its possibilities. The relation of subject and object is not fixed; it is matter of innovative (re)discovery.

In doing away with the atomistic, intellectualist conception of experience typical of Nominalism, Dewey's biological reconstrual of the notion of conduct removes the idealist's motivation for positing an Absolute Mind; without reifying analytical distinctions in experience as autonomous

separate entities, the posit of a subsequent synthesis by Mind is no longer required. Similarly by blocking the materialist's reduction of the organic to the merely physical, the move to "save" the lived world from the reaches of physics through ontological separation is avoided.

What biology does for the notion of experience, anthropology does for culture. Recall that for the Nominalist meanings (ideas) are private, determinate, mental entities. Ideas are conveyed in public discourse through the use of signs established by social conventions. The use of any particular sign to stand for an idea is a convenience adopted for purposes of communication, but there is no inherent connection between the two, they are independent entities. In this sense the problem of meaning and the problem of politics are formally similar. For the Nominalist society is a collection of complete (fixed and determinate), fully formed individuals. The state is a conventionally structured entity created by individuals (through something like a contract) as a means to external, given ends (the satisfaction of antecedently determined private desires, shared instincts, such as evolutionary success, and so on).⁴² In both cases the private is synonymous with the given, fixed, determinate and self-enclosed, the public is synonymous with the artificial, conventional and arbitrary. Similarly, public and private are sharply separated, each delimits a self-contained and autonomous domain.

By insisting on the continuity and interdependence of the private and the public Dewey denies their separability. For Dewey Nominalism confuses artifacts (selves and meanings) for given, determinate entities and is therefore guilty of reifying the consequences of particular, historically conditioned social relations as antecedently existing reality. Public language is not constructed by social contract to express private thoughts, rather private thought is constituted out of (and reacts into) social resources; the institutionalized vehicles for expression. Discourse is thus constitutive of, not merely instrumental to, collective action; it is the institution of institutions, or in Dewey's words, the tool of tools.

Because they are interdependent, the public realm is not intrinsically set against the private as an external threat or constraint, rather it offers, in principle if not always in practice, a meaningful context for self-expression and growth through participation in shared projects that secure one's self-identity as they enrich and complete it. Such participation requires facility with the conventions that structure social relations as well as the ability to continue their application in novel situations. The internalization of the social is not a matter of forming a passive wax tablet, it is a transaction in which the self and its others have a formative role. The self is not merely an expression of social relations", for although cultures and choices make

people, on Dewey's view, people through their actions make and reconstruct cultures. Cultural institutions and practices are means of organizing behavior that are sustained by the activities and commitments of their participants, each of whom interprets those institutions in the context of his/her life-history. Actions become both expressive of social relations (in so far as socially entrenched meaning conventions provide a context of significance) and constitutive of them (as the significance of cultural practices evolves through their extension into unheralded contexts).

Thus the cultural, the individual and the natural constitute a single integrated (continuous) totality; each is definable only in reference to the others. They are not hierarchically ordered (none is privileged since they are interdependent). Nor are they decomposable into separate forces (their relationship is not merely additive). Neither serves as an independent variable, to which the others are reducible. Their relationship is not given, ready-made and fixed it is shifting and dynamic:

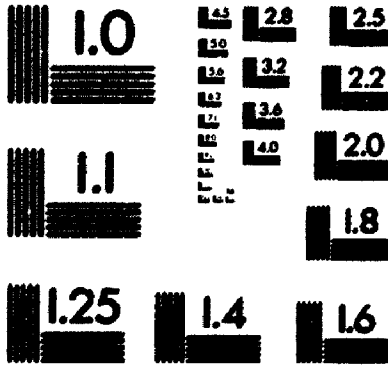
In a definite sense, then, human society is always starting afresh. It is always in a process of renewing, and it endures because of renewal (HNC p.91).

The reconstruction of the fabric of tradition through the reweaving of its diverse, yet interconnected strands, and its connection to the lives of its participants is the very project of culture itself.

NOTES

1. There is much to lose from overlooking the similarities of Peirce and Dewey but their differences are of greater interest for present purposes. Dewey's debt to Peirce (and vice versa) should be apparant, but explicit comparisons are, for the most part, left to the reader.
2. For a key to the abbreviations in the references to Dewey's work see Appendix I.
3. See Ratner's discussion ([PD pp.49-52]).
4. There is much to learn from Dewey's analysis of the trade-offs of Aristoteleanism and the enlightenment programme. His pragmatism is repeatedly defined in relation to them. In the following discussion, however, this is left lurking in the background.
5. The idea that styles of reasoning constitute their objects, not by creating them, but by providing a formal analysis (cashed out in terms of methodological rules) of what it is to be an object (or not) is the legacy of Kant. But Kant also yields the key problem that results. If for every style of reasoning there is a distinct realm of objects, then the presence of incommensurable styles yields a plurality of ontological realms. The traditional tools for reconciling the moral, the physical and the aesthetic "worlds" are reduction or separation. Even in Peirce, "feeling" and "action" are preserved but only as moments (of inferior ontological status) in the process of "thought". But their subjugation comes only by insisting on the authority of science, not by demonstrating it; thereby inviting romantic and idealist responses in which morals, religion or feelings are privileged over reason. Dewey attempts to abolish the hierachical structure and to reconcile social practices and human faculties, thereby reintegrating experience.
6. Here Dewey is at odds with the conceptual relativity that Davidson attacks, that Stich (forthcoming) seems to be resurrecting and that Rorty approaches on several occasions. Rorty is discussed in the final chapter of this dissertation.
7. "The term 'naturalistic'...means...that there is no breach of continuity between operations of inquiry and biological operations and physical operations. 'Continuity'... means that rational operations grow out of organic activities, without being identical' with that from

3



which they emerge" (LI p.26).

8. This is all the thesis of continuity demands. The charge by Nagel (LI pp.xiv-xv), Alexander (1987, p.69) and Thayer (1981, pp.174-5) that Dewey gives no detailed analysis of the notion is misplaced. There is no desire, as with Peirce, to reduce "continuity" to a single (mathematical) form; "It is not to be determined by prior conceptual constructions, even though such constructions may be helpful as hypotheses when they are used to direct observation and experimentation" (LI pp.30-1). Causal chains involving minute increments or abrupt mutations are both compatible with this thesis.

9. "In brief, the environment consists of those conditions that promote or hinder, stimulate or inhibit, the characteristic activities of a living being... Just because life signifies not bare passive existence (supposing there is such a thing), but a way of acting, environment or medium signifies what enters into this activity as a sustaining or frustrating condition" (DE pp.11-2). "There are things in the world that are indifferent to the life-activities of an organism. But they are not parts of its environment, save potentially" (LI p.32). See also (LI p.40; EN p.227).

10. "Were there no such thing as nutritive assimilation and hunger there would be no such thing as food; the plants and animals that now serve as foods might exist just the same but they would not be foods" (Dewey 1925, p.324).

11. Dewey equivocates in his use of the term environment. When he is most careful environment includes the intra-organic and the extra-organic; I will use the term in this way throughout my discussion. At other times, as in the quote immediately following this note, he contrasts organism and environment, using the latter term to refer to that portion of the surroundings "spatially and temporally 'external' to [the organism] but 'internal' to its functions" (EN p.227). I use the term "outer environment" to refer to this extra-organic phase of the environment.

12. By way of elaboration Dewey writes: "By need is meant a condition of tensional distribution of energies such that the body is in a condition of uneasy or unstable equilibrium. By demand or effort is meant the fact that this state is manifested in movements which modify environing bodies in ways which react upon the body, so that its characteristic pattern of active equilibrium is restored. By satisfaction is meant this recovery of equilibrium pattern, consequent upon the changes of environment due to interactions with the active demands of the organism" (EN p.207). These concepts are to be interpreted organically in terms of interactions of organisms and surroundings, not as isolated psychic forces.

13. "Understanding the word 'control' in this sense, it may be said that a living being is one that subjugates and controls for its own continued activity the energies that would otherwise use it up. Life is a self-renewing process through action upon the environment" (DE pp.1-2). Note also that this holds for organisms at all levels of complexity. "Even a clam acts upon the environment and modifies it to some extent. It selects materials for food and for the shell that protects it. It does something to the environment as well as has something done to itself. There is no such thing in a living creature as mere conformity to conditions, though parasitic forms may approach this limit. In the interests of the maintenance of life there is transformation of some elements in the surrounding medium. The higher the form of life, the more important is the active reconstruction of the medium" (RP p.84-5).

14. "Thus employed, 'psycho-physical' denotes the conjunctive presence in activity of need-demand-satisfaction... 'psycho' denotes that physical activity has acquired additional properties, those of ability to procure a peculiar kind of interactive support of needs from surrounding media. Psycho-physical does not denote an abrogation of the physico-chemical; nor a peculiar mixture of something physical and something psychical... it denotes the possession of certain qualities and efficacies not displayed by the inanimate. ...there is no problem of the relation of physical and psychic. There are specifiable empirical events marked by distinctive qualities and efficacies. The problem is one of definite factual inquiry. Under exactly what conditions does organization occur, and just what are its various modes and their consequences?" (EN pp.208-9).

15. This view is first developed in Dewey's infamous paper "The Reflex Arc Concept in Psychology" where he writes: "The fact is that stimulus and response are not distinctions of existence, but teleological distinctions, that is, distinctions of function, or part played, with reference to reaching or maintaining an end" (EW 5, p.104).

16. "In habit and learning the linkage [between excitations and reactions] is tightened up not by sheer repetition but by the institution of effective integrated interaction of organic-environing energies-- the consummatory close of activities of exploration and search" (LI p.38).

17. For example Dewey writes that "eye, arm and hand are, correspondingly, means proper only when they are in active operation. And whenever they are in action they are cooperating with external materials and energies. Without support from beyond themselves the eye stares blankly and the hand moves fumblingly. They are means only when they enter

into organization with things which independently accomplish definite results. These organizations are habits" (HNC pp.26-7).

18. Dewey notes that "we never experience nor form judgements about objects and events in isolation, but only in connection with a contextual whole. This latter is what is called a 'situation'.... an object or event is always a special part, phase, or aspect, of an enviroing experienced world--a situation. The singular object stands out conspicuously because of its especially focal and crucial position at a given time in determination of some problem of use or enjoyment which the total complex environment presents. There is always a field in which observation of this or that object or event occurs. Observation of the latter is made for the sake of finding out what that field is with reference to some active adaptive response to be made in carrying forward a course of behavior. One has only to recur to animal perception, occurring by means of sense organs, to note that isolation of what is perceived from the course of life-behavior would be not only futile, but obstructive, in many cases fatally so" (LI pp.72-3). See the discussion of Dewey's concept of a "situation" in chapter 7.

19. That identifications and integrations with surroundings crystalize below the level of awareness, is evident from their occasional unsummoned intrusion in life and from the common experience of surprise at one's own reactions.

20. Thus it is not our fears that project threats into the world, we are fearful because the world can be so threatening in relation to us (EN p.39).

21. This process is creative insofar as the extension involves judgements of relevance and propriety, that is, (re)interpretation.

22. Throughout this section Dewey engages debates about the innateness of language, dramatically presented in the confrontation of Piaget and Chomsky (see Palmarini [1980]). Dewey clearly lies in the constructivist camp. He would agree with Piaget and Arbib that the child confronts language in a context of its own needs and actions, and the actions of adults. He would question the intellectualist assumptions of Chomsky, which pictures the child as confronting linguistic entities, and the attempt to reduce knowledge of how to communicate to knowing that certain grammatical rules obtain or not. This debate is more sophisticated than Dewey's characterization of either constructivism or nativism allows, but Dewey is not, as a result, simply irrelevant. Arbib (1985; 1986) takes Piaget's constructivism even more closely to Wittgenstein and hence closer to Dewey as well. Citing

studies at odds with Chomsky's picture of language acquisition Arbib concludes that the question is very much an open one as to whether it is the leading contender. Since Dewey's notion of "habit" is virtually identical to Arbib's "schemas" I take it Dewey's views are anything but passe. On Dewey's challenge to Chomsky see Bruner et. al. (1977).

23. Dewey writes that "It is true enough that in all cases we are able to identify certain more or less separable characteristic acts-- muscular contractions, withdrawals, evasions, concealments. But in the latter words we have already brought in an environment. Such terms as withdrawal and concealment have no meaning except as attitudes toward objects" (HNC p.144).

24. For example, Dewey argues that the psychoanalysts's concept of love involves "the transformation of social results into psychic causes...They treat phenomena which are peculiarly symptoms of the civilization of the West at the present time as if they were the necessary effects of fixed native impulses of human nature. Romantic love as it exists today, with all the varying perturbation it occasions, is as definitely a sign of specific historic conditions as are big battle ships... It would be as sensible to treat the latter as effects of a single psychic cause as to attribute the phenomena of disturbance and conflict which accompany present sexual relations as manifestations of an original single psychic force or Libido" (HNC pp.143-4). Again, this is accomplished only by separating the instincts from the environment in which they emerge and operate.

25. In the case of war the motives of Homeric glory or private profiteering have been replaced by more global economic and political forces. As Dewey notes "between a loosely organized pugilism and the highly organized warfare of today there intervenes a long economic, scientific and political history" (HNC p.107).

26. Thus Dewey writes, the "need for appropriation has had to be satisfied; but only a calloused imagination fancies that the institution of private property as it exists A.D. 1921 is the sole or the indispensable means of its realization. Every gallant life is an experiment in different ways of fulfilling it. It expends itself in predatory aggression, in forming friendships, in seeking fame, in literary creation, in scientific production" (HNC p.110). Similarly, to "explain the origin of the state by saying that man is a political animal is to travel in a verbal circle. It is like attributing religion to a religious instinct, the family to marital and parental affection, and language to a natural endowment which impels men to speech. Such theories merely reduplicate in a so-

called causal force the effects to be accounted for. They are of a piece with the notorious potency of opium to put men to sleep because of its dormitive power" (PP p.9).

27. "I do not mean of course that hunger, fear, sexual love... [etc.] play no part. But I do mean that these words do not express elements or forces which are psychic or mental in their first intention. They denote ways of behavior. These ways of behaving involve interaction, that is to say, and prior groupings. And to understand the existence of ways or habits we surely need to go to physics, chemistry and physiology rather than psychology" (HNC pp.58-9).

28. Intelligence will be treated in greater detail in the next chapter. For now it is the reinterpretation of the relationship between habit and impulse that is of central concern.

29. Dewey drops the term "instinct" since it "is still too laden with the older notion that an instinct is always definitely organized and adapted-- which for the most part is just what it is not in human beings" (HNC p.99n). The attempt to argue for a fixed human nature in terms of given instincts rests on two mistakes: even in animals instincts are less infallible and definite than is supposed by this theory, and furthermore, humans differ from less complex animals precisely in the fact that their native activities lack a ready-made organization (HNC p.102).

30. Consider an every day activity like buying food. The exchange can be described at the level of social interaction and institutions without reference to the physical processes involved in the transaction; such transactions are not reducible to a fixed set of biological or physical processes since there are a limitless number of distinct circumstances under which it can take place-- by phone, by messenger, in person. Yet in buying food I surely exploit biological talents (locomotion, thought, speech, digital dexterity) and these activities take place in a physical environment of forces, energy flows, both within the body and without. Humans do not cease to be organisms or physical systems when engaging in activity not describable at the biological or physical levels. The example is from Dennett (1988).

31. "Even in the cases of hunger and sex, where the channels of action are fairly demarcated by antecedent conditions (or 'nature'), the actual content and feel of hunger and sex, are indefinitely varied according to their social contexts" (HNC p.143).

32. To learn how to engage in social practices the child must initially acknowledge the authority of the prevailing conventions of meaning; without doing so the sense of the activity cannot be grasped. As an adult she becomes a participant in shaping those conventions, but the meaning and consequences of her actions, as noted above, are no less dependent upon the actions and reactions of others. Thus "babies owe to adults more than procreation, more than continued food and protection which preserve life. They owe to adults the opportunity to express native activities in ways which have meaning... In short, the meaning of native activities is not native; it is acquired. It depends upon interaction with a matured social medium" (HNC pp.85-6).

33. "A motive in short is simply an impulse viewed as a constituent in a habit, a factor in a disposition" (HNC p.114).

34. This holds even for actions at odds with tradition. Also, Dewey is aware that not all actions are appraised, some are unnoticed, others are ignored as unimportant. But even this reflects social practices about what does and does not fall under the scrutiny of judgements, what acts are or are not morally relevant. Even indifference involves appraisal; "Neutrality is non-existent. Conduct is always shared" (HNC p.19).

35. As Dewey elsewhere puts it, "[t]hinking and feeling that have to do with action in association with others is as much a social mode of behavior as is the most overt cooperative or hostile act" (DE p.12). "We might as well try to imagine a business man doing business, buying and selling, all by himself, as to conceive it possible to define the activities of an individual in terms of his isolated actions" (DE p.12). "To change the working character or will of another we have to alter objective conditions which enter into his habits. Our own schemes of judgement, of assigning blame and praise, of awarding punishment and honor, are part of these conditions... we change character from worse to better by changing conditions-- among which, once more, are our own ways of dealing with the one we judge" (HNC p.22). See also (HNC p.21).

36. "Individuals still do the thinking, desiring and purposing, but what they think of is the consequences of their behavior upon that of others and that of others upon themselves...while singular beings in their singularity think, want and decide, what they think and strive for, the content of their beliefs and intentions is a subject-matter provided by association. Thus man is not merely de facto associated, but he becomes a social animal in the make-up of his ideas, sentiments and deliberate behavior" (PP pp.24-5).

37. "If the mere existence of sounds... constituted language, lower animals might well converse more subtly and fluently than man. But they become language only when used within a context of mutual assistance and direction" (EN p.146).

38. Elsewhere Dewey writes that conversation involves the "transformation of the quality of [one's] experience till it partakes in the interests, purposes and ideas current in the social group..." (DE pp.10-1). In communication "[s]omething is literally made common in at least two different centres of behavior. To understand is to anticipate together, it is to make a cross-reference which, when acted upon, brings about a partaking in a common, inclusive, undertaking" (EN p.148). Thus "in that response to another's act involves contemporaneous response to a thing as entering into the other's behavior, and this upon both sides" (EN p.149).

39. "Men group themselves also for scientific inquiry, for religious worship [etc.]...In each case some combined or conjoint action... results in producing distinctive consequences-- that is, consequences which differ in kind from those of isolated behavior. When these consequences are intellectually and emotionally appreciated, a shared interest is generated and the nature of the interconnected behavior is thereby transformed" (PP p.27). Thus in socialization "[m]aking an individual a sharer or partner in the associated activity so that he feels its success as his success, its failure as his failure, is the completing step" (DE p.14).

40. "Language is specifically a mode of interaction of at least two beings, a speaker and a hearer; it presupposes an organized group to which these creatures belong, and from whom they have acquired their habits of speech. It is therefore a relationship, not a particularity" (EN p.153).

41. The passage continues "All communication is like art. It may be fairly said, therefore, that any social arrangement that remains vitally social, or vitally shared, is educative to those who participate in it. Only when it becomes cast in a mold and runs routine does it lose its educative power" (DE p.6).

42. "The planets in a constellation would form a community if they were aware of the connections of the activities of each with those of the others and could use this knowledge to direct behavior" (PP p.25).

43. Of course Nominalism recognizes the importance of education in the development of the self as evinced, for example, in the bracketing of rights and responsibilities on the basis of mental incapacity due to age. But the mature

agent is taken as fully formed, with a fixed range of aims (maximization of utilities, evolutionary success and so on), and a fixed range of preferences. For the separation of agents into "learners" and "choosers" and its consequences for Nominalist social theory see Bowles and Gintis (1987, p.121-51).

44. This line is typified classical Marxism. In Capital Marx writes: "individuals are dealt with here only insofar as they are personifications of economic categories, the bearers of particular class relations and interests. My standpoint, from which the development of the economic formation of society is viewed as a process of natural history, can less than any other make the individual responsible for relations whose creature he remains" (Marx 1977, Capital vol. 1 [NewYork: Vintage Press], p.92).

CHAPTER VII - DEWEY ON INQUIRY AND EPISTEMIC AUTHORITY.

1. INTRODUCTION.

Earlier it was stated that Dewey's use of the notions of community and conduct to explicate his theories of inquiry and truth represents an inversion of Peirce's approach and is Dewey's most significant and radical departure from Pragmatism. Building on the discussion of chapter 6, this chapter describes the extension of Dewey's cultural naturalism into the domain of cognition. This will complete the defence of my contention that Dewey's view is best read as a form of pragmatism without the limit. It will also provide the tools and background necessary to discuss, in chapter 8, the significance of Dewey's answer to the charge of cultural relativism for current debates among pragmatists about objectivity and truth.

First, Dewey's conception of the pattern of Inquiry is discussed in an effort to understand his version of constructivism. Next, Dewey's view of the relationship between science and common sense is reviewed to illustrate his pluralism. Finally, Dewey's answer to the charge that his view is a form of subjective idealism or relativism is considered. His best known thesis, that truth is warranted assertability, is assessed in light of the broader argument of this dissertation.

2. DEWEY'S THEORY OF INQUIRY.

The definitions involved in Dewey's theory of inquiry are notoriously obscure and worrisome. These difficulties are compounded by commentators who attempt to deduce a theory of inquiry from those definitions, rather than see how Dewey's definitions work in the context of his examples.¹ Dewey's puzzlement at the interpretation of his theory, by such critics², stems from the fact that his general conceptions are intended to do no more than codify the features of inquiry and experience that he takes to be of greatest significance. In a sense he is offering an interpretation of what is already done in everyday life and in specialized contexts of inquiry. To that degree his account is descriptive or empirical. Yet his interpretation is reconstructive, and therefore has normative force, precisely because it renders features significant that other theories (specifically Nominalism and Aristoteleanism) either eliminate, fail to legitimate, or misconstrue (RP pp.135f.). Thus Dewey's argument follows the very pattern of deliberation outlined in his general theory of inquiry; namely, from actual practice, to codification in conceptual terms, and back to practice (PD p.561). It is this pattern I wish to replicate here.

A. The Pattern Of Inquiry: Some examples.

In several places in his Logic Dewey cites the example of law to illustrate the general phenomena of experience and

inquiry that his theory is trying to save. The general subject-matter of law is the day-to-day transactions among people, both individually and in groups (LI p.105). An institutionalized body of law serves to classify certain aspects or phases of these transactions as legitimate, and others as illegitimate (LI p.24). Yet the codification of practice in law then serves to regulate future interpersonal transactions and thus law is also formative of new social relations (LI p.106). That is, laws define ways of operating both for those on whom they are binding and for those charged with enforcement.

At the same time bodies of law are not static. The content of an individual law is enriched and its discriminations rendered more subtle as it is applied to cases at once similar to legal precedent and yet unique in circumstance. Such situations are problematic to the degree that there is doubt about how best to extend past modes of practice. Where established practice is indecisive, the appropriate mode of response is indeterminate. Such problems arise only in a specific context of interactions between cases and principles. Thus established practices provide a framework for the conflict, and a broader context within which alternatives arise as possible solutions.

Formal legal proceedings are, for Dewey, a "literal instance of judgement" (LI p.123), where judgement is "identified as the settled outcome of inquiry" (LI p.123).

Trials arise as a result of a dispute among specific parties about the propriety of conflicting courses of action in a particular context. The method of resolution involves the determination of relevant facts and the interpretation of the significance of those facts in light of both the spirit and letter of a current body of law. The object of the trial is to reach a settlement. The final judgement is individual in the sense that it serves to decide the future actions of the particular parties involved with respect to the particular conflict at issue and yet it is of general significance in so far as it adds to the body of precedent and thus serves as reference for similarly situated parties in the future.

In general, a body of law evolves through its reinterpretation in particular cases, and by amendments and deletions in response to conflicts arising from within the legal system and in response to changes in its subject-matter, the interpersonal relations among citizens. Thus law provides an illustration of:

the ways in which "natural" modes of action take on new forms because of subjection to conditions formulated in the rules. As new modes of social interaction and transaction give rise to new conditions, and as new social conditions install new kinds of transaction, new forms arise to meet social need (LI pp.370-1).

The import of this example will become clearer in what follows but its general features can be summarized already. First and foremost is the fact that laws derive their content and significance from their practical instantiations. They

arise out of ordinary practical transactions. They are not deducible a priori, nor are they merely empirical generalizations about current social practices, since they select and organize features of those transactions to form a normative regulatory framework.

Secondly, the participants are contextually situated. The resolution of a legal conflict is not graspable a priori, nor is it empirically ascertainable from past cases. The final judgement is creative, since it extends established practices in novel ways, yet it is not arbitrary. Not only does it matter how such decisions go (talk of better and worse makes sense here), but the decision is constrained by the facts of the case, by precedent, and by a general sense of the significance and purpose of the transactions in dispute. It is in these terms that alternative resolutions of the case are measured and that the force of the arguments of competing parties is gauged. Thus, the final judgement emerges out of the products of prior judgements but its continuity with those judgements is a problem to be solved, not an antecedently existing relation awaiting detection.

Finally, because the legal framework is not static or fixed, it is subject to renegotiation in confrontation with novel situations. Both the form and the content of the legal system evolve through the process of deliberation about concrete cases.

Another of Dewey's preferred analogies for inquiry is

art. In the fine arts objects of every day experience are subjected to various operations in which their significance is transformed. These operations can be codified as principles of style, but these principles are neither transcendental laws, nor empirical generalizations. They do not appear in art as a common essence among the works of an artist. Rather they emerge in the works of an artist, through the confrontation of her skill with materials in the context of a personal history that is in turn embedded in a cultural tradition. The antecedent materials take on significance by their incorporation into a pattern of behavior directed toward a particular effect or result (LI p.126). In writing for example, hand, pen and paper interact to attain creative expression. The final object is not envisaged as a completed work prior to its writing, yet specific sentences are measured and gauged by the general sense towards which the piece moves. It matters how the piece turns out, as the erasing and rewriting of the text make evident. At the same time the point of the piece is given concrete shape as new sentences are added. The style and sense of each particular work is renegotiated as it proceeds. Art thus serves as an additional illustration of the way "new formal properties accrue to subject-matter in virtue of its subjection to certain types of operation" (LI p.105). It also shows the ways in which form and content evolve in meaningful integration through their incorporation

in directed courses of action (LI p.4).

B. The General Theory of Inquiry.

Despite the considerable difference in the significance of the habits relevant to art, science and social conduct, Dewey insists that all such behavior involves instantiations of the general cycle of need-effort-fulfilment (RP p.87). Furthermore, while acknowledging the diversity of the methods and subject-matters in various domains of inquiry, Dewey insists that all types of inquiry have a common pattern. It is these general features of inquiry as conducted in actual, or existential, situations that Dewey is attempting to highlight in his definition of inquiry as the:

controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole. (LI p.108)

Nissen's (1969, p.11) objection that this definition describes only successful inquiry simply misses the point of Dewey's functional approach. Functional definitions typically describe what it is for something to fulfil some specific purpose correctly. For example, the definition of a wristwatch would include a list of the characteristics desired in anything intended to fulfil that purpose: small, lightweight, portable, easy to read, and accurate in keeping time. In short, such a definition illustrates what a good wristwatch is.³ Nothing in this definition implies that there can be no bad watches, but it is precisely in relation

to these defining characteristics that evaluations of objects as watches are made.⁴ Similarly, by framing the definition of inquiry in functional terms Dewey does not deny the possibility of unsuccessful inquiry, rather he provides an implicit, if yet to be articulated, criterion of assessment for putative methodological strategies in terms of which inquiries can be evaluated.

(i) Antecedent Conditions of Inquiry.

In the previous chapter it was noted that experience, for Dewey, is manifested as a felt resistance to the life-activities of an organism (PD p.531). Subject and object are not prior to this resistance rather, as with Peirce, they are its two sides (PD p.541). Self and other are related as interdefined aspects of a more or less unified totality, or environment (DC p.196-7). Since the integration of an organism and its surroundings fluctuates and develops there is always some such resistance, ranging in degree from the incidental to the traumatic or fatal (HNC pp.168-9; RP p.88). This is just to say that each experience taken in its qualitative immediacy is unique; it is that particular experience and not some other one (QC pp.233-5). Yet there is continuity, for the felt quality of experience is defined in terms of the impingements of the surroundings on the habits that attempt to control or assimilate them as supports for directed actions (and vice versa) (PD p.545).

To grasp Dewey's denial of the separation of mind and

world, his rejection of the atomistic conception of experience touted by classical empiricism, and the interconnection of subject and object as the locus of experience, is to grasp the import of Dewey's notion of situation. A situation:

is not a single object or event or set of objects or events. For we never experience nor form judgments about objects and events in isolation, but only in connection with a contextual whole. This latter is what is called a "situation" (LI p.72).²

Situations are not objects of experience, rather they are the contexts in which experiences of objects occur. Objects are perceived in contexts which contain the subject. They are picked out of their surroundings as the focus of attention. To say that objects are not experienced individually is not to deny that we encounter individual tables, rather it is to say that such encounters are active, not passive. Individual tables are discriminated or selected as the focus of experience based on their relevance in a given context. To objectify something as a table is to simultaneously set oneself in relation to that which it is not; to constitute its surroundings as peripheral context, frame or, to use Dewey's term, a field (LI p.126; EN pp.244f.).

Inquiry is occasioned by indeterminate situations. Situations are indeterminate by virtue of the disruption of the integration of an organism and its surroundings. Since situations contain subjects and objects, their indeterminacy is neither wholly in the objects of experience, nor is it

wholly in the mind:

It is the situation which has these traits. We are doubtful because the situation is inherently doubtful (LI p.109).⁶

The status of this indeterminacy is best grasped by analogy with other qualitative characterizations of situations. Though each situation is qualitatively unique, general terms such as distressing, tragic, cheerful and perplexing can be applied to them. These terms do not refer to specific traits of objects or subjects, rather they characterize the quality of their interaction:

such qualities permeate and colour all the objects and events that are involved in an experience (LI p.75).

In indeterminate situations, it is not that there is an uncertain response to a determinate stimulus, rather the stimulus itself is indeterminate in so far as the impingement of the surroundings on the current stock of habits of the organism (habits in interaction with which such impingements have significance) yields no clear verdict as to how to respond in this situation. The indeterminacy "results from existential causes" (LI p.111) and thus it is the environment that is indeterminate:

Every such interaction is a temporal process, not a momentary cross-sectional occurrence. The situation in which it occurs is indeterminate, therefore, with respect to its issue... The immediate locus of the problem concerns, then, what kind of responses the organism shall make. It concerns the interaction of organic responses and environing conditions in their movement toward an existential issue... neither the outcome [of the subsequent conduct] nor the conduct [itself] are "mental" events (LI p.111).⁷

Failure to grasp this point is widespread among early Dewey commentators. Nagel, Nissen and Thayer (1952)² argue independently that it makes sense to say that the causes of doubt can exist outside the body of the doubter, but that this does not make the situation doubtful. The source of the indeterminacy is the doubt that lies wholly within the inquirer. Nissen, for example, considers the case of a geologist confronted by a rock whose classification is in doubt. Since, on Dewey's account, it is the indeterminate situation which evokes inquiry and since that which evokes the inquiry in this case is the rock, Nissen wonders what Dewey could possibly mean by saying that the rock is indeterminate, doubtful, obscure or confused:

The geologist is the inquirer. The rock is that which evokes the inquiry and so, presumably, is the initial situation. Ordinarily, we would say that the geologist is, at the beginning of this inquiry, doubtful about what kind of rock he sees; and, ordinarily, we would not describe the rock as being doubtful. Dewey, on the other hand, maintains that both are doubtful (Nissen p.31)

As should be clear from the foregoing, this objection confuses situations and objects. The rock, in Nissen's example is an object and objects are perceived, known, or inquired into in situations. To the say the situation is indeterminate (doubtful), is not to say that the geologist's surroundings are indeterminate (doubtful) in themselves. Rather the surroundings are indeterminate qua environment. That is, the significance of the surroundings with respect to the organic habits, through which objects and organisms are

meaningfully related, is in doubt. The rock is indeterminate in so far as the modes of objectification, the procedures in terms of which it can be said to be a rock of one particular kind or another, result in no clear verdict."

Dewey's point is easier to grasp if we use the term "anomalous" rather than indeterminate. Anomalies are experiences which challenge expectations embodied in theories. Theories guide the actions of inquirers in interacting with their subject-matter and in employing the tools and apparatus with which that subject-matter is measured, controlled and gauged in new situations. In saying that it is the situation which is anomalous Dewey is denying the separation of subject and object in these contexts. Rocks are not anomalous in themselves, rather they are anomalous only in relation to a theory, a body of expectations about the nature of the world and the experiences one can expect from it. When Dewey denies that the doubtfulness of a situation is subjective, he is not denying that it is the inquirer who is doubtful, he is denying that one can construe the state of doubt as an independent variable. Dewey wants to say that the anomaly does not exist solely in the mind or solely in the object, but rather in the way objects impinge on the expectations embodied in habits which constitute the mind. Things are anomalies because of their doubtful status, but they cause us to doubt because they are anomalies.

Furthermore, because the doubt in question is not an isolated or self-contained mental state, it is incorrect to say that knowledge is attained whenever the doubting state is replaced by a feeling of assurance, or that knowledge is attainable by acts of will (QC p.233).¹⁰ The solution to the problem posed by the anomaly, in Nissen's example, involves the reconstruction of our modes of objectifying the anomalous rock which involves a change in the objective situation (QC p.227). Those modes of objectifying are, for Dewey, the habits in terms of which the reactions of objects are gauged and systematized (for example, the ways of testing the causal properties of objects for purposes of classification). But in so far as the reconstructed habits are not present in the inquirer (yet), and are not in Platonic heaven, the indeterminacy of the situation is not to be construed as a private, subjective mental appearance underlying which there is some determinate, but hidden, relation between known object and knower. Hence Dewey challenges the metaphysical realist's notion that knowledge works by uncovering a ready-made world.¹¹

Construing indeterminacy along the lines of anomalies immediately removes another of Nissen's worries, namely, that Dewey equivocates on the subject of the indeterminacy. Nissen imagines a case in which everyone knows how to identify a particular rock except one person. When this uninformed novice inquires into the classification of the

rock Nissen claims Dewey is pinned by an intractable dilemma. Either Dewey is wrong to say that inquiry only occurs in indeterminate situations, since in this case the rock is known to be of a determinate type. Or, if the same situation can be determinate for the expert and indeterminate for the novice, then Dewey is wrong to say that the indeterminacy is inherent in the situation, since it is relative to particular subjects.

While it is true that Dewey is not always careful to distinguish cases of individual ignorance or uncertainty from more global or public uncertainty, it is not at all clear that this poses any problems. First of all if situations are indeterminate as a result of the interaction between habits and surroundings, indeterminacy will arise for different organisms on different occasions. Different sets of habits imply different contexts, different contexts imply different situations. So novice and expert are in different situations because their habits integrate their surroundings in different ways. Nonetheless this does not make situations private or self-contained, the indeterminacy is in the intra-organic and extra-organic relations of the respective subjects. What is more, the indeterminacy can be public in so far as shared modes of relating to common surroundings are simultaneously disrupted. In Dewey's lawsuit example this is precisely what occasions the bringing of legal action. Similarly, if we treat theories as learning machines with

various resources for assimilating new situations, then anomalies are definable with reference to theories, and situations will be globally anomalous to the degree that theories are shared in a community of inquirers;¹² the measurement problem in quantum mechanics or the liar's paradox are occasions for general doubt and puzzlement in precisely this manner, and their resolution is indeterminate to the degree that there is no reliable means for coping with them (inquiry is still at the stage of articulating suggestions). Thus indeterminate situations can be both individual and shared depending on the context; but in both cases the indeterminacy lies in the quality of the existential interaction of habits and surroundings.

(ii) The Institution of a Problem.

An imbalance of organic-environment integrations constituting an indeterminate situation is a necessary but not sufficient condition of inquiry. Not all such imbalances become occasions for controlled inquiry, there is "nothing intellectual or cognitive in the existence of such situations...in themselves they are pre-cognitive" (LI p.111).¹³ While knowing is conducted by situated organisms of suitable complexity, for Dewey, unlike Peirce, not all doings are reducible to knowings, not all habits are inference rules. The habits of inquiry are a highly specialized set of operational relations between subjects and

objects, deployed for highly specialized purposes.

Organic interactions become cognitive inquiry when environing conditions are examined with reference to possible modes of subsequent conduct, where that conduct is determined in an effort to actualize some of those possibilities (typically) to the exclusion of others (LI p.111; RP p.144; QC p.225). "The intellectual question is what sort of action the situation demands in order that it may receive a satisfactory objective reconstruction" (LI p.163).¹⁴ Engaging in inquiry does not involve the deferral of action, but rather its redirection towards finding out about the situation with respect to the directed modes of behaviour it interrupts, to locating precisely what the trouble is with a view to its eventual solution (QC p.223). Thus the first stage in the reconstruction of an indeterminate situation by means of deliberation is its being taken to be problematic, that is, its interpretation as an occasion in which inquiry, the attempt to cope with indeterminacy in conceptual or intellectual terms, is an appropriate response.

Problematic situations thus become further qualified through the formulation of a specific question; that is, by taking the the situation to be a problem of a specific type. This problem then sets the scope and character of subsequent inquiry by providing criteria of relevance for the consideration of hypotheses and for gathering evidence (LI p.112).¹⁵ Thus:

A problem represents the partial transformation by inquiry of a problematic situation into a determinate situation (LI p.112).

(iii) Determination of a Problem-Solution.

Statement of a problematic situation in terms of a problem has no meaning save as the problem instituted has, in the very terms of its statement, reference to a possible solution (LI p.112).

In claiming that problems refer to solutions Dewey has several things in mind. First, knowledge is related to inquiry as its warrantably assertable product; it is the cessation of doubt which constitutes both the immediate "end-in-view" of inquiry and its "close or termination" (LI pp.14-5). Inquiry is progressive and temporal, hence its products are progressively and temporally inquired into. Secondly, problems are meaningfully formulated to the degree that one has some conception of what an adequate solution might be. Furthermore, a well-formulated problem decisively directs subsequent inquiry and moves it towards solution (LI p.112). It is in terms of the specific problem that occasions each inquiry that subsequent acts of hypothesizing, evidence-gathering and reasoning are gauged and measured (DC p.123). In this sense, the problem provides a controlling context for inquiry (DC p. 204).¹⁶ At the same time, however, the formulation of a problem is controlled by the context of the situation in which the indeterminacy arises (PD p.559; DC p.205), that is, by the specific existential confrontation of organizing habits and surroundings, to which the subsequent response is uncertain, confused or obscure.¹⁷

No situation can be indeterminate in every respect since novelty arises only against a background of stable organic-environmental integrations which provides the context for the occurrence of a disturbance.¹⁶ These elements of the situation when taken as material to be inquired into are constituted as the "subject-matter" (LI p. 122). In framing "a genuine problem, one that will move inquiry toward solution",:

The first step then is to search out the constituents of a given situation which, as constituents, are settled... They constitute the terms of the problem, because they are conditions that must be reckoned with or taken account of in any relevant solution that is proposed (LI p.113).¹⁷

The determination of the factual conditions of the problem by observation serves to take stock of the obstacles to be overcome and the resources available from which to proceed; "they state potentialities positive and adverse" (LI p.164). The aim of such observation is to arrive at a diagnosis (RP p.142) on the basis of which possible relevant solutions to the problem under investigation are suggested and evaluated. These solutions present themselves as ideas. Thus it is in subjecting an indeterminate situation to the operations of observation and ideation that its subject-matter is constituted as data (facts) and propositions (ideas) respectively.¹⁸

Although ideas have an empirical origin, they are not individual data or passive representations. They are the product of acts of evidence gathering by inquirers (QC p.112;

DC pp.192-3). Ideas are suggested by observations that are consequences of definite and intentionally performed operations on the surroundings, that are guided and constrained by the overriding aim of the particular inquiry (QC p.113).²¹

As solutions, ideas refer to unactualized conditions of a unified environment; they are projected meanings (RP pp.143-4):

anticipated consequences (forecasts) of what will happen when certain operations are executed under and with respect to observed conditions (LI p.113).

Ideas are idealizations, visionary ways of viewing a world in which current problems are overcome. They are distinguished from mere fancies insofar as they are operative in instigating and directing new observations yielding new factual material (LI p.121). Ideas regulate future conduct (specifically the experimental operations by which theories are tested) and serve as a means of assessing the outcomes of those results, they are thus defined by Dewey in terms of their functional role in contexts of inquiry.

(iv) Reasoning.

While the final significance of an hypothesis is determined only by means of experimental tests, its suitability in that role can also be subjected to thoughtful reflection. In reasoning, the meaning of facts is examined in relation to the broader network of meanings to which it is relevantly related. Such reasoning involves the use of

symbols since the ideas involved refer to unactualized possibilities (LI p.114). The aim of reasoning is the evaluation or appraisal of "the pertinency and weight of the meaning now entertained with respect to its functional capacity", that is, "its capacity as a means of resolving the given situation" (LI p.114)."

Observation of the facts serves to focus and describe the problem at hand, reasoning attempts to determine the means of resolving it. They are both distinct (but not separable) phases of a continuous process of inquiry, at once definitive of, and controlled by, the transformation of the indeterminate situation. "As distinctions they represent logical divisions of labour" (LI p.115).

What is crucial here is not the specific details of particular cases (these are to be worked out in each context, not to be legislated in advance). Rather Dewey is concerned to illustrate how reasoning and observation are "instituted in functional correlativity with each other" (LI p.115); that is observation and reasoning evolve in critical interaction (QC pp.171-5). Data suggest theories which in turn guide further attempts to gather evidence (including, perhaps, a correction of previous evidence) in terms of which theories are either sustained and carried forward or are modified.

Thus:

The operative force of both ideas and facts is thus practically recognized in the degree to which they are connected with experiment. Naming them "operational" is but a theoretical recognition of

what is involved when inquiry satisfies the conditions imposed by the necessity for experiment (LI p.117).²³

As noted above, ideas are operational in that they instigate and direct activities upon which subsequent events impinge in ways relevant to the resolution of the problems (LI p.118). Facts too are operational in so far as they are selected for a purpose, namely in their capacity as evidence. "The carrying on of inquiry requires that the facts be taken as representative not just as pre-sented" (LI p. 118). In other words, in inquiry what is of interest is not the qualitative immediacy of experiences, but rather their ability to function as facts, that is as reliable signals of stable relations among actions and the consequent feedback of subsequent experiences (LI p.127).²⁴

(v) Testing Ideas.

The crucial aspects of experimentation or testing, are as follows: (a) it involves overt doing; (b) experiment is controlled inquiry; and, (c) the outcome of the inquiry is "the construction of a new empirical situation" (OC p.86).

(a) While reasoning is indispensable to knowledge it cannot in and of itself provide knowledge (OC p.83). Reasoning yields suggestions regarding possible changes in existential conditions through which a problematic situation might be resolved, but it does not in itself effect such changes (LI p.121). Propositions (ideas) are only intermediate representations used in transforming a situation

and moving it towards a resolution. As hypotheses they are always conditional in form, stating that "If such and such a course is adopted under the existing circumstances, such and such will be the probable result" (LI p.121). These hypotheses are not valid in and of themselves, what matters is the consequences which result from acting upon them (LI p.166). The products of reasoning are therefore tested by their success or failure at achieving a resolution of the problematic situation, in their application to actual conditions, or better, in their enactment in concrete existential situations (RP p.156). Since this involves acting in situations in novel ways, testing requires "the making of definite changes in the environment or in our relation to it" (QC p.86).²²

It is therefore correct to say that, for Dewey, all knowledge, even brute factual description, is instrumental. However, the instrumental is not to be contrasted with, or opposed to, the cognitive for there is no separation of acting and knowing, no isolation of theory from practice. Intelligence is a highly specialized, active mode of response:

Action is not a more or less accidental appendage or after-thought, but is undergoing development and control in the entire knowledge function (DC p.212).²³

(b) Testing is controlled inquiry in so far as it is a directed form of behavior, guided by ideas, the value of which is gauged in terms of the conditions set by the context

of inquiry. It involves deliberate foresight, the decision that one particular set of operations, to the exclusion of others, will be enacted (QC p.110). Accordingly, the significance of the result lies not merely in the presence of new ways of relating to the world, but in the fact that these new ways emerge out of directed activity as its achieved result (LI pp.167-8).²⁷

(c) The object of knowledge is not a reality independent of human perception, or an antecedently existing state of affairs, rather it is the attainment of a yet-to-be-realized completed whole, a new situation:

the name objects will be reserved for subject-matter so far as it has been produced and ordered in settled form by means of inquiry (LI p.122).²⁸

The term "object" thus refers both to the objective of inquiry as well as the things of which inquiry yields knowledge. There is no ambiguity here since surroundings exist as objects "only as they have been previously determined as outcomes of the inquiries" (LI p.122). Again this follows from the denial of the separation of subject and object. Knowledge is a double-barrelled word that names both the psychological state and the state of affairs it represents. Through successful inquiry a formerly problematic situation is transformed into one in which subject and object are reintegrated in a new way.²⁹ Hypotheses, themselves suggested by determinate facts which form the context of inquiry, suggest possible modes of action

with respect to one's surroundings which, if vindicated in actual experience, will serve as ways of integrating (formerly) resistant experiences within stable patterns of action. Successful hypotheses thus yield interpretations that transform indeterminate situations into secure, reliable and meaningful contexts for coping with the world.

What is tested in inquiry are ideas in their role as interpretations of the surroundings as signs of future consequences. Facts and objects are not isolated entities they are relations of meaning:

In just the degree, then, in which the existence or thing gets intellectualized force or function, it ceases to be just reality as such and becomes a fragmentary and dubious reality to be circumscribed and described for the sake of operating as sign or clue of a future reality to be realized through action. Only as reality is reduced to a sign, and questions of its nature as sign are considered, does reality get intellectual or cognitional status (DC p.211).²⁰

Reality is not passively copied, it is actively constructed through its interpretation in terms of its relations of signification. When inquiry is successful, vague, brute, stubborn force is requalified as signs with determinate meanings, such forces "cease to be obstacles and become effectual and energizing conditions in a total situation" (DC p.206), they become cues to reliable actions. Thus what is discovered is a "meaning appropriate to the management or development of a troubled situation, its pertinency being proved by its capacity to administer the difficulty through the use of the idea as a method or plan" (DC p.194).

The agreement of ideas with reality lies not in the comparison of a self-contained mental representation with a mind-independent reality, rather:

their correspondence is witnessed in the eventual construction of a harmonized scheme of meanings. The objective reality which tests the truth of the idea is not one which externally antecedes or temporally coexists with the idea, but one which succeeds it, being its fulfillment as intent and method: its success, in short (DC p.206).²¹

The confrontation of ideas and surroundings through their enactment is what constitutes the resultant experiences as (dis)confirming instances; "it is the function of confrontations as experimentally determined consequences that confers upon them verifying power" (PD p.575).²² The achievement of a reconstructed situation in a particular existential circumstances is a qualitatively unique experience, yet it yields meanings which are incorporated in habits which provide new ways of coping with subsequent situations, their cognitive value lies in their relation to the directed forms of behavior through which they are brought about. Thus the resolution also has general import and thus warrants the assertion which is the conceptual side of the reconstructed situation. It is in this sense that warranted assertability is the aim of every particular inquiry.

Each subsequent re-enactment of an idea presupposes its general reliability. To the degree that each situation is qualitatively unique, there is no guarantee of the resilience of ideas to further interrogation. Thus each idea is

provisional, and forever open to development through use (RP p.145; DC pp.207f.; PD p.573). Nonetheless, the conclusions of particular successful inquiries are available as a means for the reconstruction of further problematic situations in later contexts of inquiry. Intelligence, when successfully operative, thus functions so as to:

to develop...activity in the direction of increased discriminations of value, into more complex and richer situations (DC p.198).

3. SCIENCE AND COMMON SENSE.

For Dewey scientific inquiry and common-sense inquiry are distinct yet continuous modes of social practice.³³ Common sense inquiries address problems that arise in day-to-day living.³⁴ Such problems are typically concerned with qualitative matters; that is, matters relating to "the use and enjoyment"³⁵ of things (material and ideal) in coordination with other people, in ways that sustain subjects personally, socially and organically (LI pp.66-8).³⁶ Such inquiries are self-consciously instrumental or teleological since they involve objects in relation to the enjoyment of particular subjects with particular aims, desires and tastes. Finally, since the practices, technologies and institutions of human cultures are not universal, common sense inquiries typically "have reference to the specific and limited environing conditions under which the group lives" (LI p.119); they are particular rather than abstract or general.

Common sense objects are finalities in so far as they serve as reliable signs of stable transactions capable of sustaining the every-day practices of some group (QC p.99). However, in science the solutions of common sense become problems. Objects of qualitative experience become data for further theorizing, effects to be explained, or subject-matter for further interpretation (QC pp.98-9).

Scientific theories abstract from common sense, insofar as they concern the relation of the world to the life-activities of particular cultures only indirectly.²⁷ Secondly, they disclose systematic relationships among facts and conceptions through the reduction of qualitative aspects of experience to quantitative formulation (LI p.71). Finally, modern science uncovers efficient causes and is only indirectly concerned with the application of its results to fulfil human needs.²⁸

But, although science goes beyond common sense, the search for scientific understanding:

does not signify a quest for reality in contrast with experience of the unreal and phenomenal. It signifies a search for those relations upon which the occurrence of real qualities and values depends, by means of which we can regulate their occurrence. To call existences as they are directly and qualitatively experienced "phenomena" is not to assign them a metaphysical status. It is to indicate that they set the problem of ascertaining the relations of interaction upon which their occurrence depends (QC p.104).²⁹

For Dewey the qualitative, the particular, and culturally significant aspects of objects are not inherently false or

illusory, rather they are merely irrelevant as means to discovering quantitative, causal regularities upon which they depend.⁴⁰ Tables do not cease to be tables when examined from within modern physical theory any more than white supremacists cease to be immoral when subjected to physiological explanation (QC p.131). Because objects are constituted by their operational significance, that is, by their incorporation in directed, purposeful patterns of activity, reality is plural to the degree that the activities, through which meaningful integrations between organisms and surroundings are secured, are plural.⁴¹ Science does not reach behind or strip away the every day world to get at things in themselves, it merely deals with objects in terms of a distinct set of relations operationally constituted in experimental contexts. Science and common sense are thus different modes of objectification with different criteria of relevance, that fulfil different purposes. The distinction is one of context and function, rather than of ontological status or epistemic authority.⁴²

Nonetheless, the common sense and scientific worlds are continuous. For just as common sense serves as a framework for scientific inquiry, scientific results in turn transform the concepts and practices of the common sense world; the two evolve in critical integration and mutual interaction.⁴³ Biology and physiology have transformed the concept of personhood, technology has revolutionized social relations

dramatically and radically altered the natural environment in which humans live. Furthermore the discovery of efficient causes liberates and extends the range of goals and possibilities open to human beings:"

From this point of view, the question, summarily stated, is that of the relation to each other of the subject-matter of practical uses and concrete enjoyments and of scientific conclusions; not the subject matters of two different domains whether epistemological or ontological (LI p.71).

For Dewey there is no timeless answer to this question. The relation of science and common sense is worked out in the course of carrying on the traditions of the west. It is to be renegotiated in response to the strains, tensions and conflicts that emerge between them as their respective contents evolve. The continuity of common sense and science is thus a problem to be solved, a task to be accomplished, it is not an antecedent metaphysical reality awaiting disclosure.

4. DEWEY'S THEORY OF INQUIRY AND THE CHARGE OF IDEALISM.

Having canvassed Dewey's analysis of the "matrix of inquiry" and its continuity with his view of persons as engaged, situated, integrated, participants, the objection that Dewey is committed to subjective idealism can now be addressed."

As noted earlier, in saying that inquiry involves existential transformation of subject-matter Dewey is not committed to the view that we make an object by inquiring

into it. What is transformed through inquiry is the situation. The transformation is existential because, in the process, modes of operationally relating to objects are transformed in a way that enables inquirers to "take" them to be objects of particular types with particular properties. The impingement of objects on the inquirer's habits become definite signals of the consequences of acting in various relations to them, thereby making objects available as reliable guides to acting in the world. In short, by becoming known the object is constituted as a datum of a greater degree of definiteness.

But any realist will say that what the object is, is unaffected by its becoming known. An object discovered, after careful investigation, to be a piece of granite, is a piece of granite before the inquiry takes place, and inquiry merely serves to disclose this fact. Thus Dewey's view of the process of inquiry trivially reduces to the claim that before inquiry is concluded its outcome is unknown, after it is concluded correctly the answer is known, and the truth of the answer helps explain why it can serve as a basis of reliable action. Compelling as this view is, it is misleading as a challenge to Dewey because it cites trivial facts that Dewey agrees must be captured, while blurring several distinctions that he insists on making (QC pp.233f).

First, there is no question that before any inquiry is concluded the outcome is unknown. But it is the nature of

the outcome that is unique to Dewey's view. The outcome is not merely being in a mental state, it is not merely the possession of a representation or belief that passively corresponds to the way the world is; rather it is being in unified integration with one's surroundings, being in possession of a reliable set of habits that enable one to find in one's surroundings pieces of granite such that they can be incorporated, as environment, within directed forms of behavior.

Secondly, there is also no question that when inquiry is correctly concluded the outcome is known. For Dewey this means that the situation is no longer indeterminate with respect to the tension at hand, the reliable modes of defining oneself in relation to the surroundings, in this case a situation within which a particular object is the focus, have been established. But note that what it means to be an object is also definable in relation to the habits through which it is objectified as being of a particular type. The distinction between the situation before and after is not between an indeterminate subjective experience and a determinate, antecedently existing reality, it is between two kinds of experience, two distinct, yet related environments:

one which is occupied with uncontrolled change and one concerned with directed and regulated change. And this difference, while fundamentally important, does not mark a fixed division. Changes of the first type are something to be brought under control by means of action directed by understanding of relationships (QC pp.83-4).

Third, Dewey does say that the experimental method involves the introduction of changes in the environment in order to see what other changes ensue and that "the correlation between these changes, when measured by a series of operations, constitutes the definite and desired object of knowledge" (QC p.84). But this does not mean the object is created when it is encountered (experienced or known). Dewey can agree that the piece of granite exists prior to its being known but to make such claims after the fact is to think of the object in terms of modes of objectification that we now possess.

The import of this is best seen by recalling Dewey's example of food. The food surely exists before there are animals to eat it, and it exists as food even if it is not eaten, but it is food only by virtue of its potential interaction with the organic habits by which it is assimilated to perform a particular (nutritive) function.

Since habits are like tools, for Dewey, we can extend the analogy to the case of technology. Water existed before there were power plants, but water is power only by virtue of the way it impinges on a particular machine.⁴⁶ At the same time power is what the water does by means of the machine on which it impinges; hence the machine is what it is (a generator) in reference to its interactions with water and vice versa. Tool and object are interdefinable. To say that the water is power before the invention of the machine is to

say, counterfactually, that the water's impingement on the machine would be unaffected by temporal factors, that is if there were an appropriate machine operating under appropriate circumstances in 1900, the appropriate results would have occurred.

The same analysis is given to scientific truths prior to their being discovered. Electrons are what electron detectors detect, and they are electron detectors because of the way electrons impinge on them in stable and reliable ways. Thus to say that "Electrons existed on January 1, 1200 at 1:00 pm EST" is to claim counterfactually that the detector would have yielded the appropriate stable results.

It is important to note, as the water example shows, that the instrumentalism here is not reductive; nothing has been mentioned about the observability, or unobservability of the objects of study. Nothing implies that electrons are useful fictions or placeholders for more complex statements about the patterns of sense-data or observable phenomena. Although we have independent perceptual access to water, and not electrons, we do not have access to the "power" in the water by means of which we can actually see that it is power that the machine is detecting. Similarly we do not have access, independently of an apparatus, to what is detected by electron detectors. In both cases objects and instruments are interdefinable, the reliability of instruments is calibrated against stable background beliefs, "the funded

products of prior inquiries" as Dewey calls them. The reliability of such calibrations is gauged in terms of the resultant ability to "find in", or "take from", the surroundings stable modes of relating to them as means to further directed behavior. It is this that Dewey has in mind when he speaks of new instruments as "requalifying" antecedent subject-matter, and as resulting in a growth in the meaning or significance of the objects involved:

Modes of response are correspondingly transformed. They avail themselves of the significance which things have acquired, and of the meanings provided by language. Obviously rocks as minerals signify something more in a group that has learned to work iron than is signified either to sheep and tigers or to a pastoral or agricultural group (LI p.66).

In short, a new apparatus provides new ways of interacting with the surroundings. By varying the conditions under which the apparatus acts, previously unexperienced series of changes in the things under investigation are disclosed (QC p.87; p.125). Hence the "progress of inquiry is identical with advance in the invention and construction of physical instrumentalities for producing, registering and measuring changes" (QC p.84).⁴⁷ But the continuity of these new experiences with past experiences is, for Dewey, a problem to be solved, not an antecedent relation to be uncovered.

This latter point contrasts importantly with Putnam's pragmatic realism. Apparently in medieval times alcohol was included in the extension of the term "water".⁴⁸ Putnam calls himself a realist because his theory allows him to say

that medieval water theory was a bad (or false or incorrect) theory given that the Medievals intended, in using the term "water", to refer to stuff with the same nature as the stuff that falls as rain, that we drink from the tap, wash with, and so on.⁴⁹ Thus, on Putnam's view, we should say that the Medievals thought that two substances that are really different, were in fact the same all along. But, this reading seems to commit the fallacy of converting "eventual functions into antecedent existence" (EN p.27). It involves the reification of the products of inquiry (the development of new ways of relating to objects) as somehow subsisting latently in the surroundings themselves, or in the habits of the Medievals, and thus rationally binding on them.⁵⁰

The Deweyan story saves Putnam's intuition, while being more careful in avoiding the whiggishness of his history. The framework for identifying substances afforded by modern chemistry does not merely articulate pre-existing referential intentions but it reforms, or reconstructs them, as well. The Medievals are related to objects differently insofar as they think any water theory should include an account of what we would now call "alcohol". Their habits are indeterminate with respect to the question of whether they really were referring to H₂O or were really referring to alcohol, since those habits do not embody distinctions we now make. Thus the Medievals were not simply wrong about the correct application of the term "water" since what is at stake

between medieval and modern views is, in part, what the correct use of that term should be. It is a difference not merely of content or truth value, but of form, of how objects ought to be individuated.

To distinguish water from alcohol as we now do may be a small price to pay for the explanatory advantages of modern chemistry, but the decision to adopt current terminology is the result of debates about the relative merits of the various possible reconstructions of past ways of relating to objects, in light of the (initially problematic) results of modern chemical experiments. While Dewey insists that this is a contextual matter, framed by a set of past entrenched successes (and not resolvable by appeal to transcendental, ahistorical standards), nothing about his view implies that critical discussion of such matters cannot take place.⁵¹ Nor must Dewey deny the role of the feedback of objects in such discussions. However, what Putnam's retrospective realism glosses over is that to the degree that our habits embody distinctions that cut across those of the Medievals, our habits embody a past reconstruction. Both the meanings of the terms involved and the significance of the objects altered in the transition between the two views, resulting in new interactions between subjects and objects (QC p.236), that is new ways of meaningfully relating to the surroundings.

5. CONCLUSION: ON TRUTH AND WARRANTED ASSERTABILITY.

Dewey's position on truth evolved throughout his career. Early in this century he devoted considerable time and effort to defending James's pragmatic theory. Later he developed his own version of that view, dropping almost all references to truth in favour of the term "warranted assertability". In his longest and most detailed work, the Logic, Dewey writes almost nothing on the concept of truth and yet when compelled to say something about it, in a few brief footnotes, he makes passing references to Peirce's limit-concept. Tracing the details of this development is a complex and annoying job, especially since he says so little about it. The task is all the more frustrating since truth is the first issue that comes up whenever pragmatism is mentioned.

For example, Dewey's views on truth are often maligned for failing to preserve common sense uses of the term. That this objection is typically offered in defence of realism is no surprise since most of our common sense views of truth and science are realist in spirit, having roots in seventeenth century natural philosophy and in the work of the Greeks. To the degree that common sense presupposes realism, however, it cannot be used as an independent test of that view; taken on its own therefore this objection begs the question against pragmatism.²² The appeal to common sense can establish which view is more radical, but the question of whether such radicalism is warranted remains.

The other frequent ground for rejecting Dewey's radicalism is that it is believed to entail a strong form of cultural relativism. Dewey's claim that the end of inquiry is warranted assertion, combined with the view that knowledge comprises beliefs linked with truth, gives rise to the common conception that truth, for Dewey, is synonymous with warranted assertability. However, warrant is tensed, relative to prevailing standards of cognitive assessment and tied to available evidence, whereas truth is usually thought to be immutable, universal, transhistorical and perhaps even unattainable. Thus Dewey's identification of these notions is thought to entail the view that truth is relative to times, places and styles of reasoning. This forces on Dewey the view that the world changed shape when it was discovered to be round, that phlogiston once existed but does not at present, and, perhaps, that Zande witches exist in some situations and not others in the current world. It is the fear of precisely these consequences (in both scientific and moral matters) that motivates limit theories of truth. It also fuels suspicions, among metaphysical realists for example, of any attempt to link truth with inquiry, even those like Peirce's, that are realist in spirit.

I have already responded to the allegations that Dewey is an idealist, and with that reading in hand, a better way into Dewey's views on truth can be provided by offering the kind of analysis of the problem that his pragmatism inspires.

For philosophers such as Descartes the relationship between truth and verification through properly conducted inquiry is straightforward. The latter merely produces the indubitable results that make up the former. Methods are means to a fixed, determinate end and the content and meaning of the end product is separable from the means.²² On this view, however, truth construed as the product of inquiry and Truth construed as perfect knowledge are one and the same.

With the emergence of fallibilism (applied to both methods and theories) this identity is split. There is a gap between the products of the best methods currently available and Truth construed as perfect knowledge. In Dewey's terms, therefore, there has emerged an indeterminacy marked by a disruption in the traditional network of meanings associated with the word "true". This indeterminacy is part and parcel of a changing conception of the practice and authority of science.

Current debates surrounding this development range in scope from relatively narrow disputes about what it is that science provides, to more general questions about the value of science, its claim to progress and even its role in our culture. Throughout these debates our habitual ways of construing truth and science, although challenged and rendered problematic, persist. It still remains difficult to see science as arbitrary, to deny its role in the tradition, and to question the improvement of current over past

theories. At the same time however, it has become increasingly difficult to view science as conferring certainty, as converging on a single truth and as practiced by the application of a fixed, unchanging set of methodological rules.

Much of the dispute between realism and pragmatism, and much of the worry about pragmatist attitudes to truth, turns on which of these two traditional associations of the concept of truth is to be privileged. In chapter 5, I argued that there is no way to reconcile fallibilism with convergence, or to unify the immanence and the transcendence of epistemic authority; these two conceptions pull in opposite and irreconcilable directions. One should not expect a theory of truth that unifies both senses of the term in a way that can preserve its traditional epistemological function. Thus the simplest resolutions of the antinomy, are: on the one hand, to keep the idea that truth is what inquiry produces and then weaken the strength of the claim to truth in deference to fallibilism (thereby giving up the deeply entrenched habit of equating truth with perfect knowledge). On the other hand, one can keep the idea that Truth is absolutely perfect knowledge, thereby denying that verification entails truth, and attempt to solve the problem of determining the relationship between fallible products of actual practice and perfection.⁵⁴

Dewey rejects the latter alternative in either its

metaphysical realist or in its Peircean formulations. On both accounts, Truth is posited as an end detachable and separable from the current aims of concrete, particular inquiries. In the process it is rendered devoid of content and thus becomes useless.⁵⁵ Thus Dewey is forced to embrace the other option. In answer to the complaint that this collapses the distinction between warrant and truth Dewey writes:

There is a distinction made in my theory between validity and truth. The latter is defined, following Peirce, as the ideal limit of indefinitely continued inquiry. This definition is, of course, a definition of truth as an abstract idea... Apparently Mr. Russell takes the statement to apply here and now to determination of the truth or falsity of a given proposition-- a matter which, in the sense of validity as just stated is determined, on my theory, by a resolved situation as the consequence of distinctive operations of inquiry... The "truth" of any present proposition is, by the definition, subject to the outcome of continued inquiries; its "truth", if the word must be used, is provisional; as near the truth as inquiry has as yet come, a matter determined not by a guess at some future belief but by the care and pains with which inquiry has been conducted up to the present time (PD pp.572-3).

On Dewey's early view Truth, taken denotatively among a community of inquirers, refers only to the funded products of prior investigations; it is not a Platonic form, it is merely the set of truths, of verifications, or warranted assertions. On this view it is the association of truth with the product of inquiry that Dewey privileges. Later, to avoid the potentially misleading consequence, cited in the preceding quote, that truths might somehow prove to be false, Dewey keeps his emphasis on the products of inquiry, but then uses

"warranted assertability" as the primary term of cognitive merit. Perfection is not the standard we use in concrete instances of inquiry, nor is perfect knowledge what we have in mind when we ask educators to convey truth to their students. Similarly, in appealing to uncontroversial claims in defending controversial views we are not committed to their certainty; such home truths are, as Dewey notes, simply the funded products of prior inquiries.

Nonetheless, although warranted assertability is the end of every inquiry, for Dewey, it does not mean that its attainment implies the end of all Inquiry. Conclusions of one inquiry form the contextual frame in which subsequent problems emerge. They then become resources out of which solutions are reconstructed, solutions which may well force a change in other past beliefs and evaluative standards.

On the reading of Dewey presented here, his appeal to a Peircean limit, in the Logic and in the passage quoted above, is misleading. Dewey cannot be referring to a point we will approach once our current, categorically grounded methods play themselves out. Truth, is rather an abstract term for the sum total of future, unforeseeable results of inquiry. On this view then, there is no separable determinate reality that stands as a static goal of all investigation. It is only in terms of the tensions in our current habits of relating to the world, through which the world is defined as an "other", that knowing reality is constituted as a task.

The nature of that task is not independent of the standpoint in which such tensions arise for the world is anomalous only in relation to such standpoints. Thus Truth does not stand for a fixed, determinate antecedent end of activity, it is given content only through the concrete "ends-in-view", to use Dewey's phrase, that motivate specific inquiries.²⁴ To say intellectual activity has a goal, is to say that it has a whole bunch of little goals, sets of problems of varying degrees of urgency in need of resolution.

For Dewey, therefore, there is nothing to the question of Being beyond the mundane answers to questions about what specific objects exist, and there is nothing to the nature of Truth, beyond the settling of specific questions through systematic inquiry. Our theories and methods are not legitimatable by acontextual constraints, they deserve allegiance insofar as we see no reason to abandon them, and have nothing with which to replace them. Whether they will continue to serve us well, can be answered only through continuing their employment and dealing with the consequences. Meta-reflection separated from specific contexts of problem-solving is fruitless and not a special field of knowledge.

On this view, the search for truth is a search for "interpretations of things that make these things effectively function in liberation of human purposes and efficiency of human effort" (MW 6, p.66). Progress in inquiry does not

entail the better fulfillment of a given purpose, as Peirce implies. For Dewey, progress involves the evolution of new and varying concrete aims, the "emancipation of purposes from conformity to a routine and unscrutinized past" (MW 6, p.60). Similarly, inquiry does not use fixed means for attaining some static goal. Means and ends evolve in critical interaction in the process of inquiry. Inquiry involves the creative reconstruction of past ways of relating to things and people, in an attempt to overcome the problems that arise in concrete situations.²⁷ Thus the content of "warranted assertability", though fixed in particular circumstances by prevailing criteria of assessment, is subject to critical evaluation, renegotiation and growth as inquiry proceeds. Exactly how this process of criticism is to be construed in such a way as to render it immune from the charges of naive cultural relativism, is the subject of the final chapter.

NOTES

1. For example, Nissen (1969), Russell and Santayana (see their contributions in PD). Welcome exceptions to this are Gail Kennedy's (1970) upon which the present account builds, and Sleeper (1986).

2. See his reply to critics in (PD pp.517-68).

3. The example is from MacIntyre (1984, pp.57-8).

4. This is true even if there is no sharp line between the class of bad watches and objects whose failure to fulfill that function is so extreme that one would be loath to call them a watch at all.

5. "As has been said, a qualitative and qualifying situation is present as the background and control of every experience" (LI p.75). "In actual experience, there is never any such isolated singular object or event; an object or event is always a special part, phase or aspect of an envioning experienced world-- a situation" (LI p.72). See also (IDP pp.79f.). The continuity of experience implies that situations overlap, and their boundaries are vague. "Every situation has vagueness attending it, as it shades off from a sharper focus into what is indefinite; for vagueness is added quality and not something objectionable except as it obstructs gaining an eventual object" (QC p.235).

6. "Probably the meaning of quality, in the sense in which quality is said to pervade all elements and relations that are or can be instituted in discourse and thereby to constitute them an individual whole, can be most readily apprehended by referring to the esthetic use of the word. A painting is said to have quality, or a particular painting to have a Titian or Rembrandt quality. The word thus used most certainly does not refer to any particular line, colour or part of the painting. It is something that affects and modifies all the constituents of the picture and all of their relations. It is not anything that can be expressed in words for it is something that must be had... Esthetic experience, in its emphatic sense, is mentioned as a way of calling attention to situations and universes of experience... such qualities as are designated by 'distressing,' 'cheerful,' etc., are general, while the quality of distress and cheer that marks an existent situation is not general but is unique and inexpressible in words" (LI pp.75-6). See also (QC pp.231-2; pp.243-5).

7. "For Nature is an environment only as it is involved in interaction with an organism, or self, or whatever name be used... Even were existential conditions unqualifiedly determinate in themselves, they are indeterminate in significance: that is, in what they import and portend in their interaction with the organism" (LI p.110). "Uncertainty is primarily a practical matter. It signifies uncertainty of the issue of present experience; these are fraught with future peril as well as inherently objectionable. Action to get rid of the objectionable has no warrant of success and is itself perilous" (QC p.223).

8. The source for Nagel here is an article by Suppes (1969) written for a commemorative volume for Nagel, in which Nagel's lectures on Dewey at Columbia are summarized. I cite it only to show that Nissen's reading is not idiosyncratic.

9. As we shall see, to have already formulated the indeterminacy as a definite problem, that of classifying a rock, is to be well along in the process of inquiry on Dewey's account.

10. As Dewey points out time and again, this must be wrong since premature judgement, jumping to conclusions, tendencies to wish fulfillment are all common sources of error that "all spring from confusing the feeling of certitude with a certified situation" (QC p.227). He elsewhere writes that "beliefs and mental states of the inquirer cannot be legitimately changed except as existential operations, rooted ultimately in organic activities, modify and requalify objective matter. Otherwise, 'mental' changes are not only merely mental... but are arbitrary and on the road to fantasy and delusion" (LI p.161).

11. "For while some connections are always found in the material of experienced things, the fact that as experienced these things are problematic and not definitely known, means that important relations are not presented in them as they stand" (QC p.180). That this does not commit Dewey to idealism has yet to be shown. Suffice to say that Dewey does not believe we literally make objects we construe as non-artifacts. Of this topic more later. On the non-subjectivity of indeterminacy also see (QC pp.233f).

12. It would be important to distinguish theories as public entities, from the way in which theories are actually represented in the habits of individual adherents to those theories, but this does not affect Dewey's point. See Arbib (1985).

13. The minor imbalances associated with the continuous, operation of organic functions such as normal breathing, for example, rarely become the focus of inquiry. See (HNC p.168; RP pp.87-9, p.139; PD p.526).

14. "In the degree that responses take place to the doubtful as the doubtful, they acquire mental quality. If they are such as to have a directed tendency to change the precarious and problematic into the secure and resolved they are intellectual as well as mental" (QC p.225). For Dewey the emotional, the volitional and the intellectual are not realms, or distinct mental faculties, they are qualitatively different modes of response: immediate response, direct response to a situation in an attempt to modify interactions to advantage, and the indirect response to a situation, respectively (QC p.226).

15. For example, my sudden immersion in darkness can become formulated as different problems depending on the context. In every day life, the problem is one of restoring light so that those activities can continue (a problem to which a new lightbulb, a new fuse, or the lighting of candles may serve as solutions). Construed as an engineering problem, inquiry will involve specific questions about the construction of circuits, the behavior of electricity in interaction with various conducting and resisting substances, and the interaction of the network with the particular surrounding circumstances. As a problem in optics, inquiry will concern the behavior of the perceptual system in response to a dramatic change in the nature and patterns of stimulation, and so on. For more on the context dependence of "why-questions" which define the modes of inquiry appropriate to their solution see Garfinkel (1981).

16. "Specific and wide observation of concrete fact always, then, corresponds not only with a sense of a problem or difficulty, but with some vague sense of the meaning of the difficulty, that is, of what it imports or signifies in subsequent experience... When we intelligently observe, we are...on the alert for something still to come... investigation [is] directed quite as truly into what is going to happen next as into what has happened. An intelligent interest in the latter is an interest in getting evidence, indications, symptoms for inferring the former" (RP p.142).

17. "The other aspect of control is that exercised by the given facts over the formation of the content of the end, purpose or intent... The end first operates, so far as the situation is rationalized, as a basis of inspection and analysis of the situation in its given or disturbed form. The result of this analysis states the obstacles of which the end must take account, if it is to be realized. Thus the end

is intellectualized in its content; for it assumes detail in accordance with the needs of the situation defined as obstacles... The disturbed values constitute the brute, the obdurate, the stubborn factors, because they evidence the obstructive factors which must be reckoned with if success--harmonization of elements--is to occur. In this practical sense, they are coercive as regards the idea, and control its formation as to specific content." (DC p.205).

18. If nothing else the inquirer is integrated with its surroundings sufficiently to stay alive, that is habits of breathing, blood circulation and so forth are well functioning. Usually however, background knowledge and beliefs are also available as resources out of which solutions to problems can be constructed. These are the products of prior inquiries and results (as we shall see) from attaining stable and meaningful relationships between the knower and her surroundings (see [HNC p.169]).

19. See also (QC p.78; p. 179).

20. Dewey is adamant that "'given experiences' have to be experimentally analyzed in order to yield evidential signs" (PD p.558). Thus, for Dewey, "To be a datum is to have a special function in control of the subject-matter of inquiry. It embodies a fixation of the problem in a way that indicates a possible solution that is hypothetically entertained" (LI p.127).

21. "Since these operations [the techniques and organs of observation] are existential they modify the prior existential situation, bring into high relief conditions previously obscure, and relegate to the background other aspects that were at the outset conspicuous. The ground and criterion of the execution of this work of emphasis, selection and arrangement is to delimit the problem in such a way that existential material may be provided with which to test the ideas that represent possible modes of solution" (LI p.121).

22. In science, for example: "An hypothesis, once suggested and entertained, is developed in relation to other conceptual structures until it receives a form in which it can instigate and direct an experiment that will disclose precisely those conditions which have the maximum possible force in determining whether the hypothesis should be accepted or rejected" (LI p.116). By defining reasoning functionally, in terms of its role in resolving immediate problems, Dewey does not deny the prevalence or necessity of abstract theorizing in science. However he claims that even where observational material is left in abeyance for a considerable period "in controlled inquiry, the entire object of this seemingly

independent development is to obtain that meaning or conceptual structure which is best adapted to instigate and direct just those operations of observation that will secure as their consequence just those existential facts that are needed to solve the problem at hand" (LI p.136). See the discussion by Kennedy (1970).

23. "The first effect of experimental analysis is, as we saw, to reduce objects directly experienced to data. This resolution is required because objects in their first mode of experience are perplexing, obscure, fragmentary; in some way they fail to answer a need. Given data which locate the nature of the problem, there is evoked a thought of an operation which if put into execution may eventuate in a situation in which the trouble or doubt which evoked inquiry will be resolved" (QC p. .). To take ideas to be passive copies of ready-made existents is to fail to capture the constructive function of ideas, and their "prospective and anticipatory character" (LI p.113 n6). "The rationalist school was right in as far as it insisted that sensory qualities are significant for knowledge only when connected by means of ideas. But they were wrong in locating the connecting ideas in intellect apart from experience. Connection is instituted through operations which define ideas, and operations are as much matters of experience as are sensory qualities" (QC p.113). Rationalists thus failed to "attend to the operative and functional nature" (LI p.114) of facts.

24. Dewey writes: "They are not merely results of operations of observation... they are the particular facts and kinds of facts that will link up with one another in the definite ways that are required to produce a definite end. Those not found to connect with others in furtherance of this end are dropped and others are sought for... Their function is to serve as evidence and their evidential quality is judged on the basis of their capacity to form an ordered whole in response to operations prescribed by the ideas th y occasion and support... if they did not have a special operative force in resolution of the problematic situation, they could not serve as evidence" (LI pp.116-7). See also (RP pp.142-4).

25. Dewey distinguishes between propositions which are merely held or affirmed as a means of carrying inquiry towards a solution, and judgements which are asserted. "The... proposition is not an end in itself but a decisive directive of future activities. The consequences of these activities bring about an existential determination of the prior situation which was indeterminate as to its issue... It is the resulting state of actual affairs-- this changed situation-- that is the matter of the final settlement or judgement. Propositions are means of

instituting or arriving at the judgement, but the judgement is terminal by virtue of its instituting a 'definite existential situation' (LI p.125). Thus Dewey would say that it is strictly speaking only in its actual enactment that a map exercises its representative function (LI p.138), or that a tool exercises its instrumental function.

26. Dewey thus denies the problem of whether objects of knowledge are existential or operational "For in my view they are existential because they formulate operations which actually take place" (PD p.578). It should also be clear that the ends to which inquiry is directed are not fixed by biology or anything else, these too are contextual and are subject to change with the development of inquiry itself; "the term 'practical' having no reference to any fixed utility, but simply to certain values to be sustained or transformed through an operation" (DC p.194).

27. What matters is that the consequences "actually ensue from the operations the propositions dictate and are not... accidental accretions" (LI p.166). Therefore, "'Controlled or directed' in the above formula [Dewey's definition of Inquiry] refers to the fact that inquiry is competent in any given case in the degree to which the operations involved in it actually do terminate in the establishment of an objectively unified existential situation" (LI p.109).

28. "Reality in its characterization as fact, in the logical force which it has in the regulation of the formation and testing ideas, is not, then, something outside or given to the reflective situation, but is given or determined in it. Reality as such is the entire situation, while fact is a specific determination of it" (DC p.212). "We are striving to unify our responses, to achieve a consistent environment which will restore unity of conduct... unity is something sought; split, division is something given, at hand" (HNC p. 173-4).

29. "The determinate situation... qua outcome of inquiry, is a closed and, as it were, finished situation or 'universe of experience'" (LI p.109). The resolved situation is one "in which objects are differently related to one another and such that the consequences of directed operations form the objects that have the property of being known" (QC pp.86-7). See also (QC p.129; MW 6, p.294).

30. The aim of inquiry is the "discovery of constant relations among changes...the mechanisms of occurrences... with the proximate [yet] Experimental knowledge is a mode of doing, and like all doing takes place at a time, in a place, and under specifiable conditions in connection with a definite problem" (QC p.102). "Since these correlations are

what physical inquiry does know, it is fair to conclude that they are what it intends or means to know: on analogy with the legal maxim that any reasonable person intends the reasonably probable consequences of what he does" (QC p.131). Hence all knowledge is of relations (QC p.125) and "when there is knowledge there is another relation added, that of one thing meaning or signifying another" (DC p.210). Nonetheless the relations are not mentally added, "they are as much experienced as are the qualitatively diverse and irreducible objects of original natural experiences" (QC p.125).

31. "Now, one may say, my idea was right, it was in accord with facts; it agrees with reality. That is, acted upon sincerely, it has led to the desired conclusion; it has, through action, worked out the state of things which it contemplated or intended. The agreement, correspondence, is between purpose, plan, and its own execution, fulfillment; between a map of a course constructed for the sake of guiding behavior and the result attained in acting upon the indications of the map" (DC p.193). "What I have said is that ideas are correlated, in strictly conjugate fashion, with discriminated material of observation, the former serving to indicate a possible mode of operative solution and the latter serving to locate and delimit a problem, so that a resolved situation is attained (if it is attained) by the operational interaction with each other of observed and ideational contents" (PD p.558).

32. The passage continues "In my Logic this function is said to be the 'capacity of an idea or theory to order and organize particulars into a coherent whole'-- it being understood, of course, that this organization is not 'mental' but is existentially effected by suitable experimental operations" (PD p.576).

33. Throughout this section I am interested only in Dewey's pluralism. I am primarily concerned with showing how his view can accommodate the existence of distinct (yet continuous) modes of objectification. One can endorse Dewey's pluralism, without endorsing his specific construal of the demarcation of science and common sense and therefore, in what follows, I will not pause to evaluate the latter.

34. By "common sense" Dewey means the "power to discriminate the factors that are relevant and important in significance in given situations, it is power of discernment; in a proverbial phrase, ability to tell a hawk from a herring, chalk from cheese, and to bring the discriminations made to bear upon what is to be done and what is to be abstained from, in the 'ordinary affairs of life'" (LI p.67). Furthermore, the term also connotes a body of settled beliefs

and practices that provide a shared framework of meaning through which the physical and social surroundings becomes interpreted as an environment (LI p.118). "They are common in the sense of being widely, if not universally, accepted [among members of a group]. They are sense,... in the way in which we say things do or do not 'make sense'" (LI p.68). Both senses, though distinct, are linked by reference to the affairs of every day life in a shared social setting (LI pp.68-9).

35. "I do not suppose that a generalization of the inquiries and conclusions of this type under the caption of 'use and enjoyment' needs much exposition for its support. Use and enjoyment are the ways in which human beings are directly connected with the world about them. Questions of food, shelter, protection, defence, etc., are questions of the use to be made of materials of the environment and of the attitudes to be taken practically towards members of the same group and to others taken as wholes. Use, in turn, is for the sake of some consummation or enjoyment in rites and legends. If we include the correlative negative ideas of disuse, of abstinence from use, and toleration and suffering, problems of use and enjoyment may be safely said to exhaust the domain of common sense inquiry" (LI p.69).

36. Enjoyment is itself a notion which is "concerned with situations in their pervasive qualitative character" (LI p.69). What is more, in common sense practices the fitness of things and events for use in is determined by discerning their qualities. Finally, common sense practices are themselves qualitatively distinct. Tanning skins and weaving baskets are two qualitatively different processes, death rituals and wedding rituals as qualitatively different social practices (LI pp.69-70).

37. Dewey claims that scientific interpretations of the surroundings are freed from direct reference to the needs fulfilled in the cultural practices of particular groups. He also says that theories are intended to apply to existential conditions regardless of the specific times and places of their application (LI p.120). However he must recognize that science, on his view, is itself a highly specialized, everyday (for some people at least) social practice that embodies interests of a particular cultural tradition. His manner of speaking therefore is slightly misleading. What he is after, as will be shown, is a distinction in the nature of the interests involved; those directly related to the use and enjoyment of objects on the one hand, and those related to the causal relations of objects independent of their direct use and enjoyment on the other.

38. Again Dewey is misleading since, by his own account experimentation involves a great deal of engineering and technological application of theories and since inquiry is an instantiation of the need-effort-fulfillment cycle. However he is after a distinction in the purposes embodied in these applications; those that we typically identify as part of science, and those we typically identify as applications of science, for non-scientific purposes.

39. "In short, there is a change from knowing as an esthetic enjoyment of the properties of nature regarded as a work of divine art, to knowing as a means of secular control-- that is, a method of purposefully introducing changes which will alter the direction of the course of events" (QC p.101).

40. "The formulation of ideas of experienced objects in terms of measured quantities... does not say that this is the way they must be thought, the only valid way of thinking them. It states that for the purpose of generalized, indefinitely extensive translation from one idea to another, this is the way to think them... The nearer we come to an action that is to have an individualized unique object of experience for its conclusion, the less do we think the things in question in these exclusively metric terms" (QC p.135). "[Knowledge] is a way of operating upon and with things of ordinary experience so that we can frame our ideas of them in terms of their interactions with one another, instead of in terms of the qualities they directly present, and that thereby our control of them, our ability to change them and direct their changes as we desire, is indefinitely increased. Knowing is itself a mode of practical action and is the way of interaction by which other natural interactions become subject to direction" (QC p.107).

41. Thus water is discriminated by its functional relations in terms of everyday activities of washing, drinking and so on. Water as H_2O makes no reference to these qualitative traits in terms which it is identified and upon which its function depends. Nonetheless as H_2O it becomes amenable to all sorts of new modes of control through which it can be put to new uses. But the object of the everyday world is not thereby replaced. Scientific water is not a rival for everyday water "It is, because of experimental operations, an added instrumentality of multiplied controls and uses of the real things of everyday experience" (QC p.106). See (QC pp.246f.). Similarly qualitative heat is related to quantitative heat not as appearance to reality but as passive "feel" to reliable predictive sign (QC p.129); as thing to its relations.

42. As Dewey puts it "the difference between them resides in their respective subject-matters, not in their basic logical forms and relations; that the difference in subject-matters is due to the difference in the problems respectively involved; and finally, that this difference sets up a difference in the ends or objective consequences they are concerned to achieve" (LI p.118). See also (LI p.82).

43. "(1) Scientific subject-matter and procedures grow out of the direct problems and methods of common sense, of practical uses and enjoyments, and (2) react into the latter in a way that enormously refines, expands and liberates the contents and the agencies at the disposal of common sense" (LI pp.71-2).

44. "Inventions of new agencies and instruments create new ends; they create new consequences which stir men to form new purposes" (LI p.83).

45. This objection is made by Russell (see Nissen [p.12]) who argues that Dewey's definition fits the building of a wall out of bricks, as well as it does cases of inquiry. The same point is made by Thayer who asks, in the case of an inquirer working her way out of a maze, "Can differences in human response be rightly said to constitute existential transformation and reconstruction of the materials of (in this case) the conditions imposed by the maze? Can the maze conditions be said to have been reshaped or modified?" (1952. p.179). Nissen (1969) and Quinton (1977) offer similar criticisms.

46. This example is adapted from Wagner (1975).

47. The distinction between science and industrial arts is not denied however see (QC p.84).

48. I owe the details of this example to Putnam's paraphrase of an unpublished example of Kuhn's. I have not been able to find a reference for the example or confirm its accuracy, but it does serve to make Dewey's point.

49. Nonetheless, Putnam is a pragmatic realist since he believes there is no context-independent fact of that matter about what kinds the world is sorted into; the sorting of objects presupposes a set of interests and procedures for individuating objects and so on.

50. Such a move has some plausibility on Peirce's view since he thinks there is a rational essence for humanity, defined by his three methods of science. For Peirce such a method is implicit in all culture's practices, thus all disputes are merely disputes about the content, not the form, of

knowledge. Since Putnam rejects this idea of Peirce's it escapes me how he can continue to espouse his old realist semantics. Again it seems to me the limit serves to save realist intuitions but only by creating unsolvable problems.

51. What criticism looks like on this kind of view will be discussed in greater detail in the next chapter.

52. Correlatively, much of contemporary social discourse and institutional practice presupposes the fact/value distinction, so an appeal to common sense cannot by itself serve as an objection to views that challenge that distinction.

53. See Tiles (1988, p.147).

54. The second strategy is that of Peirce and Putnam. In both cases the limit preserves the gap between belief at a particular time and truth and thus preserves a host of enlightenment dichotomies and concepts; a duality of belief and knowledge, the idea that the world is out there independent of our current will, the distinctions between appearance and reality, objectivity and subjectivity, and so on.

55. "If there be truth eternal and absolute, and yet that truth cannot be operative in human affairs so as to extend and secure their prosperity, the existence and nature of absolute truth may be of interest to discarnate angelic beings, but not to man as human, to him only as sharing an angelic essence" (MW 6, p.54).

56. "No matter what the formula for the end, and no matter how monistic its verbal statement, desirable progress means, as a matter of fact, constant diversification; multiplication of ends that evoke interest and endeavour" (MW 6, p. 60).

57. Dewey writes "since the good of humanity has ever to be secured anew in an untried and precarious future, knowing is not the condescension of reduplicating a nature that already is, but is the turning of that nature to account in behalf of consequences. And objective truth is the free outworking of nature so interpreted into an intercourse more secure, more varied and more free" (MW 6, p.68).

CHAPTER VIII - PRAGMATISM FROM DEWEY TO RORTY.

1. INTRODUCTION.

The disagreements between Hilary Putnam and Richard Rorty pose worries for sympathetic pragmatists. While Rorty claims that his pragmatism is "almost, but not quite, the same as what... Putnam... calls 'the internalist conception of philosophy'" (1986, p.7), Putnam takes no comfort whatsoever from the association. Putnam sees himself as preserving the realist spirit but takes Rorty to be "rejecting the intuitions that underlie every kind of realism (and not just metaphysical realism)..." (1989). For Putnam, Rorty's pragmatism is a cultural relativism driven by a deep irrationalism that casts doubt on the very possibility of thought itself.¹ Yet in the very paper that Putnam cites to support his claim Rorty denies both charges.² Rorty intimates that he shares Putnam's quest for a middle ground between metaphysics and relativism and claims that his view fills the bill. Putnam, needless to say, does not concur. What is the average pragmatist-in-the-street to do?

In what follows I hope to articulate part of what is at stake in the debate between Putnam and Rorty in an effort to determine whether their disagreement is the result of a deep schism in pragmatism or merely a difference in the formulation of their positions. In the process I will use the reading of Dewey already established to defend Rorty from

attacks by Putnam and Prado. While the following interpretation of Rorty's work may seem revisionary to some, I think it is faithful to Rorty's writings, despite their frequent ambiguity, and I think it the only reading that is of any interest at all.

2. RORTY AGAINST THE TRADITION.

In the more severe interpretations, Rorty's pragmatism is portrayed (as many portrayed the work of Kuhn) as a nihilistically motivated dismissal of thought, reason and self-reflection. Such readings typically mistake an attack on a particular conception of philosophy (philosophy with a capital 'P') for an attack on all intellectual activity. But Rorty, like Kuhn, wants no part of the latter enterprise. In fact it is in part because our most cherished cultural practices persist, while Philosophical groundings for them come and go, and because we find it difficult to seriously question the value and meaningfulness of these practices, that Rorty thinks intellectual activity is in no need of something called "Philosophy". It is important to realize, therefore, that Rorty's target is quite specific. More importantly, his work makes little if any sense if the position with which his own views are contrasted is not kept in mind.

The target of Rorty's attack is the discipline that (i) sees itself as "discussing perennial and eternal problems"

(Rorty 1979, p.3) and (ii) attempts to "debunk claims to knowledge by erecting a permanent neutral framework for inquiry and thus for all of culture" (1979, p. 8); a framework that will provide "non-historical conditions of any possible historical development" (1979, p.9). It is this picture that has served to define a whole set of problems for the discipline and that continues to inform the images philosophers have of themselves and of their relation to the rest of culture. Furthermore, it is this picture that Rorty holds responsible for such prevalent tendencies as the dismissal of the arts and humanities, the isolation of philosophy from other disciplines and the culture at large, and imperialist attitudes towards alternative philosophical traditions and towards the history of the discipline. In attacking this picture Rorty's motives are, like Dewey's, as political as they are philosophical. His work is directed at reconstructing a normative image of philosophy by changing the vocabulary in terms of which its practitioners describe their craft "in the hope of forging a new form of intellectual life" (1982, p.20).

Against the thesis that current philosophical problems are eternal, Rorty follows Dewey in arguing that the assumptions that give rise to these problems are the product of quite specific historical developments. The contingency of these assumptions argues for their optionality. What is more, acceptance of these assumptions is undermined by

Quine's attack on the analytic-synthetic distinction and Sellar's attack on the "given". By undercutting the distinction between form and content, mind and world, language and reality, epistemology has sown the seeds of its own destruction.³ Rorty's challenge is thus quite specific, either philosophy must redefine its cultural mission or it faces extinction. Suffice it to say that Rorty's respect for the work of Rawls, Nietzsche, Hesse, James, Dewey and others reveals his confidence that such a redefinition is possible.⁴

If this metaphilosophical critique is the real message of Rorty's work, if all he is trying to do is put himself out of business by convincing philosophers to shed their transcendental aspirations, then it is clear that a number of criticisms directed at his work are somewhat less than effective. For example, the suggestion that Rorty must either have a theory of knowledge to back up his position (thereby contradicting himself) or concede that his position is indefensible, simply begs the question. Rorty has lots to say about how to think about objectivity and knowledge-producing practices, but his "theory" is anti-epistemological; it is one that denies the possibility and the desirability of transcending one's own culture to underwrite claims to knowledge in some canonical fashion. It denies that any beliefs (including his own and those of his opponents) can be grounded by a traditional theory of knowledge. Again Rorty's target is important. His aim is

not to cast aspersions on knowledge or critical inquiry, Rorty is not claiming to have a test for knowledge that, when applied to either our beliefs or our procedures for evaluating beliefs, yields a negative result. Rather he is undercutting the idea that there can be such an ahistorical test. In claiming that criticism can proceed without such theoretical vindication Rorty is denying that the dichotomy posed in the objection is exhaustive; he is denying that the objective/subjective distinction is to be equated with the grounded/ungrounded distinction. The force of Rorty's position does not derive from its being necessitated by reason, but rather from its ability to solve, or dissolve, problems posed by the Philosophical tradition while retaining, though dramatically reinterpreting, epistemic notions central to that tradition.

It is often argued that Rorty draws his definition of Philosophy too narrowly and is thus overly harsh on the tradition. It has been suggested that Philosophy has always done more than search for foundations of knowledge and is thus worthy of pursuit even if that search must now end; even if foundationalism has hitherto failed there is still much to know about knowing. Others have pointed out that the search for foundations or methods has long since been purged from philosophy of science in favour of, for example, naturalized epistemology.²³ Thus it is claimed that Rorty has given up too much to pragmatism because he has failed to realize that

contemporary realism has already rejected foundationalism; in other words, Rorty is overreacting.

At first glance, these objections do nothing to damage Rorty's challenge. They serve only to express confidence in the possibility of changing the image of Philosophy and to concede that debate about what that image could, or should, be is at least not out of place, if not desperately needed.

On the other hand, they fail to grasp the full force of Rorty's position. As the discussion of Dewey has shown, Rorty can embrace naturalism while rejecting many of the realist commitments that drive naturalized epistemology. Any naturalism that traces the development of human intelligence to ahistorical natural laws would fall to Dewey's criticism of attempts to reduce a plurality of social practices, only some of which are concerned with the production and distribution of natural scientific knowledge, to a more fundamental set of biological variables. Furthermore, to the degree that such epistemologists are committed to scientism, the correspondence theory of truth and the intelligibility of a mind-independent world, they are not immune from the pragmatist's challenge to enlightenment (realist) epistemology.

3. RORTY AS RELATIVIST.

So far everything I have attributed to Rorty could be attributed to Putnam and yet Putnam still sees radical

relativism as the outcome of Rorty's pragmatism. His reading of Rorty goes something like this.⁴ In Philosophy and the Mirror of Nature, Rorty wrote that knowledge "is what we are justified in believing" (1979, p.3), where justification "is to be judged by the standards of our own day" (1979, p.178). In Consequences of Pragmatism, Rorty denied having offered a theory of truth in his earlier book and conceded that equating truth with warranted assertability would not do justice to our intuitions about truth. However, he also suggested that we would do well to abandon those intuition and that truth should be thought of as a compliment people pay to their favorite beliefs (1982, pp. xxiv-xxxii). More recently, Rorty has suggested that rationality and irrationality are to be judged in terms of community membership, that ethnocentrism and communal solidarity are to be preferred to cultural transcendence and objectivity as the aims of inquiry, and again that:

"knowledge" is, like "truth", simply a compliment paid to beliefs which we think so well-justified that for the moment further justification is not needed (Rorty 1984b, p.7).

Rorty seems to be suggesting that truth and falsity simply mark the boundary between those with whom we agree and those with whom we disagree; that all attempts at trans-community comparison or evaluation are disguised expressions of communal preferences; that truth is hopelessly intralinguistic. Call it a theory of truth or not, Rorty looks like he is caught in his own web of belief, unable to

escape the charge of relativism.

The recent discussion by Prado (1987) takes a similar tack. Prado avoids more common errors by clearly separating issues about transcendental epistemology from questions of justification that arise in concrete inquiry situations. Prado recognizes that Rorty is not merely opposing some form of coherentism to metaphysical realism, rather he is dumping that whole dichotomy.

Nonetheless Prado accuses Rorty of trivializing truth (even with a lower case "t"), by failing to recognize the importance of testing beliefs and by making truth completely intralinguistic; a matter of comparing sentences to other sentences. For Prado it is Davidson's holism, not Rorty's, that is to be embraced because:

In place of correspondence, Rorty offers only linguistic practice and intralinguistic criteria, while we feel that our uses of "true" involve more (p.27).

Rorty, unlike Davidson, thinks that once we understand that we cannot establish beliefs or sentences as true extralinguistically, we should abandon any thought, much less any theorizing, about how our beliefs and language relate to the world--beyond the causal stories we tell in language (p.68).⁷

Thus even after the the internalist turn is taken Prado thinks the issue between pragmatic realism and pragmatic idealism rages on, and it is Rorty's version of Pragmatism that goes too far (p.12) by ignoring the special place of natural science in the western intellectual tradition and by forgetting that "philosophical inquiry has a special nature

and is not merely so much more 'conversation'" (p.5).

If this slide to relativism cannot be stopped, Rorty's work is neither very original nor very interesting. Attempts to replace evaluation with belligerence or linguistic manipulation, though potentially dangerous, are unlikely to be persuasive.² If everything goes, then nothing goes, except perhaps hypocrisy; and even then we need some way of talking about which hypocrisies are worth living.

A more productive moral can be distilled from Rorty's stories by taking his pragmatic heritage more seriously. Only then can it be made plain that Rorty's commitment to contextualism and indeterminacy does not force him to abandon commitment altogether.

4. REREADING RORTY.

At the heart of the controversy about Rorty is his avowal of "ethnocentrism"; the view that:

there is nothing to be said about either truth or rationality apart from descriptions of the familiar procedures of justification which a given society--ours-- uses in one or another area of inquiry. (Rorty 1984c, p.6).

It is hard not to read the qualification "ours" as an explicit endorsement of cultural relativism, if not cultural imperialism (the two are related anyway). Yet on the very same page of the quoted paper Rorty concedes that:

a theory according to which truth is simply the contemporary opinion of a chosen individual or group... would of course be self-refuting (Rorty, 1984c, p.6).

It is because such a theory is self-refuting that Rorty insists that he not be read as advancing any positive theory of truth at all. But then it looks like Rorty escapes the charge that his theory is self-refuting merely by denying that it is in fact a theory-- a move that, however clever, is not likely to turn heads. But Rorty's reply is not that simple and he can do better. To see how, two issues which are easily run together must be separated. The first is Rorty's view about truth as a Philosophical notion. The second is his views about normative claims and critical practices once pragmatism is embraced. These issues are intimately related for Rorty but it is only when his attack on the notion of truth is taken for an attempt to offer a positive theory, or even an informal conception, of what truth is, that the relativist reading of his work becomes inescapable.

A. Truth and Interpretive Understanding.

What lies behind Rorty's ethnocentrism is a general picture of interpretive understanding influenced by Gadamer's hermeneutics and a generalization of Kuhn's philosophy of science. Rorty recognizes that attention to our culture's history and to contemporary alien cultures reveals sharp discontinuities in belief systems, institutions and norms implicit in the justification of verbal and non-verbal actions. Our present practices of justification are notoriously incompetent in rendering such things as medieval

alchemy and Gnaou puberty rites intelligible." Yet seemingly incomprehensible beliefs and practices are often understandable once one grasps the point of those beliefs and practices, the norms which govern them, the skills required to execute them and their general contribution to the social-historical-epistemic tradition of which they are a part.¹⁰ Understanding here is not just a matter of translating what others say and noting what they do, but a matter of learning how they justify what they say and do; it is not a matter of learning what actions are appropriate and what truth values are assigned to beliefs or propositions, but a matter of gaining proficiency in the ways in which appropriateness is judged and the ways in which questions of truth and falsity are settled. The understanding of unfamiliar beliefs and practices thus involves assimilating and accommodating oneself to the shared habits involved in the practice (Dewey), the rules of the relevant language game (Winch), the prevalent cultural versions (Goodman), the local paradigms or disciplinary matrices (Kuhn) or the relevant styles of reasoning (Hacking).¹¹

What goes for other cultures goes for our own. Our practices of justification are themselves to be understood as emerging within a particular social-historical-epistemic tradition. It is through these practices that we give content to our conceptions of what is "true" or "justified" and of what constitutes "reality". Any understanding of

these notions must proceed internally; that is, they are to be rendered intelligible by reference to the styles of reasoning we use and the historical context in which those have developed, whether or not any of our current conceptions of the world proves sustainable in the long run.

This picture jibes well with Dewey's contention that one cannot separate the content of beliefs from the sorts of reasons that are adduced to support them. The ways in which truth and falsity are decided help determine the content of beliefs. To know what it means for the Azande to deny the presence of witches (as opposed to what we mean by such a denial) one must have some understanding of the appropriate techniques of witch detection.

Such a view also casts doubt on the legitimacy of "Truth" and "Rationality" as notions capable of explaining the presence or persistence of versions in various traditions. One cannot explain the adherence to styles of reasoning or conceptual systems in terms of their faithfulness to the facts, for we have no access to facts independently of some such system or set of reasoning practices. To appeal to any particular set of facts as authoritative is to insist on or presuppose, rather than demonstrate, the authority of some version in terms of which the facts are characterized. While the notion of "unconceptualized reality" is not totally senseless-- as a thought experiment about stuff persisting after language users have ceased to-- it is totally without

positive or determinate content. To specify what makes up unconceptualized reality is already to conceptualize it; that is to invoke normative practices for the individuation of objects, for determining membership in relevant kinds and so on. To suppose that criteria of relevance are in nature is to anthropomorphize, and to commit what Dewey called the philosophical fallacy.

Similarly, attempts to explain the persistence of practices by reference to ahistorical, necessary constraints on thought or language are undermined by the failure of Philosophy to develop convincing candidates for such constraints, by the ability to explain cultural universals in terms of contingently shared prudence instead of a common rational essence, and by recognition of the fact that we have been forced to revise our styles of reasoning, and many of our most cherished beliefs about the world, in the past. Rationality and Truth have no fixed content in history and thus are not self-evident or self-explanatory notions.¹²

It follows from this view that to explain the success of our theories in terms of truth is vacuous; since the means by which we determine truth and the means by which we determine success are identical. There is nothing to the claim of truth in concrete situations of inquiry beyond the claim that the theory under consideration is defensible in light of the best criteria currently available. To say that truth explains that fact is merely to mark the point that our

theories are better because they are more successful and that they are more successful because they are better.

From the general thesis that there is no content to terms such as "objectivity", "reason" and "fact" independently of cultural practices embedded in a form of life, it would seem to follow that we, as culturally and historically constituted inquirers, are able to grasp the sense of these notions only through our familiarity with our contemporary reasoning practices. As Putnam himself concedes:

We do not have notions of the "existence" of things or the "truth" of statements that are independent of the versions we construct and the procedures and practices that give sense to talk of "existence" and "truth" within those versions (1983, p.230).

But this is just what Rorty means by ethnocentrism (to repeat):

there is nothing to be said about truth or rationality apart from descriptions of the familiar procedures of justification which a given society--ours-- uses in one or another area of inquiry (1986, p.6).

Thus, rather than an avowal of cultural relativism, ethnocentrism merely acknowledges the perspectival aspects of fact and reason central to Putnam's own pragmatic realism.

On this reading Rorty's most radical claims lose some of their bite. For example, Rorty writes that truth is an expression of commendation and therefore that:

"true" means the same in all cultures just as equally flexible terms like "here", "there", "good", "bad", "you" and "me" mean the same thing in all cultures. But the identity of meaning is of course compatible with diversity of reference, and with diversity of procedures for assigning the term (1986, p.6).

Rorty's point is that the sense of what is taken as true and thus the sense of what it is to claim something is true evolves internally to cultural traditions. He is thus denying the explanatory power of transcendental notions of "Truth" and "Rationality". But Rorty cannot be committed to a definitional theory of what truth is merely on the basis of his claims about what truth is not; ethnocentrism is intended only to convey the:

purely negative point that we should drop the traditional distinction between truth as correspondence to reality and truth as a commendatory term for well-justified beliefs (1986, p.6).

Of course if there are no working notions of truth and rationality that are independent of cultural versions or forms of reasoning then such notions have none of the normative force traditionally claimed by rationalist, intellectualist epistemologists:¹³ there are no ahistorical, transcultural criteria to appeal to for purposes of grounding or criticizing belief systems. Put more positively, this view merely follows Dewey in asserting the inseparability of practice and theory and suggests that epistemic norms are one among many sets of norms that develop within cultural traditions as a means of meaningfully interacting with our surroundings to render them significant.¹⁴

So far none of this casts doubt on the efficacy of argument or the importance of criticism in the evolution and reconstruction of belief systems or practices. It does suggest that such efficacy cannot derive from the

legitimation of argument or styles of reasoning from a transcendental point of view; there is no such epistemic authority. Of course if one insists that it is only by reference to transcendental standards that one can rationally vindicate styles of reasoning, any attack on the project of grounding principles will be viewed as an attack on reason and objectivity. But it is the contention that styles of reasoning are rational if and only if they are ahistorically defensible that these considerations call into question. Indeed another way to phrase Rorty's point is to say that one of the best reasons for abandoning the search for timeless principles of epistemic warrant is that we have had considerable success in developing richer, more fulfilling ways of relating to our surroundings without them. But as Putnam notes, abandoning the search for transcendental legitimation does not in and of itself mean that we must give up our normative notions, rather it means only that:

truth... is something we grasp as we grasp any other concept, via a (largely implicit) understanding of the factors that make it rationally acceptable to say that something is true (Putnam 1981, p.122).

B. From Explanation to Evaluation.

By using Putnam's words to explicate Rorty's ethnocentrism I have tried to demonstrate the broad base of agreement between them in their criticism of the western intellectual tradition. But I have deliberately avoided the issue over which they seem to part company; namely, how to construe the evaluation of styles of reasoning. Both Rorty

and Putnam articulate their views about truth and rationality as normative notions by means of analogies to cases in which our intuitions are clear and uncontroversial (or so they hope). Unpacking the differences in their choice of examples will also explain the difference between their positions.

Chapter 5 showed how Putnam's views on rationality and truth developed from a synthesis of his earlier philosophy of science (specifically, his work on natural kinds) with Peirce's limit notion of truth. It was argued that the chief attraction to the limit theory lies in its ability to preserve the gap between justification at a particular time and truth. To preserve this gap is to retain the realist intuition that a statement might be false even though it follows from the best theory currently available. This intuition ensures that fallibilism and criticism remain intelligible.

If the argument of Chapter 5 is correct then the limit theory is flawed in its own terms; it cannot reconcile the appeal to an ideal transcendent point of view with its own commitment to fallibilism and historicism. If the limit does no work in the practice of criticism, it offers only the vain hope of an ultimate legitimation of cultural practices. If Putnam insists that we are committed to a limit on the basis of our (current) linguistic and reasoning practices, while agreeing that we can only make normative judgements from our current standpoint, then there is nothing to the limit beyond

the recognition that there is still a distinction to be drawn between argument and dogmatism:

We can differ on fundamental questions, even on questions of methodology, and still listen to arguments, consider each other's assumptions and inferences and so on. It is true that some judgements of 'reasonableness' must be made simply on the basis of ultimate intuitions; not everything can be proved. And it is true that responsible people and careful thinkers may disagree and even consider that the other accepts illegitimate arguments. But this is very far from saying that our attempts to be rational are a fraud (Putnam 1983a, p.203).

Putnam is right to point out that from the fact that there are only fallible, non-neutral, interest-laden places to stand, it does not follow that the best we can hope for are self-deceptive rationalizations of arbitrary cultural practices. Although cultural versions and styles of reasoning are interest-laden it does not follow that conflicts among them cannot be rationally resolved; it means only that interests are part of what is at stake in the resolution of such conflicts and in the evaluation of versions. But Putnam is wrong to think that the postulation of an ideal-limit is required to preserve this intuition. For, on Putnam's own account, the resolution of conflicts among versions cannot proceed upward to transcendental principles, it is more likely to proceed backward to the source of the "ultimate intuitions" which provide the context of conflict, and to an assessment of the reasons for continued adherence to these intuitions in light of current problems and other shared goals and interests. This is precisely the kind of procedure

Dewey describes, and more to the point, it is the kind of case Putnam himself makes against metaphysical realism throughout much of his own work.¹⁵ His own intertheoretic evaluation does not begin with a theory of ideal epistemic constraints that his views are then shown to approximate, it proceeds through an assessment of the comparative advantages of contending reconstructions within a shared domain of inquiry.

It is these interactive, reconstructive and immanent aspects of inquiry, that Rorty is most concerned to highlight. Rather than follow Putnam in focussing on examples from natural science, where talk of the "discovery" of "natures" which are in some sense "out there" awaiting detection comes easily (and hence where Putnam's account of reference works best) Rorty follows Dewey's lead in appealing to art, to politics and to Wittgenstein's notion of a language game to bring home his point.

Games are objects of invention, not discovery; they are created meanings structured by agreed upon rules. Although it makes sense to discuss the merits of rule changes in a game such as chess such debate does not typically involve claims that a particular set of rules constitutes "the real" game of chess. It is peculiar to suggest that the game of chess was being played incorrectly before the introduction of castling and en passant but it is perfectly intelligible to discuss whether the game was improved by the introduction of

these new moves. What constrains such debate is a shared conception of what games are for, and a shared conception of the internal goods of chess.¹⁴

Similarly, we discuss the relative merits of alternative political structures and we debate the merit of changes in our own system, but it is difficult to think of social arrangements as having a transcendental essence which all efforts at political theorizing, and all extant cultures, are attempting to uncover and approximate. We talk and theorize about institutions but we do not postulate an enduring entity to which our theories must answer.¹⁷

Even in the scientific case where we do intend to theorize about enduring spatio-temporal objects, the mere persistence of objects through time does not underwrite the permanence of the our descriptions of objects or our sense of their significance; conflicts among theories are not resolved by appeal to neutral essences. As noted in the previous chapter, the Medievals not only have a different evidential base for their theories of water, they also have a different repertoire of paradigm cases and different criteria by which to isolate the extension of the term water. What constrains intertheoretic debate about water theory is not the stuff-in-itself but the significance of its impingement on the habits by which it is measured and detected, a general conception of the questions a proper water theory should answer, a shared conception of the purpose of science and its role in our

culture and so on; none of which are antecedently in the stuff-in-itself.

Each of these examples is intended to undermine the claim that objective and rational debate must be characterized as the grasping of transcendent essences of objects under consideration-- even if they are to be construed as essences only "humanly speaking". Furthermore, even in the scientific case, it is suggested that the positing of idealized conceptions can in no way constrain debate about the relative merits of various theoretical alternatives.¹⁸

However, the moral is not, as Prado (p. 90) suggests, that we should substitute talk of "invention" for talk of "discovery" in science, or that reality should be construed as being "projected" rather than "revealed". To insist on this would be to presuppose an absolute distinction between the realm of the conventional and the realm of the natural. Such a distinction could be drawn only on the basis of some epistemological theory about the relative contributions of "mind" and "world" to knowledge; a project which is itself intelligible only on the representational account of knowledge and the separation of subject and object, that pragmatism strives to undercut. By suggesting that there is no fundamental difference between debate in science and debate in moral theory, the arts, politics and the rules of games, pragmatists imply that we should not take our talk of "discovery" or "invention" to be capable of doing serious

philosophical work at all.¹⁷ We can talk of the discovery of the nature of water, but so too of the discovery of abstract art, or the marketplace. In each case what is involved is the reconstruction and innovative extension of past modes of relating to the world in some domain of cultural practice.

From the above it should be evident the tendency of pragmatists such as Dewey and Rorty to shift from talk of truth and falsity to talk of better and worse is important for a number of reasons. First, "better" and "worse" are comparative terms, the use of which involve essential reference to a range of alternatives. Furthermore, the sense of these terms is more easily construed as being context-dependent; talk of better and worse makes sense only after some relevant point of comparison has been specified and comparisons in terms of better and worse typically presuppose some purpose. Finally, if the above analogies are compelling and debate is always a matter of assessing the consequences of enacting competing alternatives within some shared domain, then claims to truth throughout the history of ideas cash out as claims to the superiority of some theory over its rivals, in some respect relevant to the domain in question. In this sense truth, as a normative notion, is interpretable as "in William James's phrase, what is good for us to believe" (Rorty 1986, p.5).

Of course in practice, "us" always refers to some historically conditioned community of practitioners and

"better" is always judged from some historical standpoint. But this means only that there is no transcendental point of view from which to adjudicate disputes among rivals. With no ideal limit to appeal to we cannot ground the process of inquiry "there is only the dialogue" (Rorty 1986, p.10). To say that we must judge from where we stand is to deny the pretence of an absolute perspective and to suggest that progress in inquiry can only be achieved through the creative extension of current practices in response to the problems to which they give rise, to challenges from other forms of life and other traditions and so on.²⁰

Thus the critical difference between Putnam, and Rorty, is precisely that which separates Peirce and Dewey. For Putnam intuitions about criticism and fallibilism are to be explained by recourse to an ideal-limit notion of truth. For Rorty, it is our intuitions about the regulative role of truth that are to be explicated and it is in terms of the notion of criticism, or "conversation", as Rorty calls it, that this is to be achieved. We are driven to fallibilism on this view, not by the suggestion that we cannot be certain if our current versions approximate some ideal, but rather by the suggestion that by continuing the process of critical inquiry we may some day develop versions which solve, or circumvent, our current problems:

From a pragmatist point of view, to say what is rational for us now to believe may not be true is simply to say that somebody may come up with a better idea. It is to say that there is always room for

improved belief since new evidence, or new hypotheses, or a whole new vocabulary may come along (Rorty 1986, p.5).

On this view inquiry is not motivated by the fear that our current versions are illusory or wrong-headed from some ideal perspective (we can only evaluate wrong-headedness from within some version) but rather by the hope that better times may be ahead. The search for "truth" is better construed as a search for better, richer, more fulfilling and humane ways of relating to our surroundings and better, richer, more fulfilling and humane conceptions of what "better", "richer", "more fulfilling" and "humane" amount to. But the process is one of perpetual reconstructive bootstrapping in which the criteria embodied in our practices are reinterpreted in light of new examples (for example, we give up the demand of prediction and control in biology and social science to acknowledge important theorizing in evolution theory and interpretive history and anthropology) and our repertoire of examples is amended and reinterpreted in the face of new criteria (we include the arts in the domain of the cognitively significant once we extend the notion of rationality beyond the domain of modern physics and logic). In both cases we are likely to speak of progress but in neither case is progress measured or legitimated by appeal to final destination or an overarching structure of standards.

As theories provide new content for our general vocabulary of theoretical virtues and provide new interpretations of

what theoretical merit consists in. In so doing new theories at once exemplify and redefine those virtues by extending the application of our evaluative terms to new contexts.²¹

In summary, if my reading of Rorty is warranted, then he should not be taken to be advancing a theory of truth or a set of criteria for determining truth. His aim is rather to offer a picture of inquiry along Deweyan lines; a reading of the status and origin of criteria to which we appeal in inquiry. In suggesting that there is only the conversation, Rorty is claiming that there is no rationality that is not the rationality of some particular culture, and no content to theoretical virtues independently of particular theoretical conflicts; in MacIntyre's (1984) words rationality-in-itself is nowhere to be found. Intertheoretic evaluation is a matter of negotiation; of practical comparison of alternative versions within the context of shared interests and purposes. The process of inquiry, the quest for Solidarity as Rorty calls it, is the continued attempt to reshape our theories and practices in an effort to retain that for which we see no reason to give up, while pursuing avenues which hold promise of improvement. To engage in this quest is to participate in the broader cultural search for more meaningful meanings through the creative extension, redescription and reconstruction of the practices which constitute the tradition of our culture. Rather than grasping the transcendently real, this project is a matter of reweaving

the web of belief, of:

muddling through rather than conforming to canons of rationality-- coping with people and things rather than corresponding to reality by discovering essences... to accept the contingency of our starting-points is to accept our inheritance from and conversation with, our fellow-humans as our only source of guidance... In the end the pragmatists tell us, what matters is our loyalty to other human beings clinging together against the dark and not our hope of getting things right... our glory is in our participation in fallible and transitory human projects, not in our obedience to permanent non-human constraints (Rorty 1982, p.161).

Thus the upshot of Rorty's conception of the quest for Solidarity is nothing any more radical than Putnam's own observation that:

We can only hope to produce a more rational conception of rationality or a better conception of morality if we operate from within our tradition (with its echoes of the Greek agora, of Newton and so on, in the case of rationality, and with its echoes of scripture, of the philosophers, of democratic revolutions, and so on, in the case of morality); but this is not to say that all is entirely reasonable with the conceptions we now have... we are invited to engage in a truly human dialogue (Putnam 1981, p.216).

5. SOME FURTHER RELATIVIST WORRIES.²²

Whatever the flaws with pragmatism, the objection that it is a simple form of relativism, either by design or by consequence, is simply untenable. However, if there are lingering worries on that score they are likely to be based on the following kind of challenge. If truth is what is better to believe and "better" is a contextually defined term the content of which is given only in terms of the practices

of some particular culture, then "better" would seem to be a matter of individual cultural assessment. If this is right then the possibility of "conversation" among various cultures is undermined for there can be no point to such conversation if there can be no overarching normative criteria to which participants can appeal. To apply the criteria of one culture to those of another would be to commit a category mistake. The authority of such criteria would then seem to rest on some logically prior radical choice. Gestalt-shifts and conversions from one self-contained version to another would seem to be the only mechanisms available to explain the history of ideas. Thus the denial of transcultural standards of evaluation would seem to entail the denial of the intelligibility of history itself.

This objection is a familiar reply to strong forms of Kuhn's incommensurability thesis, to what Putnam calls criterial conceptions of rationality and to the disquotational theory of truth. Rorty does flirt with this view in his own contrast between normal and revolutionary discourse and in his claim that one cannot argue oneself from one paradigm into another one; that shifts among these involves "coming to see things differently". This reading is bolstered somewhat by passages in which Rorty suggests that modern science succeeded medieval science by a fortunate quirk of fate, and that we should opt for poetry over objectivity.

Nonetheless, it should be clear from the above discussion that Rorty cannot be sympathetic to arguments for the arbitrariness of history that talk of "gestalt shifts" and "radical choices" suggests. Rorty is committed to the possibility of intelligible belief change in history since his own account of the current problems in Philosophy rests very heavily on his historical diagnosis of the cause of those problems; that is, on his account of the motivations and assumptions behind the enlightenment project. Furthermore, by virtue of the fact that his history is one of successes and failures, he is committed to the intelligibility of cultural criticism despite his denial of the existence of transcultural standards of rational acceptability. As indicated above the linchpin of his entire case is his claim that jettisoning the notion of transcultural standards of rational warrant does not force one to adopt radical relativism.

Faced with the question of how we are able to engage in criticism without fixed standards of evaluation, Rorty's best reply is that we just do it! Rorty is not offering a substitute for criticism. His concept of conversation is intended as a way of understanding what criticism is about; it is an account of how it already works. His best defence therefore is to show how that account makes better sense of the history of ideas and then try to shift the burden-of-proof back on his opponents by challenging them to write a

more compelling history; one which is immune from the anti-epistemological considerations of Quine and Sellars, and yet leaves a central explanatory role for transcultural standards of rationality. Therefore Rorty's case can be argued fully only by writing a pragmatist history of ideas. That history cannot be offered here, but Rorty's work offers both implicit and explicit examples of criticism that suggest how one might codify a general reply to the relativist worries outlined above.

However criticism proceeds, it is central to Rorty's position that it need not require full-fledged theories of truth, knowledge or reason; indeed as discussed earlier, the content of notions of truth, reason and knowledge is given through our investigative practices. As Rorty suggests criticism is akin to a skill, rather than the application of fixed, explicit criteria; a matter of phronesis rather than deduction from first principles. As Kuhn has argued, for example, one does not learn what science is all about by acquiring a fixed set of beliefs or methodological rules, but rather by being brought up in the practice of science and, by studying its paradigm cases; that is, in Dewey's terms, by becoming integrated in a community of fellow practitioners through the acquisition of the habits and skills necessary to, and constitutive of, current science. It is this loose background of habits that provides a shared framework within which critical debate takes place. While this framework can

be the object of articulation and description, criticism and judgement in science tend to exemplify a flexibility that is often lost in attempts to formalize or codify those practices; particularly as the background evolves. Just as one need not have an implicit theory of chess in order to play chess, or a theory of language to speak, it is perfectly possible to function effectively as a scientist in evaluating and criticizing scientific theories without a Philosophical theory about what constitutes the acceptability of scientific theory.²⁹ Indeed most of the evaluations in science are not based on anything so firm as a clearly articulated normative theory. The moral, so far as Rorty is concerned, is not that we should stop offering reasons for our theories or demanding them from others, but rather that the reasons we do offer will be intelligible (and hence capable of evaluation) only after one has some grasp of the assumptions, presuppositions and point of the practice of which the theory in question is a part; only after, that is, one has gone some way towards acquiring the skill associated with that practice.

It should be clear then that Rorty cannot be arguing that the authority of criteria is conferred by some sort of radical choice; such a picture would presuppose the intelligibility of an absolute point of view from which such a choice could be conceptualized. Rorty denies both the existence of such a point-of-view and the existence of a neutral vocabulary with which to describe alternatives.

Furthermore, choice cannot be the basic notion of rationality for Rorty because, as with Dewey, his holism and historicism is such that it is only in the context of a cultural tradition that situations of choice arise and that alternatives have significance. What options can seriously be entertained, what counts as an acceptable choice will, to a large extent, be prefigured by the nature of the practice and the habits, beliefs and assumptions which form what Rorty calls "conversational constraints". Conversational constraints, as Dewey recognized, provide the resources out of which acceptable choices are made-- they are not objects of unsituated willing. Thus rather than denying the existence of rational choice, Rorty is arguing that intelligible choices are historically situated.²⁴

What such a conversation looks like is perhaps best illustrated best by Rorty's own argument against the enlightenment tradition in philosophy.²⁵ Rorty does not condemn the enlightenment project by first erecting a system of evaluative standards. The force of his critique derives from his claim that the enlightenment project has failed by enlightenment standards! What is more, Rorty's argument disarms the rebuttal that the project has not been pursued long enough by questioning the intelligibility of the assumptions on which the project itself is based. If Rorty is correct, the problem of how language hooks on to the world arises only on the assumption of the representational model

of mind and knowledge that gained currency in the seventeenth century; a model which is itself inspired by the view that the justification of beliefs can be reduced to their causal explanation. But this very assumption is undermined by arguments of Quine and Sellars, both of whom are products of the tradition in philosophy Rorty is considering. Thus there can be no hope of success for Philosophy and no reason to pursue it unless one can either answer those arguments, or fault Rorty's characterization of the epistemological project.

Rorty takes the virtue of pragmatism to be that it embraces the arguments of Quine and Sellars and thus circumvents the challenges they raise for Philosophy; while nonetheless preserving an important role for intellectual activity by reinterpreting that role as one of edification. Edification here is not mere entertainment, it is the attempt to redefine our transactions with things and persons in ways that overcome that which confronts us as obstacles.

Thus Rorty's view is argued from a definite philosophical stance, but it is not epistemologically grounded. His appeal is not to transcendental principles but to the interests and beliefs of his opponents and to the largely implicit and unarticulated understanding of the philosophical and cultural tradition that they share, a tradition the very significance of which is at stake in the debate. Thus Rorty's case is rhetorical, it attempts to persuade rather than prove, to exemplify and illustrate rather than demonstrate. The

intuitions and arguments to which he appeals are themselves intelligible only in the context of that shared tradition. So Rorty's position (and its persuasiveness) is itself to be understood historically, as a response to a particular set of contemporary rivals and predecessors; his historicism is thus fully self-reflexive.²⁶

In suggesting that epistemic norms evolve internally to cultural traditions, Rorty is committed to the contingency of those norms and thus to the possibility of rival epistemic traditions; traditions with practices structured by habits, and purposes with no counterpart in the west. This should be no surprise as this possibility could be ruled out only on the basis of an epistemic theory about the existence of necessary constraints which serve as preconditions of all human cultures. But, while Rorty's conversation takes place within a shared tradition his view is equally amenable to conversation across traditions; encounters with other cultures involve a difference in degree not in kind. Cultures are constituted as alien, by the breakdown of our habits of relating to objects and to persons when extended beyond the context in which they were originally reliable. Culture shock is nothing other than an experience of one's failure as a person, resulting from the removal of the sustaining context of intelligibility. In such situations one is placed, much as child, in a situation of dependence in which the construction of meaningful relationships with the

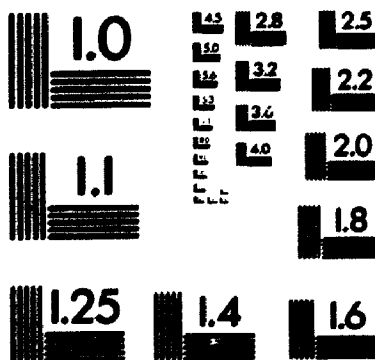
group is set as a task. The means of engaging in cooperative projects can be acquired only by learning how to function in the new surroundings. Such learning will be built out of the resources one brings to the situation, and it will be in terms of the success or failure of transactions with others that understanding will be gauged. Whether there will be sufficient common ground, and if so what will constitute that common ground, cannot be anticipated in advance. Where and how to extend one's concepts and modes of relating to people and things in order to grasp the sense of activities with no western counterpart can be worked out only within the context of interaction. But where mutual interpretation is successfully negotiated there will be overlap in interests and activities sufficient to permit conversation even in the absence of principles of adjudication that are independent of the particular traditions involved.

For example, the Azande practice of witchcraft combines elements of ritual, symbolic expression and science in ways we find difficult to comprehend. To judge magic purely by the standards of western science is to assume it plays the same kind of role in Zande culture that it does in western culture. But this intellectualism closes one's mind to the possibility of rival social organization and thus commits Dewey's philosophical fallacy. Witchcraft is neither science nor emotive religious expression for that dichotomy itself has no place in that culture; it is the result of particular

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developments in the western tradition which led to, and emerged out of, a particular intellectual division of labour, the universality of which witchcraft challenges. Of course the Azande are impressed with the technological achievements of modern science and these achievements do elicit from them an attempt to assimilate those results and to accommodate their world view to them. But tribal society, in the hands of interpreters such as Winch, Lewis and Wagner, also challenge western conceptions about culture, reason, value and institutions.²⁷ The point is not that we cannot question the beliefs and practices of other cultures or that we may never use our criteria to do so, but only that questions and criticisms will always be inspired by a set of background beliefs, intuitions and practices; and, what lies behind those beliefs, intuitions and practices, are more beliefs, intuitions and practices. We can only defend our web of belief by reference to other parts of the web:²⁸

For hermeneutics, to be rational is to be willing to refrain from epistemology-- from thinking that there is a special set of terms in which all contributions to the conversation should be put-- and to be willing to pick up the jargon of the interlocuter rather than translating it into one's own... (Rorty 1979, p.318).²⁹

Rather than denying the possibility, value or intelligibility of giving reasons for our views Rorty is merely denying the need for epistemology. We need not give up the search for better ways of looking at the world, we need only give up the:

urge to answer questions like "Why believe what I take to be true?", "Why do what I take to be right?" by appealing to something more than the ordinary retail, detailed, concrete reasons which have brought one to one's present view (Rorty 1982, p.165).

6. CONCLUSION.

Put too simply, the criteria philosophers have typically taken to be authoritative in constructing epistemologies can be grouped into three classes; the world (facts, evidence and so on), mind (categories, general laws of thought, Reason and so on) and culture (the conventions of particular communities at particular times). These classes, when taken as being mutually exclusive, yield the positions of naive causal realism, naive idealism (or naive rationalism) and naive cultural relativism. In each case the criteria are ultimate in the sense that appeals to these criteria are presumed to be capable of halting the regress of giving reasons for, or justifications of, beliefs and actions; they constitute criteria of ultimate epistemic authority.

The accusations, by Putnam, Prado and others, that Rorty's pragmatism is a self-refuting relativism are apt only if one reads Rorty as embracing the latter of the above options. Putnam takes Rorty to be defining rationality in terms of contingent cultural acceptance and as thereby embracing a disquotational theory of truth. In so doing Putnam is suggesting that Rorty holds some beliefs and standards (namely those of his cultural peers) to be immune

from revision and hence implies that they are capable of halting the aforementioned regress.

On the reading offered here, one that takes seriously Rorty's debt to Dewey, this accusation is misplaced. Rorty is not to be taken as suggesting that any culture's (or all cultures') standards are authoritative, but rather as denying the existence of epistemologically authoritative standards altogether. In arguing against the intelligibility of any of the above options, Rorty's central concern is to deny that the regress of justification can be halted at all! It is this, that is, his rejection of a transcendental point-of-view from which to judge ultimate authority that lies behind his ethnocentrism. Neither form nor content, mind nor world serves as an independent variable capable of explicating the process of inquiry; each is a phase of a mutually interacting totality of subject-object integrations.

Rorty follows Dewey in contextualizing debate, criticism and standards, but in so far as nothing precludes critical (re)assessment of beliefs, standards and practices, Rorty is not a radical cultural relativist. He insists only that critical conversation proceeds by a comparison of the practical, concrete advantages of various alternatives under consideration. Such debate can only take place against a backdrop of shared beliefs, habits and interests which are themselves defensible in terms of other beliefs, habits and interests (and by comparison with rivals). There is no

fixed, determinate or permanent content to "better" and "worse" to which we can appeal in such debate and no ideal point-of-view (not even a human one) from which to adjudicate such disputes.

What is at stake between Putnam and Rorty can now be made clear. Both writers begin by asserting that truth is a species of Good; even for Putnam truth has no content independently of our styles of reasoning, and these in turn rest on and gain intelligibility from more general conceptions of eudaemonia. Yet in the final analysis, Putnam, like Peirce, inverts this order and reestablishes the priority of truth. He suggests that inquiry is directed at discovering the ideal (true) conception (or conceptions) of eudaemonia, and insists that truth is to be judged only by reference to ideal epistemic criteria (that are constitutive of human Rationality). It is, then, the failure to approximate these ideal conditions that motivates further inquiry and practice, and it is the approach towards this ideal that both vindicates the achievements of cultural practices and provides them with an universal aim.

I have argued throughout, that this inversion gives rise to insuperable problems. For, on the one hand, if we have access to ideal epistemic conditions then we must restrict fallibilism and contextualism and offer some account of the criteria by which the ideal status of our beliefs or practices can be determined. But it is this transcendental

aspect of Peirce's realism that Putnam himself rightly rejects in light of historical evidence. On the other hand, if we remain fallibilists and contextualists then any substantive role for ideal epistemic conditions in accounting for practices is ruled out by the inability to recognize or attain any such perspective.

For Rorty and for Dewey, such problems are avoided by rejecting the notion of a limit and by insisting on the inseparability of practice (the good) and our evaluative criteria (the true). For Rorty and Dewey, truth is what is good for us to believe; beliefs and practices are to be valued insofar as they better enable us to cope with the world and render experience significant. But there are no fixed standards of assessment; there are only the standards embodied in the forms of life of particular traditions past, present and envisaged. The aims of inquiry (practice) are thus to be understood in terms of the aims, interests and intentions of historically-constituted communities of inquirers (practitioners). Their motivation is not the discovery of forms of life which are legitimated from some ideal perspective, but the creation of better ways of looking at the world, the creation of solutions to, or means for the circumvention of, current problems; for the improvement of current conditions through the extension, redescription and reconstruction of the traditions and practices to which we are heir. As noted above, aims and interests are themselves

renegotiated, as are criteria of evaluation, as inquiry proceeds but progress in these matters cannot be measured by reference to antecedently binding epistemic conditions. From this point of view, it is because ideal limits can play no role in the conversation, that the dialogue Putnam asks us to engage will be truly human after all.

NOTES

1. Putnam suggests that relativism is driven by irrationalism and that it denies the possibility of thought. Thus his repeated accusation that Rorty is a cultural relativist shows his willingness to apply these criticisms to Rorty. See his (1981, pp.103-26; p.216) and (1983a, p.235).

2. The paper is entitled "Pragmatism, Relativism and, Irrationalism" (see Rorty [1982, pp. 160-75]).

3. This portion of Rorty's case is overlooked by Prado (1987) who seems to think Rorty rests his whole case against Philosophy on the simple fact that it has yet to succeed.

4. Rorty's suggestion that we look to contemporary literary criticism as a role model is often mistaken for the suggestion that philosophy departments be shut down and that philosophy courses be stricken from the curriculum. Literary criticism is offered by Rorty as an example of the kind of cultural role to which philosophy should aspire. Thus when he substitutes the "liberal ironist poet" for the philosopher as a new moral image, he attempts to broaden the current conception of poetry as much as he redefines philosophy. See his (1989, pp 79-80).

5. Kim (1980), in his review of Rorty, expresses the need for epistemology in the pursuit of inquiry. Hacking (1980), in his review, suggests that most of his colleagues have given up the search for foundations anyway but that they do valuable philosophy and should be allowed to continue doing so. Stabler (1983) argues against Rorty that we can call most of what goes on in cognitive psychology, epistemology and thus, even though it is not a foundational enterprise, epistemology can still continue.

6. I am grateful for conversations with Putnam on this matter, although the general outline of this reading is available in his (1984).

7. Elsewhere Prado writes that "in the case of Rorty we feel we are left with only our beliefs and construals" (p.35), "most will feel that, in spite of everything said, Rorty can only postulate brute reality; that without correspondence he cannot prevent his position from being idealistic or phenomenalist... The problem is that in Rorty's pragmatic view language nowhere hooks up to reality" (p.40). "The reason is, whether as an analysis or not, pragmatism makes truth an intralinguistic feature in the sense that to

describe a sentence as true is only to relate it to other sentences" (p. 55).

8. Putnam is correct to point out the relativist tendencies in Rorty's writings. I reject that reading, however, because it is the least interesting interpretation and because it does not do justice to Rorty's own appeals to Dewey, Hesse, Polanyi and Kuhn (none of whom avows relativism) in expressing his central views and in answering charges of relativism. Putnam has yet to make clear exactly why he ignores these replies or why he thinks they are no good and Prado does not comment on them either. Both work hard at insisting that Rorty is a relativist from which the charges of nihilism and self-refutation follow easily-- too easily.

9. See Gilbert Lewis's (1980) for a rich account of the Gnaou and the implications of this discussion for cross-cultural understanding. See also any number of bizarre examples of medieval science in Grant (1974). For a rich account of the feeling of incompetence that arises from confronting alien cultures see Wagner (1975).

10. The use of this tortuous expression should serve to remind readers that pragmatists do not prejudge the relationship of history, culture and cognition. They are inseparable and interrelated aspects of a single totality and their interrelationship is organized differently in different periods; it is the object of social interpretation and reconstruction, not a metaphysical relation antecedently awaiting discovery.

11. See Goodman (1978), Winch (1958; 1970), Kuhn (1960) and Hacking (1982). I do not mean to overlook the important differences among these writers on substantive issues, I wish only to illustrate their agreement on this point. Note each of them would disagree with Davidson and Quine by denying that translation is the essence of transcultural understanding.

12. See Hesse's (1980) compelling case against attempts to isolate a core set of beliefs and principles that serves as a bridgehead among all cultures.

13. For examples of these views see the papers by Hollis and Lukes in Wilson (1970) and in their own (1982).

14. Sympathy with this view is reflected, in part, in the historical turn in philosophy of science. Philosophers who once fashioned themselves as setting up the model for science to emulate based on theories of meaning, knowledge and rationality, now are racing to science itself in defence of their pictures of what good science is all about.

Philosophy, once queen of the sciences, is now devoted subject. Philosophy of science teems with case studies and reports of self-conscious practitioners of the craft and it is now appeals to scientific practice that underwrite philosophical codifications of that practice. It would seem then that science need not wait on a completed epistemology.

15. Particularly in chapters 3 and 9 of his (1981) and in his (1989) Carus Lectures.

16. The term "internal goods" is from MacIntyre (1984a). Internal goods are characteristic of practices such as chess; they are the rewards (the achievement of a particular kind of analytical skill, for example) that distinguish it from other activities such as flute playing and golf. They can be attained and appreciated only by playing the game. Chess is not merely a means to these goods, since attainment of these goods is just what it is to play chess well. "We call them internal for two reasons: first, ... because we can only specify them in terms of chess... and secondly because they can only be identified and recognized by the experience of participating in the practice in question. Those who lack the relevant experience are incompetent thereby as judges of internal goods" (MacIntyre, 1984a, pp.188-9).

17. There is a long tradition of attempts to ground political theory on a theory of human nature, so this is not uncontroversial. Nonetheless Rorty, like Dewey, is critical of the attempt to treat individuals as independent variables in terms of which the form and content of social arrangements can be explained. Both recognize the point made earlier that although individuals make cultures, cultures make individuals. Institutions are not merely means to some antecedent end, they are in part constitutive of the form of life in which ends are formulated.

18. Even Putnam seems to acknowledge cases in which the intelligibility of debate does not require an ideal limit. He writes that "Seeing that an adjudication of an ethical dispute is reasonable (at a given time, for a given dispute, for a given group of people) and that another is unreasonable is like seeing that one 'reading' is better than another. We are not committed to the existence of an unimaginable 'absolute perspective' in ethics, an ethical theory that contains and reconciles all the possible perspectives on ethical problems in all their dimensions; we are committed to the idea of 'better and worse opinions'" (Putnam 1983b, 6). Substitute "ideal limit" for "absolute perspective" and one ends up with Rorty's and Dewey's position, as we shall see.

19. Here Rorty is much closer to classical pragmatism. He argues that once facts "go soft" then whether we talk of "discovery" or "invention" doesn't matter much; they are two ways of describing the same interaction. The distinction between interpreter and interpreted is itself part of the versions we construct in order to cope and cannot be seen as being outside of all versions, as grounding an ontological split between scheme and content or appearance and reality upon which to construct an epistemology.

20. And of course progress can only be measured in terms of the concrete problems which face available theories, not by reference to some ideal limit.

21. We tend to keep the same vocabulary but reinterpret it as we go and in so doing forge new meanings out of old ones. Thus the meanings of our terms grow. Again we have no difficulty in thinking this way in the domain of aesthetics or morality, yet we still debate the morality of actions in past times and the quality of past aesthetic styles. Prado thinks prediction in science falsifies this analysis by providing an unambiguous standard of progress by which to measure scientific success. But it is simply wrong to suggest that prediction has the same sense or value throughout history (from Aristotle, to Newton, to Einstein, to contemporary quantum mechanics). Nor, as was pointed out in Chapter 5, is it a universal standard of cognitive progress.

22. For more extended treatment of the issues raised in this section see Dreyfus (1980), MacIntyre (1984), Winch (1960) and Fish (1982).

23. That is why great modern scientists frequently make such lousy philosophers and why historians of science can easily find huge gaps between theory and practice among scientist's writings.

24. I am combining two points here. First, Quine's point that we can only defend parts of our web of belief with other parts of that web. Secondly, Dewey's and Wittgenstein's point that the application of concepts and criteria itself presupposes reasonableness; the creative extension of past practices to new contexts itself presupposes a background of shared habits and a shared conception of the point of the practices involved.

25. Rorty's use of the term conversation has bothered commentators, such as Prado (p. 100). Rather than an attempt to unmask the pretences of Philosophical theory, commentators have viewed the term as an attempt to attack the practice of science, as an attempt to suggest that science is mere

conversation, idle chat, playful banter, or merely a game. But the addition of the word "mere" is a prejorative flourish added by these commentators not by Rorty. It does neither justice to Rorty's views nor to the actual practice of any but the most trivial conversations. Nothing in the notion of conversation entails its lack of seriousness, or that a great deal cannot be at stake in such exchanges (as Rorty's example of the "conversation" between Belarmine and Galileo shows). What conversation does suggest is a relation between a speaker and a hearer, an interaction through which both are changed. For Dewey and for Rorty conversation is an open-ended exchange, a process of negotiation which can progress, deepen and prove fruitful or can degenerate, turn violent or simply come to an end.

26. Philosophers have said very little about persuasion, of how arguments move us, of what in addition to validity makes us conclude that an argument is sound. It is because being persuaded is something that happens to us, unlike inquiry which is something we actively choose to do, that Rorty is forced to describe belief change with such potentially misleading phrases as "coming to see things differently". But if we keep Dewey firmly in mind we can see that coming to see things differently is what inquiry is about. It is a matter of redefining oneself in relation to the surroundings such that we can find meaning in the surroundings, meaning it did not previously have. Learning new theories is coming to view the world, of mediating ones transactions with it through the resources the theory offers.

27. See Wagner (1975) and Taylor's paper in Hollis and Lukes (1982). The lack of alienation, the richness of the network of meanings which frame social life in tribal society, combined with the dismal consequences for those that attempt the transition to western life, casts doubt on the notion that western culture offers the final liberation of a human essence which, in every other situation, is merely straining to get out.

While I realize I am resting a great deal on a very controversial reading of anthropology and tribal practices, my intention is only to show the kind of reading of cross cultural practices pragmatism can give, and to show its openness to the radical differences that Rationalists and Davidsonians alike insist can not be made intelligible, yet anthropologists continue to find.

28. While the web of belief metaphor can suggest that it is a mental web imposed on reality, we know from Dewey that the web is defined in terms of the reality whose impingements it mediates.

29. "All we can do is show how the other side looks from our point of view. That is, all we can do is be hermeneutic about the opposition-- trying to show how the odd or paradoxical or offensive things they say hang together with the rest of what they want to say, and how what they say looks when put in our own alternative idiom" (Rorty 1979, pp.364-5).

APPENDIX I

KEY TO ABBREVIATIONS FOR REFERENCES TO DEWEY

- AE - Art as Experience, (New York: Minton, Balch and Company),
- DC - Dewey and His Critics, S. Morgenbesser (ed.), (New York: Journal of Philosophy).
- DE - Democracy and Education, (New York: The Free Press).
- EN - Experience and Nature, second edition, (La Salle IL: The Open Court).
- EW - The Early Works of John Dewey 1882-98, Volumes 1-5, J. Boydston (ed.), (Carbondale IL: Southern Illinois University Press). [References include volume number].
- HNC - Human Nature and Conduct, (New York: The Modern Library, Random House Inc.).
- IDP - The Influence of Darwin on Philosophy and Other Essays, (New York: Henry Holt and Company).
- LSA - Liberalism and Social Action, (New York: Perigree Books).
- LI - Logic: The Theory of Inquiry, John Dewey: The Later Works, 1925-33 Volume 12: 1938, J. Boydston (ed.), (Carbondale, IL: Southern Illinois University Press).
- MW - The Middle Works of John Dewey, 1899-1924, J. Boydston (ed.), (Carbondale IL: Southern Illinois University Press). [References include volume number].
- PD - The Philosophy of John Dewey, P. Shillp (ed.), (Chicago: Northwestern University Press).
- PP - The Public and its Problems, (Chicago: Swallow Press).
- QC - The Quest for Certainty, (New York: Perigree Books).
- RP - Reconstruction in Philosophy, enlarged edition, (Boston: Beacon Press).
- TV - Theory of Valuation, International Encyclopedia of Unified Science Volume 2, Number 4, (Chicago: University of Chicago Press).

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