

IN PRAISE OF HEDGEHOGS

IN PRAISE OF HEDGEHOGS:  
Alfred North Whitehead's Critique of Hume

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A Thesis  
Submitted to the School of Graduate Studies  
in Partial Fulfillment of the Requirements  
for the Degree of  
Master of Arts  
McMaster University  
September 1977

MASTER OF ARTS (1977)  
(PHILOSOPHY)

MCMASTER UNIVERSITY  
Hamilton, Ontario  
CANADA

TITLE: IN PRAISE OF HEDGEHOGS: Alfred North Whitehead's  
Critique of Hume

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Number of Pages: ix, 132

## ABSTRACT

This essay presents a particular perspective into Alfred North Whitehead's critique of David Hume's philosophy of experience. The first section sets forth the problem, which Whitehead saw in Hume's philosophy: the problem that were one to consistently hold Hume's position one would be reduced to what George Santayana calls the 'solipsism of the present moment.' The second section concerns Whitehead's understanding of the cause of Hume's problem, abstraction. Section three considers Hume's particular brand of abstraction, sensationalism, and its relation to visual experience. Section four deals with the rudiments of the Whiteheadian solution of Hume's problem. A brief conclusion attempts to put Whitehead's critique into perspective and suggest further inquiries.

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Πόλλ' οἶδ' ἀλώπηξ ἀλλ' ἐχῖνος ἓν μέγα.  
— Ἀρχίλοχος

"The Fox knows many things, But the Hedgehog knows One big thing."

(Translation mine.)

- Archilochus  
(Diehl, Frag. 103)

## ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the following persons affiliated with McMaster University who have been instrumental in my completing this essay: Professor Sami Najm, my advisor whose patience and good humor have been beyond expectation; Professor James Noxon, whose friendship, wit and advice are deeply appreciated; Professor Albert Shalom, whose friendship, advice and encouragement helped me through some dark hours; and Professor Constantine Georgiadis, whose friendship, humor, good conversation and enthusiasm shall serve as an example for my future endeavors.

My thanks to my friend, typist, proofreader, and ephemeral gadfly, MS Suzanne Ross; and to Mr. Francis P. DeMaio for the use of a mean machine.

To John Borders and Tom Kronsberg, my deepest appreciation. Both listened patiently to countless drafts and arguments, endured my relentless banter, and still offered invaluable constructive criticism.

I owe special thanks to David E. Starr, Tutor, St. John's College, Annapolis, Maryland who has been both friend and mentor throughout my acquaintance with Whitehead. It is with occasional ambivalence that I remember Mr. Starr's cajoling that I study Whitehead and forsake a promising career as a mason.

## PREFACE

In order to avoid an unreasonable number of footnotes, I have chosen to indicate textual references by means of the following code: complete bibliographical data may be located in the Bibliography section at the end of this essay.

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-----, MODES OF THOUGHT, MOT.

-----, NATURE AND LIFE, N&L.

-----, PROCESS AND REALITY, PR.

-----, SCIENCE AND THE MODERN WORLD, SMW.

-----, SYMBOLISM: ITS MEANING AND EFFECT, S.

How happy is the little Stone  
That rambles in the Road alone,  
And doesn't care about Careers  
And exigencies never fears --  
Whose Coat of elemental Brown  
A passing Universe put on,  
And independent as the Sun  
Associates or glows alone,  
Fulfilling absolute Decree  
In casual simplicity.

Emily Dickinson, c. 1881



## INTRODUCTION

The philosophical work of Alfred North Whitehead presents a prolonged critique of modern philosophic positions. It was Whitehead's contention that virtually all of the modern philosophic alternatives were fundamentally similar in their basic presuppositions concerning the character, content and texture of human experience. Whitehead claimed that many of the inadequacies of modern philosophy could be attributed to limitations imposed by these basic presuppositions. Whitehead's entire philosophical endeavor might be characterized as an attempt to understand the limits of explanation which these presuppositions impose and to offer a plausible alternative.

This essay will present a particular aspect of Whitehead's endeavor to understand the presuppositions of modern philosophy. I will discuss Whitehead's arguments concerning David Hume's account of experience. In order to accomplish this I shall divide this essay into four sections. The first will deal with the problem Whitehead saw in Hume's account of experience. The second section will discuss Whitehead's view concerning what was the cause of Hume's problem. Whitehead's claim is that Hume's fundamental elements of experience, ideas, are the results of a sophisticated process of abstraction. The third section is divided into two parts. The first

shall attempt to show what Whitehead means by the 'sensationalist doctrine' of experience and that Hume's philosophy is the most lucid instance of this doctrine. The second part will present an analysis of visual experience which, when completed, will demonstrate that the 'sensationalist elements', ideas, are creatures of a nearly complete dependence on a visual model of experience. Section four will adumbrate Whitehead's solution of Hume's problem, showing how Whitehead's different characterization of experience avoids some of the pernicious cul de sacs with which modern philosophy has overwhelmed philosophers.

## Section I: PROBLEM

The essential problem of Hume's philosophy, as Whitehead understood it, was its incoherence. The term 'incoherence' (and thus its privative) was part of Whitehead's technical vocabulary, but it was often meant in its ordinary vernacular sense of 'impossible to understand.' Early in PROCESS AND REALITY (p. 5), immediately after the definition of 'speculative philosophy,' Whitehead defines 'coherence' as follows:

'Coherence,' as here employed, means that the fundamental ideas, in terms of which the scheme is developed, presuppose each other so that in isolation they are meaningless. This requirement does not mean that they are definable in terms of each other: it means that what is indefinable in one such notion cannot be abstracted from its relevance to the other notions. It is the ideal of speculative philosophy that its fundamental notions shall seem incapable of abstraction from each other. In other words, it is presupposed that no entity can be conceived in complete abstraction from the system of the universe... (P. 5)

I have quoted at length in order to show the integral relationship between coherence and abstraction because a major portion of this essay shall be concerned with the notion 'abstraction.' I must now show how Whitehead saw Hume's philosophy to be incoherent.

The incoherence of Hume's philosophy is manifested in two predominant aspects. The first is the solipsism or isolation from the 'world.' The second is solipsism or isolation from one's personal identity or sense of self-continuity. As Whitehead took him, for Hume, the 'world'

was only a succession of 'haphazardly' presented images or ideas within the purview of any individual's consciousness. Any discernible pattern to these 'idea presentations' was subjectively imposed. There is the absolute impossibility of ever 'knowing' whether the flow of nature is an orderly flow because man as a consciousness, has no direct apprehension of nature. All experience is mediated by ideas whose origins and genesis are strictly 'unknowable.' Here Whitehead tends to group Hume's and Kant's conclusions together.<sup>1.</sup> Kant's conclusion concerning the ultimate irrationality of the ding an sich was merely a teutonic consequence of Hume's insight concerning the impossibility of having rational grounds for induction, and his basic understanding of 'perception.' Hume's analysis of perception forced him to conclude that man has no real commerce with the external world, that is, with nature. Thus man can have no true theories concerning nature because he has no real experience of it. Any conclusions man may entertain about laws of nature are conclusions about 'ideas' whose ultimate origins and activities are unknowable. The conclusion that the future will behave either identically or similarly to the past is one which man's knowledge does not warrant. This conclusion, which is the basis of any sort of scientific induction, is merely a matter of habit, and cannot, due to the nature of man's consciousness, be rationally justified.<sup>2.</sup>

Whitehead saw this ramification of Hume's philosophy as a crucial incoherence. Modern science was merely a matter of habit? He states the matter with characteristic clarity as follows: "Either there is something about the immediate occasion which affords knowledge of the past and the future, or we are reduced to utter scepticism as to memory and induction." (SMW, pp. 43-44) Whitehead's explanation of Hume's failure to justify induction takes into account Hume's theory of perception and also Hume's anti-metaphysical bias. He writes:

We must observe the immediate occasion, and use reason to elicit a general description of its nature. Induc-tion presupposes metaphysics. In other words, it rests upon an antecedent rationalism. You cannot have a rational justification for your appeal to history till your metaphysics has assured you that there is a history to appeal to; and likewise your conjectures as to the future presuppose some basis of knowledge that there is a future already subjected to some determinations. The difficulty is to make sense of either of these ideas. But unless you have done so, you have made nonsense of induction. (SMW, p. 44)

Because Hume was decidedly anti-metaphysical, he neglected to investigate some of the decidedly metaphysical presumptions that he had. For example, the beginning of the TREATISE is fraught with instances of assumptions such as the assumption that man is able to 'intuit' resemblance although the world is ultimately composed of heterogeneous atoms or ideas. Another example is his assumption that one may discern memory ideas from perceptions merely by the variations in some homogeneous quality, liveliness. In PROCESS AND REALITY Whitehead makes the following comment:

Somewhat inconsistently, Hume never allowed impressions of sensation to be derived from the correlate ideas; though, as the difference between them only consists in 'force and vivacity,' the reason for this refusal cannot be founded in his philosophy. The truth is that Hume retained an obstinate belief in an external world which his principles forbade him to confess in his philosophical constructions. He reserved that belief for his daily life, and for his DIALOGUES CONCERNING NATURAL RELIGION. (PR, p. 213) 3.

This consequence of Hume's 'epistemological' researches constituted a scandalous incoherence for Whitehead. Modern experimental science, the crown of man's progressive intellect, is based on habit? There can be no rational basis for this paradigm of rational knowledge. Indeed, what is an experiment if there can be no rational expectation of a continuity of nature.<sup>4</sup> By Hume's philosophical perspective we have no rational interaction with the external world, if indeed, there be one. The possibility that there might not be a world is a direct consequence of Hume's analysis of experience.

This possible solipsistic conclusion, the non-being of the world, is one of the incoherent conclusions which one must accept were he to accept the dicta of Hume's philosophy. The fact that neither Hume, nor any of his empirical progeny can adequately provide any criteria for determining whether one's consciousness of an 'independently existing' world exists, strikes Whitehead as a flagrant instance of philosophical incoherence. Hume's philosophical doctrines exhort him to scepticism concerning the world, yet he must

invoke 'habit and nature' (both of which constitute some sort of incomprehensible relation to reason and experience) to account for what man actually does. Hume's critical philosophy would invite Pyrronian scepticism. As Hume himself writes about this legitimate Pyrronian attitude:

On the contrary, he must acknowledge, if he will acknowledge anything, that all life must perish, were his principles universally and steadily to prevail. All discourse, all action would immediately cease; and men remain in total lethargy, till the necessities of nature, unsatisfied, put an end to their miserable existence. It is true; so fatal an event is very little to be dreaded. Nature is always too strong for principle. (ENQUIRY, p. 160)

But, mightn't one ask, "What is Nature that it is so strong?" Hume, if consistent, must answer that nature is only a succession of sense-data presentations, each of which is a separate and distinct existence. There can be no humanly discernible necessary connection between any two sense-data, much less a 'nature' which can compel action. How can nature be 'too strong?' How can passive ideas, the sum total of which represents Nature, compel actions such as eating in order to sustain life. Indeed, how can ideas, of the sort which Hume specifies, constitute the entirety of our experience; that is, constitute 'experience' which induces habits? The incoherence of Hume's view is, according to Whitehead's reading, that given the portrayal of experience as consisting only of ideas, we must invoke, ex absurdo, habits in order to account for other major aspects of human experience. But

habits and ideas are not rationally reconcilable. It remains a great mystery why the appropriate habits accompany the given ideas. Whitehead explicitly stresses this point:

Hume's account of the process discoverable in the 'soul' is as follows: first, impressions of sensation, of unknown origin: then, ideas of such impressions, 'derived from' the impressions: then, impressions of reflection 'derived from' the antecedent ideas: and then, ideas of impressions of reflections. Somewhere in this process there is to be found repetition of impressions, and thence by 'habit' --by which we may suppose that a particular mode of 'variation' is meant --by habit, a repetition of the correlate ideas; and thence expectancy of the repetition of the correlate impressions. This expectancy would be an 'impressions of reflection.' It is difficult to understand why Hume exempts 'habit' from the same criticism as that applied to the notion of 'cause.' We have no 'impression' of 'habit,' just as we have no 'impression' of 'cause.' Cause, repetition, habit are all in the same boat. (PR, p. 213)

By Whitehead's criticism, cause, repetition, and habit are all instances of Hume's incoherence. Hume must introduce repetition and habit to complete his psychological examination of the "Science of Man." Yet these two notions fall victims to the same sort of criticism which Hume levels at causality. Another facet of Hume's incoherence, then, is elicited when we notice that he failed to be thorough with his empirical method.

This first aspect of the incoherence Whitehead found in Hume's philosophy might be characterized as an incoherence between man and the 'world.' As Whitehead understood Hume, causes in the world (that is, the sort of Nature scientists study) and habits which allow man to sustain his existence



are without rational basis. Yet, for Hume, habit is all. I characterize this as 'incoherence between man and the world' because basically it reduces itself to the inability of man to 'know' that there is a 'world.' Because I cannot 'know' that anything external affects me, since any such affections would appear to consciousness as ideas (which, indeed, are seen to be the sole inhabitants of consciousness) then I cannot 'know' that there is a world, or I cannot 'know' that there is any real causal interaction between myself and the world. The immediate consequence of this perspective is Kant's dichotomy of phenomenal and noumenal. Any science of 'nature' becomes a science of the phenomenal. As he conceived Hume's and Kant's explanations of our experience, Whitehead saw that there could be no rational knowledge of the 'things in themselves.' Thus, by this empirical doctrine, we are denied natural science unless it becomes merely a sort of catalogue of our subjective categories. ("Plug in the irrational sense-data, and I'll tell you how they must be organized," says I. Kant.)

This subtle but incisive destruction of any reasonable basis for modern science was especially disturbing to Whitehead the scientist, but profoundly aberrant to Whitehead the speculative philosopher.

As I have characterized this aspect of the problem, Whitehead saw that Hume's empirical philosophy led to a denial

of the world'. Because there are no rational grounds for causality, all knowledge of a 'world' which is ultimately built on a foundation of causal interaction is, a fortiori, impossible. This constitutes what I shall term the external aspect of solipsism. We shall now consider the internal aspect.

If the external result of Hume's incoherence is a denial of the world, then we shall expect that the internal result will be concerned with the self. This turns out to be exactly the case. Hume's avowed anguish with his theory (or lack of it) concerning 'personal identity' is a fact which Whitehead regards as an indication of the incoherence that Hume's empirical philosophy led to. Let us briefly review 'personal identity.'

In A TREATISE OF HUMAN UNDERSTANDING, Book I, Part IV, Section VI Hume discusses personal identity. His conclusion is that there is no self, no personal identity. All theories of such a thing are fictions, albeit psychologically understandable. What Hume has done has been to prove that the self cannot be a substance, since as he has already shown, substance cannot be, because such an idea cannot, in principle, be perceived. (T, Bk I, Pt IV, S. V) His polemic is typical. Hume demands, "Show me the impression whence came 'self'". Since the combination of the 'copy principle' and Hume's portrayal of impressions and ideas preclude the possibility of any such impression, we should hardly be surprised

\*-by 'copy principle' I mean only that ideas are ' ' of

to discover that we cannot discover a self.

But in the Appendix to the TREATISE Hume's admirable honesty compels him to state his doubts concerning his treatment of 'Personal Identity.' His succinct statement of his dilemma occurs as follows:

In short there are two principles which I cannot render consistent; nor is it in my power to renounce either of them, viz. that all our distinct perceptions are distinct existences and that the mind never perceives any real connexion among distinct existences. Did our perceptions either inhere in something simple or individual, or did the mind perceive some real connexion among them, there would be no difficulty in the case.. (T, p. 636)

Since there is no inherent contradiction between the two principles themselves <sup>5</sup>. I conclude that the inconsistency is between the explanation of experience that the two principles afford, and the 'stubborn fact' of personal continuity and identity. Hume states the difficulty with crystal clarity. He cannot renounce his two principles, yet his account of intimate personal existence is inadequate. Whitehead's solution of Hume's dilemma is to choose the second of the two alternatives Hume himself suggested. But in order to provide an account of 'perceiving a real connexion among distinct existences' it was necessary for Whitehead to completely recast Hume's theory of perception, along with the theory's suppressed metaphysical preferences.

Whitehead's appeal will be to the experienced unity of human activity. We experience ourselves as continuing 'ex-

perencers.' If a philosophical theory cannot account for this most basic of experiences, so much the worse for the philosophical theory. Perhaps a careful scrutiny of the theory's presuppositions will permit its modification into a coherent and adequate explanation.

Whitehead's focus on the unity of human experience is quite similar to William James' "Radical Empiricism." By my reading, James' appeal for philosophers to adopt 'radical empiricism' is much like Whitehead's aversion to the incoherence of the Humean empirical doctrines. James stresses that the radical empiricist must allow 'conjunctive experience' an equal place with 'disjunctive experience.' The intimate experience of a 'continuous experiencing' he terms 'consciousness transition' (EiRE, pp. 27-28); this is the realization that the stream of consciousness is indeed a 'stream.' James writes:

Personal histories are processes of change in time, and the change itself is one of the things immediately experienced. 'Change' in this case means continuous as opposed to discontinuous transition. But continuous transition is one sort of a conjunctive relation; and to be a radical empiricist means to hold fast to this conjunctive relation of all others, for this is the strategic point, the position through which, if a hole be made, all the corruptions of dialectics and all other metaphysical fictions pour into our philosophy. The holding fast to this relation means taking it at its face value, neither less nor more; and to take it at its face value means first of all to take it just as we feel it, and not to confuse ourselves with abstract talk about it, involving words that drive us to invent secondary conceptions in order to neutralize their suggestions and to make our actual experience again seem rationally possible. (EiRE, pp. 27-28)

It is of the utmost importance that James claims that the "change itself is one of the things immediately experienced." (Emphasis mine.) This is precisely the intuition of Whitehead's which becomes developed as the distinction between the two modes of awareness, Presentational Immediacy and Causal Efficacy. (See below, Section IV. Pg. 109) Were one to argue that James 'begs the question' here by defining 'change' as 'continuous' I believe that James would answer as he wrote a few paragraphs later: "Practically to experience one's personal continuum in this living way is to know the originals of the ideas of continuity and of sameness, to know what the words stand for concretely, to own all they can ever mean." (P. 29) The experience of self-continuity is so primordially basic that it provides the concrete touchstone for such metaphorical dichotomies as SAME/OTHER, ONE/MANY, and CONTINUOUS/DISCRETE. (Here we find Sartre arguing and expanding on a similar insight in his criticism of Husserl in the TRANSCENDENCE OF THE EGO.) James' point is clear: we directly experience continuity. It is not a unity which must be synthesized after perception.

Shortly thereafter James makes his position concerning the unempirical attitude of some of the Empiricists (Hume included) extremely clear. If we are to be empiricists, we must be pure, radical empiricists. We must give equal consideration to both disjunctions and conjunctions, and "second, if

we insist on treating things as readily <sup>P</sup>separate when they are given as continuously joined, invoking when union is required, transcendental principles to overcome the separateness we have assumed, then we ought to stand ready to perform the converse act." (EIRE, p. 29) I have already suggested that Hume assumed separateness for metaphysical reasons. The ramifications of this assumption of the ultimate heterogeneity of the primary elements of the universe dealt Hume the grievous blow of his theory of personal identity.<sup>6</sup>

Whitehead has the same insights. In a later part of this essay I will trace Whitehead's characterizations of the two different modes of awareness. At present, suffice it to say that like James and contrary to Hume, Whitehead argues for an immediate and direct experience of continuity of experiences. This is 'personal identity.' Whitehead writes: "The survival of personal identity within the immediacy of a present occasion is a most remarkable character of the World of Fact. It is a partial negation of its transitory character." (IOS, p. 225) Whitehead thus characterizes personal identity as a 'fact'; i.e., a stubborn 'thing done or made,' an aboriginal datum. Immediately after the above quoted sentences he writes:

A whole sequence of actual occasions, each with its own present immediacy, is such that each occasion embodies in its own being the antecedent members of that sequence with an emphatic experience of the self-identity of the present. This varies with the temporal span. For short periods it is so overwhelming that we hardly recognize it. (IOS, p. 255)

Two comments must be made here. First, the experience of personal identity is characterized as having 'present immediacy' and 'emphatic experience.' Secondly there is a hint at a metaphysical underpinning whereby present occasions embody antecedent (i.e., 'remembered') members of the sequence. The importance of memory shall be discussed shortly.

Earlier in INTERPRETATIONS OF SCIENCE Whitehead makes a comment which might help to clarify his concern for 'short periods' mentioned in the above quotation:

In human experience, the most compelling example of non-sensuous perception is our knowledge of our own immediate past. I am not referring to our memories of a day past, or of an hour past, or of a minute past. Such memories are blurred and confused by the intervening occasions of our personal existence. But our immediate past is constituted by that occasion, or by that group of fused occasions which enters into experience devoid of any perceptible medium intervening between it and the present immediate fact... It is gone, and yet it is here. It is our indubitable self, the foundation of our present experience. (IoS, p. 158)

James makes the similar comment: "In the same act by which I feel that this passing moment is a new pulse of my life, I feel that the old life continues into it, and the feeling of continuance in no wise jars upon the simultaneous feeling of a novelty." (EiRE, p. 51) ('Non-sensuous experience' will be discussed under the rubric of 'causal efficacy.') My point in quoting at such length is to make clear the fact that Whitehead considered personal identity or continuity to be an experienced fact. He characterizes the 'conformation of the immediate past with the present' as the 'indubitable self' itself.

The flow of activity is another side of the continuity of self. We now see how by finding a connexion between experienced ideas, we can solve the problem of personal identity. It is just as Hume predicted!

Why then, couldn't Hume solve his dilemma? I've suggested that memory will play an important role in this matter. Hume knew the importance of memory, but I shall argue, his portrayal of 'ideas' forbade him the legitimate use of memory for 'self-constitution.' Hume states: "As memory alone acquaints us with the continuance and extent of this succession of perceptions, 'tis to be consider'd, upon that account chiefly, as the source of personal identity. Had we no memory, we never should have any notion of causation, nor consequently of that chain of causes and effects, which constitute our self or person." (T, pp. 261-262) Later in the same paragraph he writes, "In this view, therefore, memory does not so much produce as discover personal identity, by shewing us the relation of cause and effect among our different perceptions." Hume knew the crucial connexion of memory to the self yet his analysis of experience as comprised of 'distinct and separately existent ideas' disenabled him the possibility of seeing the real connexion between them. Whitehead points to the importance of memory when he comments:

Thus physical memory is causation ... conscious memory is that partial analysis of causation which is effected by the associate mental occasion.

Thus Hume, when he asks for direct consciousness of causality, should be directed to memory. (IoS) pp. 243-244)



But Hume's theory of the memory is hopelessly confused and inadequate. The only difference between an impression, a memory, and an idea is the degree of liveliness or vivacity of the object of consciousness. Thus, in principle, there is no difference of kind between these three possible data of consciousness; impressions, memories, and ideas are homogeneous. How then do we magically distinguish between what are essentially the same? A verbal cavil, perhaps, but yet a question of extreme importance for Hume's epistemology. Whitehead comments on Hume's difficulties:

The ordinary mechanistic account of memory is obviously inadequate. For a cerebation in the present analogous to a cerebation in the past can, on this theory, only produce an image of the present analogous to an image of the past. But the image in the present is not the memory of the image in the past. It is merely an image in the present. (IoS, p. 244)

Since to remember is to have a 'memory image' now, there must be some way of distinguishing a memory image from, for example, an image of fancy. But for Hume the only difference is one of force or vivacity. He states:

'Tis evident at first sight, that the ideas of the memory are more lively and strong than those of the imagination, and that the former faculty paints its objects in more distinct colors, than any which are employed by the latter. When we remember any past event, the idea of it flows in upon the mind in a forcible manner; whereas in the imagination the perception is faint and languid, and cannot without difficulty be preserved by the mind steady and uniform for any considerable time. Here then is the sensible difference betwixt one species and the other. (T, p. 9)

Later in the TREATISE Hume argues that 'memory preserves the original form' (Both at Pg. 9, & Bk. I, Pt. III, Sect. V) but

he ultimately dismisses this criterion because he admits that "it being impossible to recall the past impressions in order to compare them with our present ideas." (T, p. 85) In other words, such a criterion demands a standard, a 're-intuition' of the aboriginal impression, which by Hume's account is strictly impossible. During a discussion of Hume's incoherent use of 'repetition', employed in order to make his account plausible, Whitehead makes the following comment:

...Thus, purely differing in 'force and vivacity,' we have the order: impressions, memories, ideas.

This doctrine is very unpalatable; and to speak bluntly, is in contradiction of plain fact. But, even worse, it omits the vital character of memory, namely, that it is memory. In fact, the whole notion of repetition is lost in the 'force and vivacity' doctrine. What Hume does explain is that with a number of different perceptions immediately concurrent, he sorts them into three different classes according to the force and vivacity. But the repetition character, which he ascribes to simple ideas, and which is the whole point of memory, finds no place in his explanation. Nor can it do so without an entire recasting of his fundamental philosophical notions. (PR, p. 205)

One must wonder how, on the face of his own evidence, Hume 'knows' that memory preserves the original form and succession of impressions?

As usual Hume's honest zeal to accurately describe his experience comes close to rescuing him from his theoretical abyss. In the Appendix to the TREATISE, after describing a peculiar situation which shows how seemingly insignificant ideas can make one remember an entire 'train' of memories, Hume writes:

Since, therefore, the imagination can represent all the same objects that the memory can offer to us, and since those faculties are only distinguished by the different feeling of the ideas they present, it may be proper to consider what is the nature of that feeling. And here I believe everyone will readily agree with me, that the ideas of memory are more strong and lively than those of the fancy. (T, p. 628)

What is interesting here is the use of 'feeling' as the quality which allows for the differentiation between memory and fancy. Hume has struggled with this sort of use of 'feeling' in other places in the TREATISE and its Appendix. In trying to explain the 'howness' of a belief's position in consciousness he chooses 'manner' and then later expands that notion; in a subsequent Appendix he recorrects 'manner' to 'feeling.' His problem is quite clear. How, if ideas, memories and impressions are homogeneous entities, do we distinguish between various 'types' of conscious experience? How can I know that the unpleasant experience I am having writing this essay is a real perceptual experience and not a memory or a figment of a dangerously deranged and masochistic mind? Indeed, how have the different categories of conscious experience come to be if the only differences among what is given to us be a matter of relative intensity? How does temporality get born out of mere differences of degree?

Whitehead succinctly states his understanding of Hume's problem concerning memory and repetition:

Hume's difficulty with 'cause and effect' is that it lies 'beyond the immediate impressions of our memory and senses.' In other words, this manner of con-

nection is not given in any impression. Thus the whole basis of the idea, its propriety, is to be traced to the repetitions of impressions. At this point of his argument, Hume seems to have overlooked the difficulty that 'repetition' stands with regard to 'impressions' in exactly the same position as does 'cause and effect.' Hume has confused a 'repetition of impressions' with an 'impression of the repetition of impressions.' (PR, p 204)

Hume's reaction to this criticism, claims Whitehead, would be to assert that memory solves the difficulty. Yet, as I have pointed out, memory is, by the Humean analysis (or for that matter, by nearly all other analyses) impossible. In another work, ADVENTURES OF IDEAS, Whitehead puts this connexion between memory and personal identity the following way:

What Hume, in his appeal to memory, is really doing is to appeal to the observed immanence of the past in the present, involving a continuity of subjective forms...

With this addition, every argument of Part III of Hume's TREATISE can be accepted. But the conclusion that follows is that there is an observed relation of causation between such occasions. The general character of this observed relation at once explains memory and personal identity. They are all different aspects of the doctrine of the immanence of occasions of experience. (AoI, p. 184)

It seems that one would either have to fall into Hume's difficulties where the 'status' of memory is extremely fragile, or assert an intuitive principle for discerning consciousness modalities thereby creating a problem with error.. Perhaps an analogy might clarify this disjunction. If there be no difference in kind between 'memory images' and 'present perceptual images' then I am reduced to Hume's problem of not being able to account for what I so often and easily do, that

is, distinguish between memories and present perceptions. But, if I make the claim that there is intuitive knowledge of 'memories being memories', and so forth, then it would be as if I were to have a set of differently tinted spectacles for each of the different consciousness modalities; e.g., pink for fantasies, clear for perceptions, blue for memories, red for dreams, &c. Since I am immediately aware of which set of spectacles I am wearing, I could easily distinguish a dream from a memory. The problem which would then present itself is why would a person ever make one of life's fairly common errors? Error would be logically impossible by this theory: yet error is as much a part of experience as its privative. The only way out of this dilemma, I suggest, is a recasting of the description of experience which would not be bound to the parameters of 'represented images.' But this argument is not really Hume's concern. He would never see the dilemma because he 'could not' overtly accept an explanation of memory which resorted to intuition in order to account for our ability to distinguish different conscious modalities. Such uses of 'intuition' would border on the 'scandalous innate.' But in the early pages of the TREATISE Hume covertly assumes something of the like when he asserts our ability to distinguish various relations amongst our ideas. (Bk. I, Pt. I, S. V)

Whitehead's argument against Hume's treatment of personal identity should now be clear. When we combine the re-

sults of the external and the internal 'incoherence' we arrive at a position which George Santayana has called the 'solipsism of the present moment.' He writes: "Scepticism may thus be carried to the point of denying change and memory, and the reality of all facts." (SAAF, p. 40) Santayana, consistently carrying out both Hume's empirical principles and his sceptical enterprise, says of the person who has successfully carried out this reduction: "The solipsist thus becomes an incredulous spectator of his own romance, thinks his own adventures fictions, and accepts a solipsism of the present moment." (SAAF, p. 15) One might understand this reduction as follows: Scepticism towards self-identity and memory is manifested in the phrase 'of the present moment.' It is all there really is. This is the result of internal incoherence. The word 'solipsism' gets at the denial of the world. The word derives from the Latin solus = alone, and ipse = self. Thus we have the external incoherence of the denial of the world because solipsism means 'only myself' or 'myself alone.'

Whitehead explicitly agrees with Santayana's consistent execution of the Humean enterprise. He writes: "...the sceptical reduction of Hume's philosophy -- a reduction first effected by Hume himself, and reissued with the most beautiful exposition by Santayana in his SCEPTICISM AND ANIMAL FAITH." Shortly thereafter he states: "Hume, accepting Descartes'

account of perception (in this passage), which also belongs to Locke in some sections of his ESSAY, easily draws the sceptical conclusion. Santayana irrefutably exposes the full extent to which this scepticism must be carried." (PR, p. 77) Thus Whitehead saw the 'solipsism of the present moment' as the consistent and successful result of the Humean sceptical philosophy.

Later Whitehead writes of Santayana's 'animal faith' which he has previously equated to Hume's 'habit':

Santayana would deny that 'animal faith' has any element of givenness. This denial is presumably made in deference to the sensationalist doctrine, that all knowledge of the external world arises by mediation of private sensations. If we allow the term 'animal faith' to describe a kind of perception which has been neglected by the philosophic tradition, then practically the whole of Santayana's discussion is in accord with the organic philosophy. (PR, p. 215.)

I will discuss the 'sensationalist doctrine' later. At this point suffice it to say that Whitehead agrees entirely with Santayana's reduction using Hume's principles. Again this point is brought out in the book SYMBOLISM:

....The only reason for dismissing 'impression' from having any demonstrative force in respect to the real existence or the relations of objects, is the implicit notion that such impressions are mere private attributes of the mind. Santayana's SCEPTICISM AND ANIMAL FAITH... is in its earlier chapters a thorough insistence, by every manner of beautiful illustration, that with Hume's premises there is no manner of escape from this dismissal of identity, time, and place from having any reference to the real world. There remains only what Santayana calls the "Solipsism of the Present Moment." Even

memory goes: for a memory impression is not an impression of memory. It is only another immediate private impression. (S, p. 32)

Whitehead will argue, as James did, that we directly experience our personal identity; that we are immediately aware that we have a continuous 'life'; and somewhat differently from James that we are directly aware of our real relations with the 'world.'

My intent in this section has been to show that Whitehead saw a fundamental incoherence in Hume's philosophy. Hume's empirical analysis would seem to lead one to a denial of some of life's most basic and immediate experiences. On the one hand, Hume's doctrines would make one deny the existence of the 'world' and a fortiori, any science concerning that world. On the other hand, Hume's doctrines preclude the possibility of any reasonable account of personal identity, which for both Whitehead and James would be a denial of an aboriginal immediate experience. Hume invokes 'habit,' 'custom,' 'memory,' and a covey of other terms and principles which his empirical scepticism has shown to be strictly impossible. Hume commits this faux pas in order to account for the obvious unity of human experience. But such 'invocations' are seen by Whitehead as incoherent. Discussing the genesis of the Humean account of experience, Whitehead writes in the book



## NATURE AND LIFE:

Combining Newton and Hume we obtain a barren concept, namely, a field of perception devoid of any data for its own interpretation, and a system of interpretation devoid of any reason for the concurrence of its factors. It is this situation that modern philosophy from Kant onward has in its various ways sought to render intelligible. My own belief is that this situation is a reductio ad absurdum, and should not be accepted as the basis for philosophic speculation. Kant was the first philosopher who in this way combined Newton and Hume. He accepted them both, and his three critiques were his endeavor to render intelligible this Hume-Newton situation. But the Hume-Newton situation is the primary presupposition for all modern philosophical thought. Any endeavor to go behind it is, in philosophic discussions, almost angrily rejected as unintelligible. (N&L, pp. 9-10)

## SECTION II: ABSTRACTION

In the first section of this essay I attempted to show Whitehead's view of the ultimate ramifications of the Humean philosophical enterprise. Such a result, the 'solipsism of the present moment', was obviously unacceptable for Whitehead. Hume's account and analysis of experience was simply too alien to Whitehead's sense of life. In this section I shall consider the reasons Whitehead saw for Hume's disastrous mistakes.

I believe one might sum up Whitehead's criticisms of Hume (and quite possibly of most other modern philosophers) under the aegis "Abstraction." Quite simply, Hume took high-grade abstractions to be the basic and fundamental data of experience, the stuff of life itself. In order to understand Whitehead's insight, it is first necessary to try to understand just what he means by 'abstraction'; to what he juxtaposes abstractions (i.e., 'concretes'); and finally to see how he conceives the interaction of the abstract with the concrete.

In his book *MODES OF THOUGHT*, whilst discussing the difficulties that the modern concept of 'matter' has foisted upon physicists, biologists, and most other scientists, Whitehead makes the following comment, a partial definition of 'abstraction': "An abstraction is nothing else but the omis-

sion of part of the truth. The abstraction is well-founded when the conclusions drawn from it are not vitiated by the omitted truth." (MOT, p. 138) We might remember the previously quoted argument of William James about the empirical authenticity of the conjunctive elements of experience as well as the disjunctive. For James, the senses of continuity and of similarity are every bit as strongly 'given' as the senses of discretion and heterogeneity. But Hume has assumed as a metaphysical first principle that "all our distinct perceptions are distinct existences" (T, p. 636) and for this reason no unity of perceptions, that is, no unified experience can ever render more than the atomistic bits which his analysis of the experience demands. Whitehead's criticism of Hume's 'abstractive system' is that the conclusions drawn from it vitiate some of the most crucial aspects of experience. Hume's abstractions leave us without a causal world, indeed without a world, and without a self.

Whitehead conceded that abstraction is necessary for human thought. The welter of incoming data from an enormously complex, vibrant universe is simply too overwhelming for man's finite powers. In order to do anything, man must neglect the larger part of the cosmos. In THE CONCEPT OF NATURE he expresses this insight as follows: "The separate distinction of an entity in thought is not a metaphysical assertion, but a method of procedure necessary for the finite ex-

pression of individual propositions. Apart from entities there could be no finite truths; they are the means by which the infinitude of irrelevance is kept out of thought." (CN, p 12) In the essay "Mathematics and the Good" he states virtually the same thought from a slightly different perspective:

Abstraction involves emphasis, and emphasis vivifies experience, for good or for evil. All characteristics peculiar to actualities are modes of emphasis whereby finitude vivifies the infinite. In this way creativity involves the production of value-experience, by the inflow from the infinite into the finite, deriving special character from the details and totality of the finite pattern.

This is the abstraction involved in the creation of any actuality, with its union of finitude with infinity. But consciousness proceeds to a second order of abstraction whereby finite constituents of the actual thing are abstracted from that thing. This procedure is necessary for finite thought, though it weakens the sense of reality. It is the basis of science. The task of philosophy is to reverse this process and thus to exhibit the fusion of analysis with actuality. It follows that philosophy is not a science. (IoS, pp. 302-303)

We habitualize ourselves to much of the cosmos, thereby eliminating the world's strangeness and thus the need to deal consciously with those aspects which have become routine. Whitehead's technical term for this activity is 'negative prehension'; this process is dealt with in depth in Part III of PROCESS AND REALITY, and is definitely beyond the scope of this essay. I mentioned the process to suggest some intimacy of views between Whitehead and Hume concerning this notion of what is 'habitual.' The difference between the two is that for Whitehead, philosophy must deal with the most

general aspects of the cosmos, and because of this an adequate philosophy of experience must peer beneath the glaze of habit, since habits are built upon a foundation of something else. (Here the closeness of Whitehead with Husserl's notion of the 'natural standpoint' should be noticed.)

We are thus in a position where abstraction is necessary for human thought, but is also the chief culprit of poor philosophy. Whitehead makes this point clear:

But every abstraction neglects the influx of factors omitted into the factors retained. Thus a single pattern discerned by vision limited to the abstractions within a special science differentiates itself into a subordinate factor in an indefinite number of wider patterns where we consider its possibilities of relatedness to the omitted universe. (MOT, p. 143)

I will discuss this relation of omitted factors and retained factors in greater detail when I discuss the relation between theory and method. So far though, I trust that the point that abstractions are processes where real factors of experience are necessarily omitted has been sufficiently adduced.

Whitehead usually juxtaposes the concept 'abstract' to the concept 'concrete'. Quite often one may glean some additional acuity from Whitehead's thought by examining the etymological background of some of his key terms. His great respect for, care with, and suspicion of language suggests to me that when Whitehead uses either neologisms or paleolo-

gisms (i.e., a neologism to express an adherence to the etymologically radical meaning of a word) the intent is to create a sense of strangeness with the word. We are asked to reconsider our habitual use of language.

Such a consideration of the words 'abstract' and 'concrete' is instructive. The word 'abstract' is derived from the Latin word abstractus which is the participial form of the word abstrahere meaning 'to draw off' or 'to draw away.' On the face of it, this appears to be a fairly neutral sense, but if one considers the associated words also containing -tractus, the distinct sense of a kind of 'dragging away' emerges. This 'dragging' would border on a kind of violent drawing away. (In fact, the Indo-European root, dhraǵh) is the ancestor of the Greek word Τρᾶχὺς meaning 'harsh' or 'jagged' and the Old English dragan which evolved into the English 'drag.')

<sup>7</sup> The overall 'feel' of the word 'abstract' then is one of a somewhat ungentle or violent 'pulling out of.' I suggest that this is exactly the sense that Whitehead intended when he used the term 'abstract.' This meaning is entirely consonant with his general views of the activity of human thought. Our thought proceeds by abstraction, but the process of abstraction is, or more accurately for most of us, was at some time, a 'making.' We, or the fathers of our language and culture, made abstractions by forcibly wresting part of a unified experience from the integral entirety of

that same experience. Peoples, insensitive to the forceful aspect of abstractions, may simply accept patterns of speech as they are handed down in the society. Our abstractions are necessary for our thought, but it is a grave error to identify the results of abstractions with experience itself. (Here one might claim that the genius-poet or genius-scientists does indeed live in a new 'world' for what he does is to forge a new and different set of abstractions thereby eliciting a new vision of the cosmos.)

The word 'concrete' is derived from the Latin word concretus which was formed of con- meaning 'with' or 'together' and cretus which is the participial form of the verb creo, creare meaning 'to bring forth, to produce and to make'. The English word 'creator' is a derivative. The associated sense of 'concrete' seems to be one of a 'growing with' or of a 'making together.' This meaning is consonant with Whitehead's metaphysical description of a moment or occasion of experience as a 'concrescence of prehensions.' 'Prehensions' is the technical term for 'feelings': thus what a moment of experience is, is a coming together of feelings. As juxtaposed to 'abstract,' 'concrete' is meant to point to the most utterly real experience we have. Consistent with his vision of an organic philosophy, Whitehead employs 'concrete' to mean the real, aboriginal experience upon which all our thought depends.

This little etymological excursion was intended to augment my previous discussion of Whitehead's insight that 'abstractions are partial truths.' Whitehead, along with James, was vitally concerned to affirm the 'conjunctive' elements of our experience. His zeal to stress these elements, borne out by his choice of words, was motivated by his desire to correct the faults of a philosophy which took abstractions to be real. I will now discuss this point as it more particularly pertains to Hume's analysis of experience.

If, as I have suggested Whitehead understood it, man's situation is one of needing to make abstractions, yet these same abstractions, being partial truths, often are mistakenly taken by men for the entire truth, then how shall we judge the better abstractions from the worse? I believe Whitehead has two closely related answers to this query. The first was already suggested in a previous quotation when he states that the conclusions drawn from well-founded abstractions must not be vitiated by the aspects which the act of abstracting has omitted. Hume's conclusion that men's knowledge can never leap the gap between cause and effect is one such vitiated conclusion. Hume's failure to discover a principle allowing for the quite fundamental experience of personal identity is another instance where his abstract first principles cause an unbelievable and untenable conclusion. In other words, if the consistent conclusions of our philosophy lead us to claim



that some of our most radical experiences are illusory, then we must wonder whether those abstract first principles are adequate and coherent. Of course, this task of wondering becomes far more difficult when our theoretical prejudices make us think that the abstract is the concrete. We judge the adequacy of a set of abstractions by the congruence between philosophical conclusions and experience. Whitehead writes:

An old established metaphysical system gains a false air of adequate precision from the fact that its words and phrases have passed into current literature. Thus propositions expressed in its language are more easily correlated to our flitting intuitions into metaphysical truth. When we trust these verbal statements and argue as though they adequately analysed meaning, we are led into difficulties which take the shape of negations of what in practice is presupposed. But when they are proposed as first principles they assume an unmerited air of sober obviousness. Their defect is that the true propositions which they do express lose their fundamental character when subjected to adequate expression. (PR, p. 217)

An example of a difficulty leading to the negation of what is presupposed in practice is Hume's denial of the 'self.' England's jurisprudence, economic and aristocratic systems presume that there is personal identity. Imagine the havoc in criminal and civil court if a defendant could plead 'lack of identity.' He would plead that the person who committed the crime, or signed the contract, could not be proved to be himself since the concept of 'self' was merely an habitual fiction. Yet, Hume's theory of habit requires 'somebody' or 'something' which can acquire habits and recognise situations

in order to proceed by the appropriate habit. Where Hume would throw up his arms in despair and say, "What can my feeble mind do in the face of such manifest contradictions!" Whitehead would wonder whether his first principles weren't infelicitously chosen.

For Whitehead, the philosophical enterprise is one of constantly trying to widen the scope of the understanding. This brings me to the second criterion for judging the adequacy of abstractions. This is progress. Nietzsche makes the startling statement somewhere in BEYOND GOOD AND EVIL that the "Truth is deadly." This statement is clarified if one remembers Nietzsche's discussion in the Preface of THE USE AND ABUSE OF HISTORY about German historical scholarship and the appropriate attitude to bear towards the past and tradition. Remembering Goethe, Nietzsche says that he despises knowledge which merely instructs. He craves knowledge which quickens one's life, which increases one's vitality. Whitehead is in fundamental agreement with this insight. The 'deadly truth' is that truth which keeps one from going on. It is 'deadly' because it stultifies; those who believe they have it feel not the need to continue with their enquiries. A person, ill and dying from the deadly truth, is one who will fabricate his life experience so as to justify his 'truth.' But, as Whitehead cautions, "Our problem is, in fact, to fit the world to our perceptions, and not our perceptions to the

world." (IoS, p. 107) This 'world' though, is a deduced concept. Thus the quotation's meaning is the opposite of what it might initially appear to be. We must not confuse our theory of the world, our deduced concept 'world', with what is the totality of our experiences. It is not progress, it is not life quickening, to mold the world into your theory of it. Perhaps this insight may account for the despair of the present age. Kant's seemingly irrefutable position is that there "can't really be any surprises because, after all, the 'world' is really just a façade of bins for the mind's organizational prowess." (A rather succinct statement of, criticism of, and suggestion for rectification of this incipiently despair producing perspective is William Blake's THERE IS NO NATURAL RELIGION.)

Progress is the result of an interaction between thought and practice. Because our thought is finite, our practice can be improved. Abstractions allow one to progress, but only within a certain realm, the parameters of which are called into existence with the birth of the set of abstractions. The advantages of abstractions are utility and deductive power:

The disadvantages of exclusive attention to a group of abstractions, however well-founded, is that, by the nature of the case, you have abstracted from the remainder of things. Insofar as the excluded things are important in your experience, your modes of thought are not fitted to deal with them. You cannot think without abstractions; accordingly, it is of the utmost importance to be vigilant in critically revising your modes of abstraction. It is here that philosophy finds its niche as essential to the healthy progress of society.

It is critic of abstractions. A civilisation which cannot burst through its current abstractions is doomed to sterility after a very limited period of progress. An active school of philosophy is quite as important for the locomotion of ideas, as an active school of railway engineers is for the locomotion of fuel. (SMW, p. 59)

An indication of a theory's progress is that more and more of the previously incoherent aspects of one's experience become coordinated under the rubric of a general scheme. What had previously been dismissed as 'irrelevant' or else denied as a possible experience, becomes integrated into the scope of our progressive theory. Discussing the historical progress of some crucial abstractions affecting modern man, Whitehead comments:

We no more retain the physics of the 17th century than we do the Cartesian philosophy of that century. Yet, within limits, both systems express important truths. Also we are beginning to understand the wider categories which define their limits of correct applications. Of course, in that century, dogmatic views held sway; so that the validity both of the physical notions, and of the Cartesian notions, was misconceived. Mankind never quite knows what it is after. When we survey the history of thought, and likewise the history of practice, we find that one idea after another is tried out, its limitations defined, and its core of truth elicited. In application to the instinct for the intellectual adventures demanded by a particular epoch, there is much truth in Augustine's rhetorical phrase, Securus judicat orbis terrarum. At the very least men do what they can in the way of systemization, and in that event achieve something. The proper test is not that of finality, but of progress. (PR, p. 21)

Thus our philosophical theory must be in a close working relationship with practice. Whitehead's claim about Hume is

that Hume's empiricism is one which is dictated not by practice, but by theory.

We shall now consider Whitehead's insight that philosophy is a coordinated activity between theory and practice. Whitehead believed that theory always precedes method, although sometimes the precedence is unconscious. He writes in THE FUNCTION OF REASON: "The development of abstract theory always precedes an understanding of fact." (FOR, p. 75) 'But 'facts' are those items or parts of our experience which are important enough for selection as evidence for the validity of the theory. When I give the facts of a case, they are generally favorable to my theory: 'unfavorable facts' are usually servants of 'straw man' arguments. Truly 'unfavorable facts' are generally denied; if they are not, they bring about a reformulation of the theory in question. Whitehead portrays this dialectical activity as follows:

The proper satisfaction to be derived from speculative thought is elucidation. It is for this reason that fact is supreme over thought. This supremacy is the basis of authority. We scan the world to find evidence for this elucidatory process.

Thus the supreme verification of the speculative flight is that it issues in the establishment of a practical technique for well-attested ends, and that the speculative system maintains itself as the elucidation of that technique. In this way there is progress from thought to practice and regress from practice to the same thought. This interplay between thought and practice is the supreme authority. It is the test by which the charlatanism of speculation is restrained. (FOR, pp.80-81)

This 'practical technique' is often termed a method. We can see Whitehead's claim that speculative thought or theory establishes a method for dealing with whatever sorts of entities or activities you desire. The difference between these entities and activities constitutes the lines of demarcation between the various special sciences. The important point to notice, though, is that the theory establishes the method. How does it do that?

A theory, in the case of Hume, a metaphysical theory, determines its method because it is by the criteria provided by that theory that one decides what constitutes relevant evidence. The taking of evidence, that is, the marshalling of 'facts' to consider when trying to formulate and verify a theory, is the all important beginning for the justification of that theory. Whitehead's point will be that to a great extent a presupposed metaphysical preference governs the selections of relevant evidence. He comments:

So far as methodology is concerned, the general issue of this discussion will be that theory dictates method, and that any particular method is only applicable to theories of one correlate species. An analogous conclusion holds for its technical terms. This close relation of theory to method partly arises from the fact that the relevance of evidence depends on the theory which is dominating the discussion. This fact is the reason why dominant theories are also termed 'working hypotheses.'

An example is afforded when we interrogate experience for direct evidence of the interconnectedness of things. If we hold with Hume, that the sole data originating reflective experience are impressions of sensations, and also if we admit with him the obvious fact that no one

such impression by its own individual nature discloses any information as to another such impression, then on that hypothesis the direct evidence for the interconnectedness vanishes. (AoI, p. 220)

Hume's assumption that 'distinct perceptions are distinct existences' is the suppressed metaphysical presupposition guiding his selection of evidence. It is also the reason that Hume's theory, on its own terms, is impossible to disprove. Whitehead states: "Evidence which lies outside the method simply does not count." (FOR, p. 15) and "A great deal of confused philosophical thought has its origin in the obliviousness to the fact that the relevance of evidence is dictated by theory. You cannot prove a theory by evidence which that theory dismisses as irrelevant." (AoI, p. 221) Because Hume's metaphysical concept of a perception or idea as a 'heterogeneous existent' logically precludes the possibility of there being any real connexion between perceptions, we shouldn't be too surprised that Hume couldn't find any. But our experience, our lives, are continual ephemeral gadflies proclaiming the inadequacy of such a view.

Whitehead reiterates this reciprocity of relation between theory and 'data', (i.e., what is deemed evidence) again with the following statement:

The first point to remember is that the observational order is invariably interpreted in terms of the concepts supplied by the conceptual order. The priority of the one or the other is, for the purposes of this discussion, academic. We inherit an observational order; namely types of things which we do in fact discriminate; and we inher-

it a conceptual order, namely a rough system of ideas in terms of which we do in fact interpret. We can point to no epoch in human history, or even in animal history, at which this interplay began. (AoI, p. 154)

My discussion and the previous quotations are supposed to suggest that the observational order is a creature, albeit a very incestuous creature, of the conceptual order. This relationship is a bit like Meno's famous eristic question.

Meno asks Socrates:

But how will you look for something when you don't in the least know what it is? How on earth are you going to set up something you don't know as the object of your search? (80d3)

Socrates' answer does two things. First, by dropping the adverbial πάριτα ('in the least'), he allows an escape from the horns of the dilemma; secondly, he states both sides of Meno's question:

...that a man cannot try to discover either what he knows or what he does not know? He would not seek what he knows, for since he knows it there is no need for inquiry, nor what he does not know, for in that case he does not even know what he is to look for.  
(80e)

I translate Plato into the terms of this essay as follows:

"What must I consider relevant evidence in order to construct my theory if all experience is to be considered?" How shall one determine which experiences are more relevant than others? And on the other side, "Why, if I know a priori what the relevant experiences are, do I need to conduct an empirical en-



quiry to determine what I already know?"

Whitehead's insight into the reciprocity of 'theory-observational order-evidence-method' warns us to be wary of our proofs of theory. Apropos of this point of the integral relation of proof of theory and evidence is a comment by Shadworth G. Hodgson:

Hume's criticisms had reduced the old conception of cause -- i.e., something making something else to be -- to a state so problematical as to require rehabilitating from the scholastic side, by the sheer assumption (i.e., Kant's idea of criticism) that it was an a priori category of the Understanding, having a transcendental origin, and being necessarily unassailable by criticism (in the ordinary sense of the term), since there was no experience upon which criticism could be founded, which did not depend for its existence upon the truth of the conception. (THE METAPHYSIC OF EXPERIENCE, Vol. I, P. xii.)

Our theory tells us what sort of evidence will verify our theory.

Whitehead's criticism of abstraction seems to be this. Man must use abstractions in order to reduce the infinite complexity of the cosmos to a degree which he can handle. Man's mentality is an agent of simplification. Analytic method presumes that the simples, the 'atoms', (for Hume the 'heterogeneous existences,' ideas) are the building blocks of experience. Whitehead asserts:

It is a mistake to suppose that, at the level of human intellect, the role of mental functioning is to add subtlety to the content of experience. The exact op-

posite is the case. Mentality is an agent of simplification; and for this reason appearance is an incredibly simplified edition of reality. (AoI, p. 213.)

Whitehead denies that for philosophy 'the whole is equal to the sum of its parts.' Our experience is the whole, our thought about it necessarily simplifies the whole, doing a good deal of violence to it along the way. The particular mode of abstraction or simplification influences the amount of violence done. Whitehead quips on Hume:

His very scepticism is nothing but the discovery that there is something in the world which cannot be expressed in analytic propositions. Hume discovered that "We murder to dissect." He did not say this, because he belonged to the mid-18th century; and so left the remark to Wordsworth. But, in effect, Hume discovered that an actual entity is at once a process, and is atomic; so that in no sense is it the sum of its parts. Hume proclaimed the bankruptcy of morphology.  
(PR, pp. 212-213)

The method of analysis is doomed to succeed because the presupposed theory which dictates the method of analysis governs the selection of evidence which in turn proves the theory. Perhaps this insight might shed some light on modern philosophy's obsession with Method since Descartes' 'discovery' of mathematical analysis. If we assume the world to be composed of only two types of entities, res cogitans and res extensa, and we then take note of an unparalleled success in the domain of res extensa, then we should hardly be surprised by the preoccupation with the method of the winning team. But Whitehead tells us, "Never forget that the div-

ision of the realm of experience into two sorts of heterogeneous entities was the result of an abstraction."

Whitehead's understanding of both the good and the bad that comes from abstraction seems to be this: Man must make abstractions. His abstractions allow him to think the infinite finite. But he must never take his abstractions to be concrete realities. Philosophy is a continuing enterprise of trying to better the quality of one's abstractions. The criteria for this bettering are coherence and adequacy. We must always broaden our abstractions so that they can deal with all types of experience. This task is very difficult. In the most basic sense, the initial assemblage of evidence is the result of a primordial abstraction, that is, the decision on the part of the collector as to what sort of evidence to collect. When we decide what sort of evidence is relevant, we have already fixed the parameters of our theory and our enquiry.<sup>8</sup> Whitehead's strategy: if our end is to formulate a comprehensive philosophy of experience, then all experiences are relevant. We must devise our concepts, our basic abstractions, in such a way that no incoherencies or inadequacies are known to us. His attitude towards his own system:

There remains the final reflection, how shallow, how puny, and imperfect are the efforts to sound the depths in the nature of things. In philosophical discussion the merest hint of dogmatic certainty as to the finality of statement is an exhibition of folly. (PR, p. x)

So far in this section of this essay I have been attempting to show that Whitehead believed the reason that Hume's philosophy issued in the cul du sac of the 'solipsism of the present moment' was that Hume took abstractions to be concrete realities. I have shown Whitehead's meaning of 'abstraction' and the concepts which are intimately related to it: 'concrete,' 'method,' 'evidence,' &c. I will now focus this general understanding of abstraction on a specific error that Whitehead claims Hume commits. This is the 'fallacy of misplaced concreteness.'

Whitehead's strategy is to expose the Humean doctrine of Time (as well as the less virile Kantian doctrine since, as I have already noted, he tends to equate the two save a few nationalistic idiosyncrasies) as a highly sophisticated abstraction; he will then suggest a more general view which avoids the difficulties of these doctrines. Whitehead terms the more general substratum out of which both time and space are abstracted as the 'extensive continuum.' It is the unmeasured, non-geometrical, atemporal condition which provides the possibility for the most general sense of 'Withness' in the cosmos. It is like Plato's 'receptacle' (Cf. AoI, ch. VIII, Sec. VII); it is also like Aristotle's ύλη or 'prime matter.' (Cf. SMW, p. 36) The extensive continuum is the fodder out of which time and space, perhaps the two most general aspects presently conceivable, are evolved. In NATURE AND LIFE, after.

discussing the difficulties of reconciling some philosophical concepts concerning space, time, and substance with the modern science of quantum physics, Whitehead makes the following comment concerning the new provisional attempt:

The new view is entirely different. The fundamental concepts are activity and process. Nature is divisible and thus extensive. But any division, including some activities and excluding others, also severs the patterns of process which extend beyond all boundaries. The mathematical formulae indicate a logical completeness about such patterns, a completeness which boundaries destroy. For example, half a wave tells only half a story.  
(N&L, p. 15)

The fact that Nature is divisible constitutes its extensivity. But the onus is thus placed on man who makes the decision as to how to divide Nature. Such a decision, based on relevance and importance, creates the basic abstractions of the man's world. Philosophy is the endeavor to understand and constructively criticize these basic abstractions.

Shortly after the above quoted passage, Whitehead suggests the difficulties with the modern philosophic view, and hints at a cure:

In the place of the Aristotelian notion of the procession of forms, it (the view suggested by quantum theory) has substituted the notion of forms of process. It has thus swept away space and matter, and has substituted the study of the internal relations within a complex state of activity. This complex state is in one sense a unity. There is the whole universe of physical action extending to the remotest star clusters. In another sense, it is divisible into parts. We can trace internal relations within a group of activities, and ignore all other activities. By such an abstraction we shall fail

to explain those internal activities which are affected by changes in the external system which has been ignored. Also, in any fundamental sense, we shall fail to understand the retained activities. For these activities will depend upon a characteristically unchanging systematic environment. (N&L, pp. 15-16)

This quotation points at the impossibility of criticizing a system of abstractions (or systematic ignorance) and at the necessity of exploring these abstractions if our aim be to provide an account of the cosmos.

Concerning what might be the most fundamental of our abstractions Whitehead tells us that we must make a decision early on in our consideration of the 'extensive continuum':

We have first to make up our minds whether time is to be found in nature or nature is to be found in time. The difficulty of the latter alternative -- namely of making time prior to nature -- is that time then becomes a metaphysical enigma. What sort of entities are its instants or periods? The dissociation of time from events discloses to our immediate inspection that the attempt to set up time as an independent terminus for knowledge is like the effort to find substance in a shadow. There is time because there are happenings, and apart from happenings there is nothing. (CN, pp. 65-66)

Without events, physical, mental or whatever, there would be no experience of time. What we experience are events seemingly in time, yet time cannot be discovered apart from these events. The appeal here is clearly to the 'given' data which are events, yet Whitehead will argue that these 'events' are continuous. Hume's assumption of atomistic, heterogeneous, existent impressions or ideas abstracts from the flow and

continuity of experience. (Kant's argument for contending that time is the form in which inner intuition takes place is the teutonic translation of Hume's abstraction.) Something is necessary in addition to the mere receptivity of data; for Hume, habit; for Kant, a form of intuition.

In his short book *SYMBOLISM: ITS MEANING AND EFFECTS*, Whitehead deals directly with what he calls Hume's extraordinary assumption of 'time as pure succession.' He writes: "The assumption is naive, because it is the natural thing to say; it is natural because it leaves out that characteristic of time which is so intimately woven that it is natural to omit it." (S, p. 35) We must wonder why Whitehead considers it natural for Hume to have left out a crucial aspect of time when he analysed it as 'pure succession.' In other words, why is it natural to omit something which permeates an important experience? I believe the answer to this question concerns some of the basic conceptual functioning of the human intellect, and also might be seen as a kind of silent partner in the process of abstraction.

Early in *PROCESS AND REALITY* Whitehead makes the following comment:

We habitually observe by the method of difference. Sometimes we see an elephant, and sometimes we do not. The result is that the elephant, when present, is noticed. Facility of observation depends on the fact that the

object observed is important when present, and sometimes is absent.

The metaphysical first principles can never fail of exemplification. We can never catch the actual world taking a holiday from their sway. (PR, pp. 6-7)

What Whitehead has stated in these few lines is a very profound insight into the way most people think. We notice things because they are distinct, that is, they are different from what is normally the case. As some aspect of our experience becomes more and more the case, that is, less and less distinct from other experiences, we notice it less. The quite familiar experience of taking somebody or something for granted is an example of employing the method of difference. Modern capitalistic society is just beginning to feel the stricture caused by taking the ready access to unlimited amounts of petro-chemicals for granted. For five decades there was just so much easily obtainable oil that few men could foresee a situation where demand would greatly overwhelm supply. The ramifications of this particular use of the method of difference are just beginning to be felt. The entire unprecedented productivity of the North American food industry has been predicated on the continued supply of cheap oil.

Why does this happen? I've suggested that Whitehead saw man's intellect as some sort of mediator between the infinite and the finite. In order to understand anything man has to render the infinite manageable, and this rendering is achieved through the activity of abstracting. Now



once an abstraction is made, one wants to get on with the work at hand. Or perhaps the agony of making the abstraction facilitates forgetting it. This might account for the callousness of men at war. I suspect that Whitehead's metaphysics might suggest a metaphysical influence of abstraction which could be construed as the inheritance of 'modes of abstraction' by actual occasions from their 'objectively immortal' predecessors. Unfortunately such speculation is not the purpose of this essay! But I do suggest that this point is to be found in nearly all human activities. It operates under the various rubrics of 'habit,' 'security,' 'knowledge,' 'dogma,' &c. An example of this is the political relation of the individual. In the political arena one sees that it is simply impossible to continually redetermine the basic relations of 'being a political animal' on each and every occasion of political activity. At times, such descents to the primordial depths of the political relationship are necessary. Usually these descents are the harbingers of a new 'political epoch.' Hobbes' LEVIATHAN, Locke's 2D TREATISE ON CIVIL GOVERNMENT, and Rousseau's DU CONTRAT SOCIAL are instances where the times seemed to demand such fundamental reappraisals of the political situation. But in the day to day political life, citizens do not want to be bothered by the grounds of their political beings. They pay their taxes and expect services. The government's legitimate use of taxation is a foregone conclusion. In the academic situation, if one is to attend

a seminar on Plato's TIMAEUS one simply must assume the thorny issue of whether or not the written word is capable of transmitting 'knowledge.' In order to get on with what one deems important in life one must consider some issues or some answers as settled. An English author will fail to produce a masterpiece if he continually must reconsider the adequacy of the subject-predicate form of expression. My point is that men assume things settled in order to get on with living. Perhaps those responsible for the formulation of the 'settled issue' are continually aware of the forces and tensions at work. They are conscious of the conditions surrounding their abstractions. But those who are not immediately involved with the act of abstracting, those who receive abstractions through the auspices of their culture, science, language, and educational institutions are not immediately <sup>aware</sup> that their abstractions are 'abstractions.' Thus they may live, believing experience to be a certain sort of activity, depending all the time on what the basic abstractions of their 'world view' 'deliberately' excluded. When employing the method of difference they will be unable to notice what is presupposed.

When Whitehead states that the world may never take a holiday from the sway of the metaphysical first principles he is suggesting that the 'method of difference' is inadequate, in principle, for the philosophical enterprise. What we wish to accomplish with our philosophy is to provide an

account of all experience, and thus the unity of experience, fragmented by the artificial distinctions created by our primordial decisions of abstractions, cannot be approached through the method of difference. What philosophy is, then, is an activity of descriptive generalization and a thorough-going criticism of the terms of the descriptive generalities. Philosophy seeks to understand the limits of its own abstractions. Whitehead observes, "Familiar things happen, and mankind does not bother about them. It requires a very unusual mind to undertake the analysis of the obvious." (SMW, p. 4)

To return to Hume's 'naïve assumption.' Just what is this characteristic which Hume's abstraction leaves out? Time is known by us through a sequence of experiencings. We perceive different events and thus say that time has passed. But one must not assume that the sequence is one of pure discrete succession, like the series of integers. Our experience is of one perceiving succeeding another. These perceivings are continuous and genetically related. (Hume has admitted as much with his doctrine of 'the association of ideas.') The past flows into the present and the present will flow into the future. Each perceiving carries some inheritance from its immediate past into its immediate future. When I try to remember some event and succeed, I remember the event because I tried to remember it, and remember trying. Unless something unexpected happens I will finish this sen-

tence because I started it. These facts are so commonplace that Hume's philosophical abstraction of time neglected to deal with them. "Time in the concrete is the conformation of a (perceiving) state to state, the later to the earlier; and the pure succession is an abstraction from the irreversible relationships of settled past to derivative present." (S, p 35)

Whitehead claims that the doctrine of 'pure temporal succession' is a second order abstraction, "a generic abstraction omitting the temporal character of time and the numerical character of integers." (S, p. 20) What does this mean? The abstracting of the temporal character of time means to assume that time consists of discrete states or moments. A moment is discrete because it has a definite beginning and end, although it may be extremely difficult to locate. Whitehead's criticism of this abstraction is that it simply neglects the fact that we experience temporal succession (i.e., we are conscious of it) as a flow of continuous changings, some of which we abstract into states. (About this description of the experiencing of time we notice the fundamental agreement between Whitehead and William James. Both characterize experience as a 'stream of consciousness.' Cf. James', PRINCIPLES OF PSYCHOLOGY, Vol. I, ch. IX.) Hume assumes experience of time is correctly analysable into discrete, independent moments, which are presented as either dominated by one, or several simultaneously presented perceptions. But when

we summon experience to the witness stand, we find little evidence for this portrayal.

The second part of this second order hierarchical abstraction concerns the numerical character of integers. What is being supposed in this abstraction is that the succession of integers are positionally independent of each other for their 'being' what they are. It is commonplace to suppose that there is no difference between the integers '7' and '11.' As integers they are the same, both being numbers usually conceived on a line. They merely indicate which point is being determined, and both being points, they are homogeneous. But '7' is '7' only because of its relations with '6' and '8'. You could not place it anywhere else in this sequence of numbers. This fact points to the genetic character of time, the fact that later moments follow and are what they are because of earlier moments. What Whitehead means by the concept 'pure temporal succession' being a second order abstraction is that time is assumed to be discrete and therefore causally unrelated. Causally unrelated moments bear no genetic relations to each other. The relation of causality, were it admitted, effectively destroys the conception of 'discrete temporal moments.' Causality introduces the genetic relationship, the dependence of present on past for being what it is; the anticipation of future which will be to some extent conformal with the present.

Whitehead claims that Hume accepted a conception of time, abstract time, which was the result of the intellectual milieu created by Newton's SCHOLIUM to the PRINCIPIA. Then he claims that such a conception, abstract time, was the creature of a mathematical-scientific enterprise, invented in order to make the world behave according to certain methodological procedures. He writes:

The 17th century had finally produced a scheme of scientific thought framed by mathematicians, for the use of mathematicians. The great characteristic of the mathematical mind is its capacity for dealing with abstractions; and for the eliciting from them clear cut demonstrative trains of reasoning, entirely satisfactory so long as it is those abstractions which you want to think about. The enormous success of the scientific abstractions, yielding on the one hand matter with its simple location in space and time, and on the other hand, mind, perceiving, suffering, reasoning, but not interfering, has foisted onto philosophy the task of accepting them as the most concrete rendering of fact. (SMW, p. 55)

Because of this 'fallacy of misplaced concreteness', that is, the attributing of concrete reality to these high-grade abstractions, Whitehead's claim is that modern philosophy has been seriously hampered in accomplishing its tasks. No amount of juggling the different concepts and possibilities can overcome "the inherent confusion introduced by the ascription of 'misplaced concreteness' to the scientific scheme of the 17th century." (SMW, p. 55). In another book Whitehead makes the following comment about this scientific scheme:

This account of nature and of physical science has, in my opinion, every vice of a hasty systematization based on a false simplicity; it does not fit the facts. Its fundamental vice is that it allows no physical relation between nature at one instant and nature at another instant. Causation might be such a relation, but causation has emerged from its treatment by Hume like the parrot after its contest with the monkey. (IoS, p. 57)

Whitehead suggests that when we appeal directly to our experience we do not find, as Hume thought we did, that our experience can be understood in this fashion. Hume utilizes the prevalent conception of time which he absorbed uncritically from the intellectual milieu of the early 18th century. But temporality is more complex than the Newtonian concept of 'absolute time.' Whitehead suggests that it is primarily relational: past related to present, present related to future. One mode of understanding this relation of temporality's continuity is causation. But it is just this relational aspect of temporality which the Humean adaptation of the Newtonian scheme finds unacceptable.

It is instructive to note that Whitehead claims that Kant accepts Hume's doctrine of 'time as simple occurrence.' (Cf. SYMBOLISM, pp. 37-39.) For Kant, there is causation, that is, 'causal efficacy' in Whitehead's vocabulary, but it is only as the subjective form of thought which necessarily arranges the data reception of consciousness provided by sensation. We know this 'form' as 'causality.' Hume's 'habit of attributing causality' becomes for Kant a fundamental

transcendental category of thought. Time, the form of my inner intuition, may or may not be real. Because man is separated by a gulf of mediating perceptions, he is separated from the 'world' of which he intuits he is a part. I cannot know whether the noumenal 'world' (i.e., the world 'behind' appearances) is as it appears to me because I have abstracted from the 'world' the only possible unifying principles. Hans Jonas puts it as follows, "However the transcendental solution of the problem (i.e., Kant's) which heroically undertakes to ground causality and its objective meaning in the pure consciousness alone, does not escape the truth that you cannot derive the concreteness from one of its abstractions."

(PoL, p. 22)

All I may deal with are my sensations and my thoughts about them; and my dealings with these (i.e., the modes with which I organize them) are governed by rigid categories of psychological manipulation. Any laws of 'noumenal nature' which might exist are forever beyond my ken. This is the essence of the Humean-Kantian world view as Whitehead understood it. He knew that it was against such views that he must struggle in order to avoid the patent absurdities of the 'solipsism of the present moment.' The dialectical establishing of causality as a basic experience would succeed in bridging the gap between mind, men and the world.



Whitehead states that this is his understanding quite succinctly:

I directly deny this doctrine of 'simple occurrence.' There is nothing which 'simply happens.' Such a belief is the baseless doctrine of 'time as pure succession.' The alternative doctrine, that the pure succession of time is merely an abstract from the fundamental relationship of conformation, sweeps away the whole basis for the intervention of constitutive thought (i.e., for Hume, habit; for Kant, transcendental category of thought') or constitutive intuition, in the formation of the directly apprehended world. Universality of truth arises from the universality of relativity, whereby every particular actual thing lays upon the universe the obligation of conforming to it. Thus in the analysis of particular fact universal truths are discoverable, those truths expressing this obligation. The given-ness of experience -- that is to say, all its data alike, whether general truths or particular sense or presupposed forms of synthesis -- expresses the specific character of the temporal relation of that act of experience to the settled actuality of the universe which is the source of all conditions. The fallacy of 'misplaced concreteness' abstracts from time this specific character and leaves time with the mere generic character of pure succession. (S, pp. 38-39)

In his analysis of time Whitehead 'discovers' causality.

But he understood that it would be impossible to develop an account of the temporal relation given the traditional explanations of perceiving. Whitehead knew that he must alter the fundamental bases of perceptual theory in order to construct his alternative account. "Causality is thus not an a priori basis of experience, but itself a basic experience." (FOL, p. 23)

I have used Whitehead's discussion of Hume and Time to provide an example of his attitude concerning abstractions

and in particular, his attributing to Hume the fallacy of 'misplaced concreteness.' This discussion of the temporal relation is admittedly characterized by unmitigated and excessive brevity; its purpose is to function as an example. I shall sketch the main points. Experience comes to us as a continuum. The discreteness of experience, or the decisive division of continuous experience into 'states' is accomplished only by an act of abstraction. Men's mentality abstracts finite concepts from the infinite complexity of the cosmos. The 'extensive continuum' is the most general sense of 'Witness' in the cosmos. It is the reason that there is a 'cosmos' rather than a 'chaos.' It functions as a receptacle for activity's conceptualization. Space and Time are two extremely pervasive aspects of the 'extensive continuum' which get their clearest and most distinct portrayal through the agency of visual activity. We must heed two important suggestions that Whitehead makes. First, Humean space and time are abstractions. We must try to enlarge our concepts so as to deal with the omitted truths which these abstractions are vitiating our account of experience. Secondly, we must be wary of depending on one metaphorical system for describing our experience. To neglect other possibilities is to imprison the human intellect.

### SECTION III: VISION, Part I

In the previous section I have attempted to explicate Whitehead's claim that Hume's philosophical difficulties are the result of his taking abstractions to be concrete realities. In this section I intend to explore some of Whitehead's specific statements concerning Hume's particular mode of abstraction. This exploration will deal with Whitehead's designation of Hume as a 'sensationalist philosopher' and will attempt an exegesis of Whitehead's insight that visual experience has generally been taken as the model for all sensory experience. Thus Whitehead's claim is that Hume's analysis of experience demands that all sensory experience (and therefore all experience derivative from sensory experience) be reducible to the structure prescribed by the visual paradigm. I shall then sketch a way of analysing three different sensory modes, tracing both differences and similarities. The purpose of this analysis will be to show how vision afforded Hume the abstractive system with which he chose to commence his philosophical enterprise.

It is Whitehead's contention that the use of visual perception as the exemplar for all sensory perception has severely limited the parameters within which modern philosophy is able to deal with experience. Put another way, this means that if we assume all experience be given on the analogy of

of visual perception, then our philosophical scheme will be inadequate to deal with experience of a fundamentally different sort. The understandable prejudice of philosophers for vision as the sensory-perception exemplar has succeeded in cutting man off from his world and the temporal flux: by this model we are reduced to Santayana's 'solipsism of the present moment.' In other words, exclusive attention to and acceptance of the structure of one sensory mode as an adequate metaphor constitutes a basic abstraction from the varied richness of concrete experience.

For Whitehead the use and abuse of the visual metaphor as perceptual paradigm began with the Greeks and was, for the most part, simply assumed to be the case in subsequent western philosophy. He writes:

The Greeks started from perception in its most elaborate and sophisticated form, namely visual perception. In visual perception, crude perception is most completely made over by the originative phases of experience, phases which are especially prominent in human experience. If we wish to disentangle the two earlier prehensive phases--the receptive phases, namely, the datum and the subjective response -- from the more advanced originative phases, we must consider what is common to all modes of perception, amid the bewildering variety of originative amplification. (PR, p. 179)

This quotation shows two things: first, Whitehead believes that vision has been taken as the exemplar of sensory experience; and second, Whitehead suggests that one ought to consider what is common to all perceptual modes in order to have an ade-

quate understanding of experience. It is unfortunate that he never carried out an explicit investigation of the various sensory modes, but I believe that this insight implicitly permeates the whole of his philosophical enterprise. My presumption shall be to offer the skeleton of such a 'pan-perceptual' investigation.

In NATURE AND LIFE Whitehead claims that the problems of modern epistemology can be attributed to the narrow understanding of sense perception. The reason for this narrow understanding is given as the exclusive use of vision as exemplar, par excellence, of sense-perception:

The weakness of the epistemology of the 18th and 19th centuries was that it based itself upon a narrow formulation of sense-perception. Also, among the various modes of sensation, visual experience was picked out as the typical example. The result was to exclude all the really fundamental factors constituting our experience. (N&L, p. 39)

A few pages earlier Whitehead comments at length on the reliance on vision for theories of sensory experience:

...How do we observe Nature? Also, what is the proper analysis of an observation? The conventional answer to this question is that we perceive Nature through our senses. Also, in the analysis of sense-perception we are apt to concentrate upon its most clear-cut instance, namely, sight. Now visual perception is the final product of evolution. It belongs to high-grade animals -- to vertebrates and to the more advanced types of insects. There are numberless living things which afford no evidence of possessing sight. Yet they show every sign of taking account of their environment in the way proper to

living things. Also, human beings shut off sight with peculiar ease, by closing their eyes or by the calamity of blindness. The information provided by mere sight is peculiarly barren -- namely, external regions disclosed as colored. There is no necessary transition of colors, and no necessary selection of regions, and no necessary mutual adaptation of the display of colors. Sight at any instant merely provides the passive fact of regions variously colored. If we have memories, we observe the transition of colors. But there is nothing intrinsic to the mere colored regions which provides any hint of internal activity whereby change can be understood. It is from this experience that our conception of a spatial distribution of passive material substance arises. Nature is thus described as made up of vacuous bits of matter with no internal values, and merely hurrying through space. (N&L, pp. 34-35)

This quotation is important for two reasons: first, it explicitly shows that Whitehead understood vision to be the exemplar-model of sense perception yet he did not limit the interaction of organisms with their environment to sensory perception taken on this model; secondly, we see that Whitehead suggests that the materialistic view of Nature is derived from our visual experience. In the second part of this section I will show the results of a more detailed working out of this insight.

We also find a similar statement in John Macmurray's

#### THE SELF AS AGENT:

Philosophical theories of perception tend to be theories of visual perception. They assume the primacy of sight: that is to say, they take vision as a model of all sensory experience, and proceed as though it were certain that a true theory of visual perception will apply mutatis mutandi, to all other modes of sense perception.

(SAA, p. 105)

Although Macmurray's focus and intent differ from Whitehead's it is striking that they agree that the visual model has been generally accepted by the philosophic community as an adequate account of perception. A few pages later Macmurray comes up with the same conclusion as Whitehead's concerning the 'solipsism of the present moment.' He comments: "The theoretical reason for this is that a purely visual experience would provide no ground for distinguishing in practice between imagining and perceiving. The result would be a practical solipsism." (SAA, p. 108) The allusion to Hume's difficulties, already discussed in the "Problem" section of this essay, again makes clear the impossibility that Hume encountered when trying to formulate criteria to distinguish between impressions and ideas, memories and perceptions. So too, does Macmurray agree that these difficulties' ramifications lead inexhorably to solipsism.

From a different perspective it might be pointed out that much of the philosophic imagery and nomenclature of the western tradition is pervaded by vision metaphors, i.e., analogies drawn from the activity of seeing. Words and phrases such as 'clear', 'bright', 'light of reason', 'the mind's eye', &c., are derived from visual experience. The words ἰδέα, ἰδέα, and θεωρία, words of supreme influence in the western philosophical dictionary are etymological derivatives from Greek words having to do with 'seeing.' Much of Plato's imagery

revolves around the use of 'seeing' as the analogue for knowing. Aristotle begins the METAPHYSICS, paying homage to the greatness of vision, by saying, "but even when no action is contemplated, we prefer sight generally speaking, to all other senses. The reason for this is that of all the senses sight best helps us to know things, and reveals many distinctions." (META, 980a27-30) In agreement with both Whitehead and Macmurray we have Hans Jonas' comment: "Sight, in addition to furnishing the analogues for the intellectual upperstructure, has tended to serve as the model of perception in general and thus the measure of the other senses." (PoL, p. 135)

I have marshalled these brief comments to suggest the dependency of western philosophical perspectives upon vision as a paradigm for sense perception and knowledge; that is, for experience in general. This prejudice is understandable: we must use metaphors and analogies to describe our experience. But we must not become enslaved to the images provided us by one species of metaphor. We must not explain away differences in sensory modes by taking one mode to be ideal. To do so would be to 'make sense' rather than to find it; the Scholastic devil ranges through the forests of abstraction.

The criticism of 'vision as perceptive paradigm' is entirely consistent with Whitehead's general criticism of abstraction in Hume's philosophy. His criticism of Hume's scheme is



that the elemental building blocks of the scheme, sense-data, are, at least in the form which Hume conceived them, very high-grade abstractions. If we can demonstrate that 'sense-data' are creatures of the visual paradigm, then we shall have discovered the basic abstraction that Hume has employed. The suggestion that I shall make is that 'sense-data' are the result of a virtually complete dependence on vision as a model for all sense-perception. 'Sense-data' or 'ideas and impressions' are the results of a highly sophisticated abstraction; should we claim that this particular brand of abstractions represents the sum-total of human experience, then we may expect to have our conclusions vitiated by what these abstractions have left out.

We must now consider whether Hume's description of experience and 'sense-data' falls in the shadow of the visual prejudice. Whitehead believed it did. There are few explicit statements of Whitehead's where he claims Hume is unwittingly employing the visual prejudice. After quoting a passage from Hume's TREATISE (Pt. II, Sect. III) Whitehead quips:

In each of these quotations Hume explicitly asserts that the eye sees. The conventional comment on such a passage is that Hume, for the sake of intelligibility, is using common forms of expression; that he is only really speaking of impressions on the mind; and that in the dim future, some learned scholar will gain reputation by emending 'eye' into 'ego.' The reason for citing the passage is to enforce the thesis that the form of speech is literary and intelligible because it expresses the ultimate truth of animal perception. (PR, pp.179-180)

Whitehead is making two points here. The first is that the form of speech is literary and intelligible because it expresses a fact that all men know. It deals with the basic fact of animal experience. Thus, because of the universality of the image (due to all men's bestiality), the form of speech is intelligible to those who are reading it. But Whitehead goes further to claim that the form of speech discloses an 'ultimate truth' which runs contrary to Hume's principles. Hume's common sense permits him to make a statement that is strictly impossible according to the prescriptions of his philosophical analysis. Strictly speaking, how does Hume know that the 'eye sees?' He cannot depend on the indirect evidence provided by inductive physiological explanation because that account assumes the legitimacy of 'cause and effect.' Whitehead is tacitly suggesting that Hume was led astray from the dictates of his theory by the 'intelligibility' of such a mode of speech. But modes of speech, like this one, are formed from relationships which their very 'intelligibility' helps to conceal. Universal acceptance of a way of looking at things, to the point where one does not feel the need to consider the ground upon which the statement is built, are the very abstractions which we must consider when we are doing philosophy. We must be wary of the obvious; beneath it lies bedeviling abstraction. (Remember the method of difference!)

The earlier part of the quotation establishes Whitehead's point that Hume is a victim of the visual prejudice. The emendation of 'eye' into 'ego' accomplishes the total victory of the visual paradigm. The 'self', the 'ego', the experiencer, all become an eye. What we must consider, though, is whether all experience may be adequately analysed by this visual metaphor.

It is unfortunate that Whitehead did not offer more explicit statements of Hume's reliance on the visual metaphor. A strong case may be made, though, that Whitehead considered this to be the situation whenever he relegated Hume into the category of 'sensationalist.' I shall make a brief attempt to explain what Whitehead means by the 'sensationalist doctrine' and to show that he considered Hume to be a sensationalist par excellence.

Much of PROCESS AND REALITY can be seen as an on-going argument between Whitehead's philosophy of organism and the 'modern theory'-- the progeny of Descartes. Given Whitehead's understanding of the genesis of philosophical schemes in general, and the subsequent dialectical interplay between philosophies, we see that his claim will be that Descartes has provided the basic conceptual parameters within which modern philosophy has waged its dialectical battles. One of these conceptual parameters, the sensationalist principle, is: "that the

primary activity in the act of experience is the bare subjective entertainment of the datum, devoid of any subjective form of reception. This is the principle of mere sensations." (PR, p. 239) The sensations we are given (i.e., sense-data) are bare, distinct, and separate. They have no intrinsic effects on each other, and only affect us in that they are given as the texture of our experience. Whitehead asserts many times that Hume accepted Descartes' account of perception although differing as to what ought to be emphasized. He states, when discussing Hume's dependence on the Cartesian model: "Hume, accepting Descartes' account of perception, which also belongs to Locke in some sections of his ESSAY, easily draws the sceptical conclusion." (PR, p. 77) The sections of Locke's ESSAY here mentioned are from the first two books. It is Whitehead's contention throughout PROCESS AND REALITY that Hume's job of making Locke consistent was achieved essentially by ignoring the third and fourth books of the ESSAY. These latter two books contain descriptions which cannot be pounded into the empirical mold. Thus, what he means in the above quotation is that Hume, as well as Locke in the earlier books of the ESSAY, are in agreement concerning the account of experience, and that this ~~is the~~ same account which was initially offered by Descartes. Whitehead's general appellation for this account of perception is 'the sensationalist doctrine.'

He makes the following comment which supports my point:

There is another side of Locke, which is his doctrine of 'power.' This doctrine is a better illustration of his admirable adequacy than of his consistency; there is no escape from Hume's demonstration that no such doctrine is compatible with a purely sensationalist philosophy. The establishment of such a philosophy, though derivative from Locke, was not his explicit purpose. Every philosophic school in the course of its history requires two presiding philosophers. One of them, under the influence of the main doctrines of the school should survey experience with some adequacy, but inconsistently. The other philosopher should reduce the doctrines of the school to a rigid consistency; he will thereby effect a reductio ad absurdum. No school of thought has performed its full service to philosophy until these men have appeared. In this way the school of sensationalist empiricism derives its importance from Locke and Hume. (PR, p. 89)

Here Whitehead quite clearly assigns Hume under the aegis 'sensationalist.' To be noted also is the claim concerning the inevitability of the reductio ad absurdum. This is the philosopher's discovery of the limits of his abstractions.

In ADVENTURES OF IDEAS we find a similar comment:

...The data are the patterns of sensa provided by the sense organs. This is the sensationalist doctrine of Locke and Hume. Later, Kant has interpreted the patterns as forms introduced by the mode of reception provided by the recipient. Here Kant introduces the Leibnizian notion of the self-development of the experiencing subject. Thus for Kant the data are somewhat narrower than for Hume: they are sensa devoid of their patterns. Hume's general analysis of the consequences of this doctrine stands unshaken. So also does his final reflection, that the philosophic doctrine fails to justify the practice of daily life. The justification of this procedure of modern epistemology is twofold, and both its branches are based upon mistakes. The mistakes go back to the Greek philosophers. What is modern, is the exclusive reliance upon them.

(AOI, pp. 224-225)

The ensuing argument explains the mistakes. The first mistake was the assumption of "a few definite avenues of communication with the external world," the five senses. This presupposition considerably narrows the search for information to these sensory modes. When one mode is chosen as the sensory-perception model, then the strangle grip of the presupposition becomes deadly. Whitehead quite simply counters this presupposition by claiming that the entire body, along with its numerous instabilities, is to be considered as the locus for perceptions or feelings.

The second error is the assumption that the "sole way of examining experience is by acts of introspective analysis." This error was the basis of Descartes 'cogito.' Unfortunately, this simply is not the case. Whitehead insists that all experience must be considered. "We must appeal to evidence relating every variety of experience." This assumption of the importance of adopting an introspective attitude of attention when examining experience is the implicit methodological presupposition which accompanies the change of the ancient philosophical query, "What do we experience?" to Hume's modern formulation, "What can we experience?" The crucial importance of methodological procedure was discussed in Section II of this essay. In this case, Whitehead points to his different procedure in a very concise statement: "The principle

I am adopting is that consciousness presupposes experience, and not experience consciousness." (PR, p. 83)

Whitehead's depiction of 'sensations' seems reasonable in view of the philosophic tradition immediately preceding Hume. We have only to consider the description of 'ideas' in Locke's ESSAY or the development of the contrast of 'ideas' and 'notions' in Berkeley's PRINCIPLES OF HUMAN KNOWLEDGE. In a general comment on the first two books of the ESSAY, Whitehead writes: "There is, however, a fundamental misconception to be found in Locke, and in prevalent doctrines of perception. It concerns the answer to the question, as to the description of the primitive types of experience. Locke assumes that the utmost primitive is to be found in sense-perception." (PR, p 173) To place this comment in context, immediately preceding it, Whitehead had agreed with the ultimate sceptical conclusions that Hume had drawn from the sensationalist doctrine. But we must remember that Whitehead considers both Locke and Hume to be employing the same sensationalist principle which they have accepted virtually uncriticized from Descartes.

The case for Berkeley is similar. He states, concerning our ideas, "All our ideas, sensations, or the things which we perceive, by whatsoever names they may be distinguished, are visibly inactive; there is nothing of power or agency included

in them. So that one idea or object of thought cannot produce, or make any alternation in another." (POHK, S.XXV) It seems clear from this quotation that Berkeley considered ideas to be inert, simple, 'visibly inactive.' Indeed it would seem that this description of ideas or sensations fits exactly with the description of a visual image or object soon to be presented. Berkeley reiterates this view of the 'static, inert, givenness' of ideas again, later in Section XXV, and particularly stresses the unchanging inert nature of ideas when arguing that we may not have an idea of mind or spirit because such an idea needs be active. (Cf. Sections CXXXVII, CXXXVIII, and CXLII.)

Additional support for the argument that Hume accepts the sensationalist doctrine with only minimum amendments is the fact that in the first section of Book I of the TREATISE and in the second section of the FIRST ENQUIRY there are very few examples offered to establish what he means by the terms 'ideas' and 'impressions.' It seems to me that the most probable explanation for this curious lack of exemplification in the crucial beginning chapters of Hume's philosophical enterprise is that he was thoroughly comfortable with the language and terminology of his philosophic milieu; he expected that his audience would be too! Thus, it appears that Hume takes over the empirical argument from Locke and Berkeley, making a few important changes, but for the most part accepting the description of 'ideas' and subsequently 'experience' as adequate.



If we are willing to accept this cursory establishment of the sensationalism in Hume's immediate tradition, then let us consider whether this be the case in Hume's depiction of the basic units of experience, 'ideas and impressions.'

While Hume makes no explicit statement in either the TREATISE or the FIRST ENQUIRY that he accepts the 'sensationalist doctrine' of perception, his arguments for modifying certain of Locke's terms, and his approbation of Berkeley's argument against 'abstract ideas' place him solidly in the 'sensationalist mold.' Indeed, what we might wish for would be a testimony from Hume that all experience is like seeing; unfortunately he fails to cooperate with me on this, a fact that could be understood because such an admission was so obvious as to need no statement. Hume's explicit correction of Locke's 'perverted' sense of 'idea' can be found in the first section of the TREATISE, (Bk. I, Part I, Sect. I, Footnote I) where he also introduces the term 'impressions' to indicate not the 'manner in which our lively perceptions are produced' but rather to establish some sort of quantitative scale of intensity for discerning between 'present perceptions' and 'memories, fancies, &c.' In the FIRST ENQUIRY, whilst dropping the correction of Locke's 'perverted sense', he describes impressions as differing from ideas only that they are more lively perceptions. "By the term impression, then, I mean all our more lively percep-

tions.... And impressions are distinguished from ideas, which are less lively perceptions, of which we are conscious..."(E, p. 18) It seems clear here that ideas and impressions are members of a homogeneous class differing only in degree of 'liveliness.' Although Hume amends Locke's particular use of 'ideas', he considers what he means by 'ideas' and 'impressions' to be the same sort of thing that Locke had in mind—except, of course, when Locke made a mistake.

Hume's approval of Berkeley's assertion that 'all general ideas are nothing but particular ones, annexed to a certain term,' is complete. He characterizes this statement as one of the "greatest and most valuable discoveries" of the recent age and proceeds "to confirm it by some arguments, which (he hopes) will put it beyond all doubt and controversy."(T, p 17) This wholeminded approbation of Berkeley's 'solution' of a difficult philosophical problem presupposes an agreement with the terms of Berkeley's philosophical scheme. The terms have earlier been characterized as the creatures of the sensationalist doctrine.

Whitehead looks to the beginning section of the TREATISE and makes the following comment: "Hume has only impressions of 'sensations' and of 'reflection.' He [Hume] writes: 'The first kind arise in the soul originally, from unknown causes.' Note the tacit presupposition of 'the soul' as subject and 'impressions of sensation' as predicate."(PR, p. 210) What is to be

noticed here is Whitehead's conclusion that for Hume, impressions or sensations are qualities of the soul. What I perceive are my sensations. These sensations are inactive, inert, distinct; they are the 'stuff' of my experience which are presented or given to me as ideas.

Whitehead specifically relegates Hume to the sensationalist camp as can be seen from the following quotations:

By an ironic development in the history of thought, Locke's successors, who arrogated to themselves the title of 'empiricists', have been chiefly employed in explaining away the obvious facts of experience in obedience to the a priori doctrine of sensationalism, inherited from the medieval philosophy which they despised. (PR, p. 220)

and:

For Hume, hating, loving, thinking, feeling, are nothing but perceptions derivate from these fundamental impressions. This is the a priori sensationalist dogma, which bounds all Hume's discoveries in the realm of experience. (PR, p. 221)

The force of these two quotations is to stress that Whitehead took Hume to be using the 'sensationalist principle' whenever he discussed experience; secondly, Whitehead claims that Hume accepted this principle uncritically which is the force of the 'a priori.' This uncritical acceptance took the form of the 'obviousness' of the sensationalist principle and the fact that there did not seem to be any imaginable, plausible alternatives.

I shall now offer an argument which I can generate out of Hume's first principles. This argument closely resembles the previous discussion of Hume's difficulty with 'personal identity'; I trust that the redundancy will be excused. I hope to establish the character of the 'sensationalist doctrine' and thus augment an understanding of Whitehead's insight concerning the ramifications of holding such a position. My argument will demonstrate that in all essential respects, Hume was clearly an adherent of the sensationalist dogma, a dogma based on the visual paradigm. In the Appendix to the TREATISE (previously quoted, but again to facilitate reading) Hume, while admitting defeat concerning his ability to adequately characterize the 'self', or whatever might be the cause of 'personal identity,' makes the following comment:

In short, there are two principles, which I cannot render consistent; nor is it in my power to renounce either of them, viz. that all our distinct perceptions are distinct existences, and that the mind never perceives any real connexion among distinct existences. (T, p. 639)

I have already pointed out that the two principles are not inconsistent with each other; they are inconsistent, taken together, with the 'stubborn fact' of personal identity. These two principles, employed as analytical tools, render the 'idea' of 'personal identity' a fiction. Thus what Hume is admitting is an irreconcilable conflict between his prime analytical tools and an aspect of experience too obvious for him to deny or attempt to explain away.

This point cleared up, it seems to me that these two principles establish the 'metaphysical' characteristics of Hume's basic building blocks, 'sense-data' or 'ideas.' When we realize what these characteristics are, we shall see that they turn out to be the very sort of data that Whitehead has characterized as 'mere sensations' in the 'sensationalist doctrine and which I shall hope to establish as the creatures of the visual prejudice.

'That all our distinct perceptions are distinct existences' hearkens back to Hume's initial portrayal of ideas and impressions. 'Distinct existences' means that these perceptions are simple, separate, unchanging. They are substances according to the Cartesian formula. They require 'nothing but themselves in order to exist.' If they were to require anything in order to exist, then the second principle would be violated. The second principle established the impossibility of breaking through the autonomy, that is, the lack of perceivable interaction between these perceptions. If we now remember Hume's technique for discovering philosophical fictions, we see the full impact of these characterizations. Hume asks of the person claiming to have 'knowledge' of, say 'substance,' that he show him the impression which gave birth to this particular idea of reflection. When the person has completely separated the complex idea into its simple ideas he will see that these

simple ideas are all distinct, separate existences. The ideas were simply conjoined in a 'who knows?' haphazard fashion. Since we are unable to perceive a connexion between separate existences (i.e., different simple ideas), we have no grounds to claim that the particular different separate existences are adhering according to any principle other than habit. (Here the extreme circularity of Hume's scheme verges on the tautological.) We break down our complex idea of some object into its constituent, simple, inert parts, and then see that because they are simple and inert, they have no discernible relations to each other, other than contiguity. The bare, inert, simple ideas, 'pure sense-data' are 'mere sensations.'

Now to complete the picture, we must remember that these ideas, at first complex and then reduced to the simples, are ideas of my mind. They are my perceptions and they make up the texture of my experience. My experience is given to me as a film at a movie theater. I see a scene, which I may break down into the constituent frames of the film. If I were to commandeer the projection booth I could then get the individual frames, which could be further analytically reduced into the ultimate simples of color and shape. The illusion of motion is effected because the different frames are run past my eyes at a high rate. Thus from essentially static, separate, inert sense-data I come to have an illusion of fluid experience. What is central to the analogy, and to Hume's view of perception,

is that there is some sort of spectator monitoring the manifold presentation of his sense-data. The continuity of the manifold is called experience. What are given to the spectator are inert unchanging atoms of sense-data, which due to the speed of their presentations, blend into continuity and illude the spectator into a sense of stream of consciousness. (Here again the extreme similarity of the Humean and Kantian views may be clearly seen. We need simply remember that what Hume calls habitual activity, Kant fabricates, with teutonic ferocity, into categories of thought and a synthetic activity of unified appearception.)

It would now be beneficial for me to sketch the essential factors or aspects of the sensationalist doctrine. Basically, to describe experience by the visual metaphor means to characterize the experiencer as an 'eye'; to discriminate between two radically different entities, the seer and the scene, the subject and the object. The seer's activity does not interfere with or influence the scene. The observer of this scene is unaffected by the scene, except insofar as the observed scene constitutes his observations. When this analogy becomes philosophical, we change 'scene' into 'sense-data', and the 'observer-seer' into a mind or soul. Thus the mind or soul witnesses its sense-data; it has perceptions. These perceptions are unaffected by the mind's activity of receiving or having them.<sup>9</sup>

All of Hume's descriptions of the perceptual activity can be rendered according to this model. This model is presupposed whenever Hume says 'perceptions of the mind.' The 'of' used here, a clear possessive genitive, means that the mind has the perceptions as its possessions. The amount of interaction between feudal lord and serf is crucial, but no amount of varying the feudal conditions of the serfs will adequately revise the economy, or save the model; the only answer is universal enfranchisement. Hume gets into his 'personal identity' problems because this model for perceptual activity cannot be expected to see itself. One cannot have a perception of having that perception.<sup>10</sup>



### SECTION III: VISION, Part II

Before I begin this comparative analysis of three different sense modes I must first make a few prefatory comments. As with all analyses, the following will probably do violence to the phenomena it examines. This violence will take the form of an abstraction stressing the differences between sight, audition, and touch. It would be closer to the truth of the matter to range these three sensory modes in some sort of continuum situating sight at one end and touch at the other. I have not presented this "continuum" for two reasons. The first is that the positive aspects of such an arrangement have not been clearly enough established in my mind for me to do this with any great degree of confidence. This leads me to the second reason which is that an assumed heterogeneity is a better polemical device for establishing my thesis of Hume's dependence on the visual model as a paradigm for sensory perception.

In this analysis I shall rely heavily on Hans Jonas' remarkable book, *THE PHENOMENON OF LIFE*, especially the sixth essay, "The Nobility of Sight." Jonas' scheme of analysis takes the three senses considered as if they were radically different. He does this in order to suggest a genetic account of the origin of the seemingly qualitative differences which we take to be the distinct data of the different senses. In doing so, the error of exclusively depending on one model (and that the most sophisticated) becomes clear. But we must never

forget the essential homo-geneity of these different modes. Perhaps a careful survey of the different media of sense transmission (that is, light, molecular vibration, physico-chemical reactions, and intruding force fields) might give some explanations for the differences in vision, hearing, smell, and touch. (More of this later.) But for now, our purpose shall be to see how it is that we seem to consider the objects of our perceptual activity on the model of vision; what is gained by this approach, and what is lost.

For the sake of clarity the analysis assumes the heterogeneity of these senses. I shall continually try to point out where the analysis forces more differences than experience finds. In accordance with Whitehead's suggestion I shall also point out the similarities of these sensing modes. The common understanding of western man concerning the five senses certainly stresses the differences, I shall hope to allude to the similarities.

The second prefatory comment concerns the sort of evidence considered in this analysis. What we are dealing with is an analysis of sense experience as it is for the most part. In virtually every statement exceptions might be summoned. But these shall be exceptions to the general form of the analysis. Since my purpose is to consider visual experience as a paradigm

for all sensory experience, I am attempting to establish the basic aspects of the paradigm: that is, to explore the analogy of claiming that experiencing is like seeing. In consideration of the anomalies to our analytical scheme, that is, those experiences which do not easily fit into the pattern, I shall try to follow Whitehead's suggestion that the theory must account for both the rule and the exception. For the most part, the exception will be seen to point to some artificiality or abstraction in the general theory.

Before we consider the exceptions and how they limit the 'presumption to generality of our theory' we must first sketch the theory, showing how it accounts for the experiences considered. Then the exceptions will help us see the theory's limitations, and perhaps suggest a modification which can take into account both the general case and the exception.

Jonas' analysis considers sight, hearing, and touch in terms of what he calls the 'image-performance' of each. Sight will be seen to be unique in terms of the degree to which its 'image-performance' is realized. First, though, the term 'image' must be discussed. Unfortunately its usage is somewhat ambiguous. What Jonas means by 'image' is the object of the particular sense mode considered. The image in visual perception is the particular object or manifold which is seen.

When I look at a Renoir painting, it and the surrounding visual environment constitute the image. I do not mean that the 'actual painting' and the 'actual objects which make up the surrounding visual environment'; what I mean is the 'visual image', that is, what would be remembered if one suddenly shut his eyes. Jonas has an elaborate discussion of what *an image* is in another essay in *THE PHENOMENON OF LIFE* (Essay 7). This discussion makes it clear that what he has in mind is a visual image. "The object of representation is a visual shape. Vision grants the greatest freedom to the mediacy of representation, not only by the wealth of data from which the latter can choose but also by the number of variables of which visual identities admit." (PoL, p. 162). Earlier in the discussion, he states, when distinguishing between an 'image' and a 'fake', that the image is intentionally made. "Omission implies selection." (PoL, p. 160). Thus an image is a creation with an intended omission. It is an abstraction. He clarifies this point later when he writes: "Sight is the main perceptual medium of representation because it is not only the chief object-sense but also the home ground of abstraction." (PoL, p. 162)

I may choose to focus my attention on some part of the visual manifold (e.g. the Renoir painting) and then that part in turn becomes the image proper. For hearing and touch the situation is not so clear; a fact which will be seen to be

intimately related to the manner in which touch and hearing deal with the temporal flux. Jonas' focus for touch will not be the singular transitory tactile sensation, nor for hearing will he consider the auditory 'image' to be a single tone sensation. I hope to show that the appropriate analogues for the visual image are different. I realize that there is a certain degree of vicious circularity in this attempt. I ask that the reader bear with the endeavor and hold off his objections. When the analysis is completed, I trust that the pervasive influence of the visual metaphor might be seen to be the major cause of the apparent vicious circularity.

The analysis will consider the 'image-performance' of these senses as manifested in terms of: 1) Simultaneous presentation of the manifold; 2) Neutralization of causality in Sense-affection; 3) Distance, both spatial and mental. Jonas' analysis shows that the visual 'image' is uniquely presented and understood. Thus to take all of experience to be ultimately reducible to the structure found in the visual experience is a mistake.

Sight affords a simultaneous presentation of its field. When I open my eyes, I am given, instantly in that glance, the complete visual manifold. Were I considering some specific object, for instance a statue, the statue would be com-

pletely given as soon as I saw it. I may investigate my 'vision' of the statue, thereby changing my perspective of it, but at least one complete scene is provided with each glance. Indeed, I might return to the 'film and its frame' analogy and say that what is given to me each time I open my eyes is like the individual frame of the film. Additional consideration of specific parts of the frame may provide further details, but in general, the complete manifold is understood as given in one instantaneous glance.

If we next consider auditory experience we at once see a crucial difference. With hearing, a differentiatable object is not given in an instant. It requires time for us to hear the differentiatable object, for instance, a melody. The object is not discovered through continued focus on the continuity of the sensory awareness. The object, the melody, is the sequence of auditory awarenesses. A single note has no intrinsic meaning or sense to it. We might sound all the notes of a melody simultaneously; surely we would not hear the melody. Any note of the melody is what it is because of all the other notes; the notes of the melody are thus analogues to integers as in my earlier discussion of the temporal sequence. Jonas comments:

Since this synthesis [of the melody] deals with succeeding data and is spread over the length of their procession, so that at the presence of any one element of the

series all the others are either no more or not yet, and the present one must disappear for the next one to appear, the synthesis itself is a temporal process achieved with the help of memory. Through it and certain anticipations, the whole sequence, though at each moment only atomistically realized in one of its elements, is bound together into one comprehensive unity of experience. (PoL, p. 138)

The image in auditory experience lasts as long as its synthesis does. We may repeat a tune, or re-read a poem, but the remembering of the entire auditory image is very different from remembering a visual image. A visual image is 'given' complete, whole, intact; it is given in an instant. The 'heard' image must be given through time, the image itself being a feature of the duration.

Touch shares a feature of 'image-performance' with hearing, and a feature with sight. Like hearing, touch requires duration in order to complete an image; but unlike hearing and asymptotically approaching the sort of image presentation afforded by sight, there is a static image presented although it is achieved through a synthesis of data. When I use touch to define an object, I must proceed through a sequence of continuous movements. All that is disclosed to my hand at an instant is whether the hand, or parts of it be in contact with something other. When I move my hand along an unknown object, I remember how it was and feel how it is. I would not be able to discover the shape of the surface if I were unable to move my hand. If I set my hand down on the flat top of a table,

the plane surface is not given; I could be feeling my hand against a mirror image of itself (e.g. my other hand!) It is only when I move my hand about the surface of the table that the shape of the tactile object becomes known. The active aspect, my moving my hand, changes the character of the information given in tactile experience. Because of the process of the 'touch-search', there is a voluntary activity; I feel another object rather than being passively given tactile sensations. Jonas puts it this way: "The motor-element introduces an essentially new quality into the picture: its active employment discloses spatial characteristics in the touch-object which were no inherent part of the elemental tactile qualities." (PoL, p. 141) The space which is 'generated' through this activity gives a series of tactile qualities its objectivity: a tactile object becomes.<sup>11</sup>

In the formation of the tactile object, a crucial difference between hearing and touch becomes clear. Hearing is a completely passive sense mode. In this respect it closely resembles sight. One may be attentive to his hearing, that is, he may listen carefully, but 'hearing' harder does not cause one to hear a sound. A sound sounds; someone may hear it. Jonas makes the following point: "Sound, itself a dynamic fact, intrudes upon a passive subject." (PoL, p 138) We do not have ear lids because we always wait to hear. With touch,



the active, voluntary searching discloses a spatial continuum containing objects, or changes in a single object. It takes time to discover, or to be given, the objects.

If we compare these sense modes in terms of the time necessary for the object or image to be given (or synthesized) we get a scheme as follows: hearing gives us the presentation of a sequence through a sequence; touch gives us the presentation of an unchanging object through a sequence; and vision gives the presentation of simultaneity through simultaneity. Jonas remarks that for sight, "the fact of the sense itself and the feat of the image presentation are identical." (PoL, p. 143).

The unique degree to which sight presents the image as simultaneously given is a pregnant insight. The simultaneous presentation of two or more objects in the visual manifold allows for comparison, relation and ultimately, proportion; it relies on the 'fact' of co-presence. It is difficult to see how this would be possible with touch or hearing without assuming the sort of static object that visual experience suggests to us. Also when the sensing being becomes conscious of his activity, sight would seem to be the sense that discloses BEING. Due to the simultaneous presentation, the images in any distant manifold presented would seem to be just what they ARE. Touch

and hearing require, although in different ways, duration in order for their sensing to 'create' its object. They are senses of BECOMING. From a slightly different perspective, if we concentrate on the Being of the images presented by sight, we come to have a notion of the present, the atomistic NOW. An analysis of the content of a 'NOW' is the incipient analysis of something's Being. "All the other senses operate by registering change and cannot make that distinction (i.e., between Being and Becoming). Only sight therefore provides the sensual basis on which the mind may conceive the idea of the eternal, that which never changes and is always present." (PoL, p. 145)

When we attempt to integrate this concept of the 'eternal present' which is the ultimate Being or Existence of anything that IS, with the obvious flux of the world, we are driven into conceiving the flux as a sequence of atomistic 'Nows'.

We shall now consider the three sense modes in terms of the degree of 'dynamic neutralization' which is accomplished in the execution of the various sensory presentations. Again we shall find that sight is ranked at one end of our scale; it affords the greatest degree of neutralization of causality. When I see an object I am least aware of the dynamic activity that makes up my visual perceiving. Unless there be a total lack of the

medium of sight, or a painful excess of it, the interaction of my eyes with the object of sight is so negligible as to become effectively eradicated.

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With touch the situation is quite different. Touch is the immediate apprehension or awareness of another object. There is contact, force, resistance. I make an effort and I feel the object's resistance. If we consider the case of a passive tactile sensation the same factors are necessary. If some object intrudes upon me I must resist in order to feel it. Mere geometrical contact (indeed if such a concept is possible; cf. Boscovitch, A THEORY OF NATURAL PHILOSOPHY for a convincing proof of the impossibility of geometrical contact) does not constitute the touch sensation. This fact would be abundantly clear were we in a zero gravity situation. There two bodies could easily be set in motion, contiguous with each other, without there being any sensation of touch. If I push an object, and it resists me, then there is the sensation of touch. The essential difference between touch and vision, in this respect, then, is that with touch the interaction with or resistance of an Other constitutes the sensation; with vision, the predominant feature is the complete lack of interaction.

With vision I need only look to see the object; with touch I must exert effort either upon or against the object in order to have awareness of the sensation. Hearing may be situated by pointing out again that it is a completely passive sense. Granted one may learn varying degrees of audio attentiveness, still an object of auditory sensation must occur in order for me to hear it. No amount of intense attentiveness may alter this passive aspect of hearing. I, the hearer, am completely at the mercy of the acoustic environment. In fact, this might constitute one of the evolutionary-biological bases for the genesis of the auditory faculty. Being a passive sense, it is always receptive to changes in the audio-environment which might portend disaster. I have no ear lids because I need always be ready to hear.

Thus vision accomplishes a reduction to the point of the neutralization of the dynamical relationship between the perceiving subject and the perceived object. But along with this feat it also accomplishes another. If the causal interaction between perceiver and perceived, myself and any possible visual object is neutralized, then a fortiori the awareness of causal interaction between any two external objects is annihilated. If we remember Hume's technique ("show me the impression of the connexion between those two simple ideas") we recall that

we can never discover any causal influence between the objects of our experience. The lack of necessary connexion, or merely perceived connexion between events in my environment is just what is to be expected on this model; it is merely the corollary feature of the analogy of my experience with the world that I apply to objects in the world.

Sight's complete neutralization of the causal interaction in sensory perception gives us the incipient conditions for the development of the concept of 'objectivity.' Because I am not aware of any interaction with the object of my vision I presume my visual activity does not interfere with it. This non-influential character of visual perception suggests the concept of the 'image' which is detached from the welter of causal influences and thus is 'just what it is, requiring only itself and depending on nothing else for its existence.' When man freely varies the existential conditions possible for the 'image' the rudimentary suggestions arise for such fundamental metaphysical categories as essence and existence, form and matter. Jonas writes: "Furthermore, the image is then handed over to the imagination, which can deal with it in complete detachment from actual presence of the original object: This detachability of the image, i.e. of 'form' from its 'matter,' of 'essence' from its 'existence,' is

at the bottom of abstraction and therefore of all free thought." (PoL, p. 147) It is interesting to note the tension between this notion of dynamic neutralization and such modern scientific principles as Heisenberg's uncertainty principle or the even more contradictory provisional hypotheses of such psychic experimenters as Targ and Puthoff in the recently published MIND-REACH. My point is that modern scientists are finding it increasingly difficult to justify the conventional role of the non-influential coolly objective observer, a role which is the direct progeny of the visual paradigm.

Jonas also points out that the above mentioned capacity of vision gives birth to the distinction between theory and practice. Consideration in detachment from the pressing 'reality' of an object allows for a theoretical appraisal to be made concerning its essence and probable behaviour. But, although vision is the freest of the senses when it comes to varying images, it is the least realistic when it comes to discerning whether an image really be present or not. Here we might want to develop an explanation of the empiricist's difficulties concerning criteria for discerning the modality of image presentations. If sense-data, on the visual model, be the only admissible evidence (and this ruling is accomplished by rendering all experience according to the visual model) then Jonas,

with Whitehead, agrees completely with Hume's sceptical argument. Jonas makes the following comments:

No force-experience, no character of impulse and transitive causality, enters into the nature of image, and thus any edifice of concepts built on that evidence alone must show the gap in the interconnection of objects which Hume has noted. (PoL, p. 147)

and, "In fact one can say, with utter brevity, that the denial of causality leads straight to solipsism and is consequently never made in complete earnest." (PoL, p. 33). There must be a re- integration of the causal element which the visual paradigm has necessarily obliterated; this re- integration will most likely take the form of the notion of human force, volition, or activity.

Whitehead makes reference to what Jonas means by "dynamic neutralization" in the following quotation:

. . . the peculiarity of sense-perception is its dual character, partly irrelevant to the body and partly relevant to the body. In the case of sight, the irrelevance to the body is at its maximum. We look at the scenery, at a picture, or an approaching car on the road, as an external presentation given for our mental entertainment or mental activity. There it is, exposed to view. But, on reflection, we elicit the underlying experience that we are seeing with our eyes. Usually this fact is not in explicit consciousness at the moment of perception. The bodily reference is recessive, the visual presentation is dominant. In the other modes of sensation the body is more prominent. There is great variation in this respect between the different modes. In any

doctrine as to the information derived from sense-perception their dual reference -- external reference and bodily reference -- should be kept in mind. The current philosophical doctrines, mostly derived from Hume, are defective by reason of their neglect of bodily reference. Their vice is the deduction of a sharp-cut doctrine from an assumed sharp-cut mode of perception. The truth is that our sense-perceptions are extraordinarily vague and confused modes of experience. Also there is every evidence that their prominent side of external reference is very superficial in its disclosure of the universe. It is important. For example, pragmatically a paving stone is a hard, solid static, irremovable fact. This is what sense-perception, on its sharp-cut side, discloses. But if physical science be correct, this is a very superficial account of that portion of the universe which we call the paving stone. Modern physical science is the issue of a co-ordinated effort, sustained for more than three centuries, to understand those activities of Nature by reason of which the transitions of sense-perception occur.

(N&L, pp. 33-34)

I have quoted at such length to let Whitehead's consideration of 'dynamic neutralization' be seen in its integral relation to modern philosophy and science. His point is clear. A theory of sensory perception based on the evidence presented by vision neglects the body's dynamic part in the experience. When we select the visual model and neglect the body we court the 'solipsism of the present moment.' I shall discuss the consequences of neglecting the body in the next section.

We shall now consider the third aspect of 'image-performance' wherein sight again demonstrates a unique degree of difference from the other senses. Jonas begins this discussion



by noting: "Neither simultaneity of presentation nor dynamic neutralization would be possible without the element of distance." (PoL, p. 149) If we were to understand this comment to suggest that there is a genetic and logical priority to distance, I believe we would be allowing the form of our analysis to do violence to the phenomena. Distance is not a condition for the possibility of simultaneous presentation and dynamic neutralization if by that we mean that somehow 'distance' allows or causes these other aspects to be. Instead I suggest that Jonas is using the term 'element' in a way synonymous with Whitehead's use of 'fundamental ideas' when he writes "... the fundamental ideas, in terms of which the scheme [in this case our analysis] is developed presuppose each other so that in isolation they are meaningless." (PR, p. 5) We cannot understand any element of a 'coherent whole' in abstraction from the other elements. For the sake of an analytical presentation it may be felicitous or even necessary to begin with one of the elements as if it were the chief point of reference, but this is only because most people are unable to follow more than one line of thought at a time.<sup>12</sup> These aspects of 'image-performance', simultaneity of presentation, dynamic neutralization, and distance form a coherent whole in the analogy of vision. We cannot understand what any of the three might be, abstracted from the experience of visual perception. It so happens that in this discussion it is with respect to 'image-

'performance' that we compare our three different sense modes.

It is interesting to note that in the First Appendix to Essay I of THE PHENOMENON OF LIFE Jonas focuses on the element of dynamic neutralization rather than distance. Out of this perspective he generates the same sorts of conceptual ramifications I have been pointing to. This alternative perspective's discovery of similar conceptual ramifications would seem to add additional support to my claim of the 'integral coherence' of simultaneity, neutralization, and distance.

I see this seemingly 'decisive' comment of Jonas' as reasserting the basic coherence of the terms of his analysis: Jonas is attempting to extinguish the fire which the Phyrrie victory of his analysis has started. It is necessary to pay constant attention to the fact that although this analysis presents distinctions, such distinctions are for the sake of lucidity and clarity, but they do not mean to claim any ultimate heterogeneity.

We would not be presented a simultaneous differentiable visual manifold were there not distance between myself and the objects of the manifold, and between the various objects in the manifold. If an object of my visual activity be in immediate contact with me (that is, be at zero distance

from my eyes) I would not be able to see it. If the totality of a distant visual manifold be so crowded with objects having no distance between them, then the objects lose their distinctness, blending into a blob co-extensive with the whole of the presented manifold. In other words, for there to be presentation of a visual manifold, a simultaneous 'now' frame, distance is a necessary factor. To be presented a manifold means to be given a visual perception which has distance thereby allowing differentiation between objects. We shall assume that touch does not exist at a distance. Touch means intimate, immediate contact of my body with some physical 'other.' Even were we to abandon the atomistic materialistic account in favor of a 'bio-field' explanation, we would still end up being aware of touch in terms of an infringing-force-differential factor, that is, two force fields of given intensities may intrude upon each other up to a perimeter where the individual repulsive forces are each great enough to prohibit further movement together; this perimeter would constitute the 'outside' or skin of the body of the force field. The perimeter would establish the primordial sense of 'inside-outside.' The sense of 'touch' means an encounter of the inside with the sensible outside.

Distance in hearing presents an ambiguous case. Distance in presentation of the manifold suggests the temporal sequence, including relative durations. Were acoustic distances

presented simultaneously we would have all the tones of a symphony sounded at once and for the same duration. We cannot even vary the relative durations of the tonal sequence without changing the melody into something other than it was. We have already pointed out this aspect of hearing when we said that hearing is the presentation of a sequence through a sequence. Distance from the cause of a sound presents a difficulty as also does harmonic analysis. I may be too close to the cause of a sound, that is, it may be overwhelmingly strong. A proper distance would alleviate my pain or my inability to hear it at all, depending on the circumstances. My voluntary action, such as turning my head, or moving towards or away from the cause of the sound, would constitute a rather obvious co-ordinated element to the activity. But, because hearing is a passive sensory mode, I may only base my distance sense on a co-ordinated synthesis of several sense modes, in this particular case, hearing and the complex proprioceptive activity of locomotion. It is interesting to note that while visual blindness, deafness, &c. are conceivable, the thought of complete tactile 'blindness' approaches our intuition of what it must be like to be dead. Although visual distance is also a product of a complex coordination of different sense modes (as Berkeley has pointed out in A NEW THEORY OF VISION) our awareness of the active participation of the proprioceptive muscular coordination in the act of seeing has been reduced to a minimum. Here

it is clear how the element of dynamic neutralization effects the 'apprehension' of 'distance' in the visual mode. 'Distance' appears 'given', not sought.

Distance in visual perception seems to disclose another qualitatively different aspect from hearing. When I increase or decrease my distance from objects, 'new 'vistas' are disclosed. Whilst close to a visual object, I may scan it for details; as I move farther away I begin to situate the object in relation to its environment.<sup>13.</sup> With hearing there does not seem to be the experience of 'new vistas.' Were I listening to a symphony and found myself seated in the orchestra adjacent to the percussion section, I might be unable to hear the harmonic aspects of the symphony. A cheaper seat in the mezzanine would afford me a better hearing of the various parts which make up the entire symphonic piece. This would seem to be the analogue to the 'discovery of new vistas' in visual experience.

However, there is the following difficulty. There is a difference in these two situations. We could explain the problem of being unable to hear the whole symphony by claiming that the percussion section drowned out the other musical tones. The percussion section simply overwhelmed the other sounds. Here the power of one of the dynamic factors of the auditory

experience was able to overwhelm others and thereby effectively eradicate them. With vision this is not usually the case. There is a certain egalitarian aspect to the objects of my visual manifold. They are presented in the manifold: I then choose to direct my attention to them. The exception to this case is when the light generating source is excessively strong, for instance in a solar eclipse. But, generally this 'egalitarian presentation' of the objects of the visual manifold seems to be an essential feature of the formation and meaning of the visual manifold. Thus, in this example of hearing, I am overwhelmed by the dynamic force of the percussion section. In vision, the degree of dynamic neutralization reduces all visual objects to democrats.

Sight also discloses the manner of the intervening distance. Touch, being a sense of no distance, cannot perform this disclosure. I may be able to use my feet to feel my way along a surface, but the tactile sensory activity cannot forewarn me of the impending abyss. Vision, being perception at a distance, through a distance, and of a distance, gives me prescience. Because I can ignore the dynamic activity in visual sensing, the intervening distance becomes empty space; it is potentially fillable but empty. Because it appears empty, it may be filled, either throughout the intervening space, for instance, as with a haze or fog, wherein we would make a dis-

covery about the climate, or between objects of the manifold, as for instance, in the case of seeing a car about to strike a friend; here the 'distance' provided by sight would allow us to discern the situation of the object.

Thus we see that vision affords the experience of distance to a degree beyond that of the other senses. Touch does not operate at any distance. Hearing, while providing the rudimentary ability to differentiate distance, does so only in overt coordination with the other senses. Vision, by virtue of the nearly complete neutralization of the dynamic factor, presents distance as something 'purely given.' This element of pure givenness provides the basis for foreknowledge. In a sense, foreknowledge is 'knowledge at a distance', usually a distance ahead in time. We see a threatening object moving towards us at a certain velocity: we know that we have to react. But because the temporal aspect of this situation can always be analysed in terms of spatial distance, distance from the object establishes our safety or security. The reason for this is that velocity, in this case the speed at which the threatening object approaches us, is analysed into the components, distance divided by time. This is the simple visual intuition of the sorts of things going on whenever anything appears to move. It is manifested by the fact that all our velocity measurements are given in this form: miles per hour, revolutions per minute, &c.<sup>14</sup> Nevertheless, experience of

foreknowledge can be seen to provide the conditions for incipient analysis of the actual and the potential. Inasmuch as we have foreknowledge of what might happen (this understanding of 'might' having come about by the experience of being wrong with foreknowledge), we then may muse about possible reactions, and from that to the conceptualization of the categories of actuality and potentiality seems a short leap. The exclusive focus of distance qua distance would seem to lead to a notion of infinity; also, the focus on 'pure' distance might account for the genesis of such conceptual feats of abstraction as geometry.<sup>15.</sup>

It now seems appropriate to speculate concerning the reasons why vision provides these features to such a unique degree. I believe we may make the claim that many of vision's unique features are achieved by virtue of the medium of visual perception, light. The physical properties of light are so radically different with regard to order of magnitude that the sense which deals with light seems to provide us with features which are seemingly heterogeneous when compared to other senses. The speed of light is so much greater than that of sound that we seem to be dealing with the instantaneous transmission of information. The common experience of watching a distant woodcutter is the basic empirical impression which would have afforded 'fool-proof' evidence of this fact.



I see the axe hit the tree when it happens; I hear it somewhat later depending on the distance between the observer and the observed. Although light's velocity was conceivable, the practical activities of modern science, built upon Newtonian principles, proceeded as if that velocity were infinite. It was only with the development of measuring devices sensitive enough to detect light's extreme velocity that the 'earth shattering' ramifications of relativity became imaginable. . Prior to that a velocity of light was simply unimaginable. Indeed the concept of 'simultaneity', upon which much of 'Relativity theory' is based, is defined as a function of the speed of light. (Cf. A. Einstein, "On the Electrodynamics of Moving Bodies".) We can see that were our natural visual apparatus customarily more delicate (perhaps  $\times 10^5$ ) we might become aware of the relativistic phenomena naturally: such awareness would have legislated against the naïve notion of simultaneity. As it is, we shall have to remain satisfied with the technological augmentation of our sensory apparatus.

So too, is the size of light so different that we are not aware of the basic similarity of seeing and hearing. I realize that I tread on a thin icy veneer covering a scientific quagmire, but whatever it is that is light, it is far smaller than the pieces of sound transmission, gas molecules. If we assume 'wavicles', they are so little that they would not disrupt our atmosphere, even if one should happen to collide

with a molecule of that atmosphere. Sound is the disruption of the atmosphere, albeit a very regular disruption. Our audio receptors monitor the differing oscillations of the atmospheric medium. There are cases where the energy factor of the oscillation attains such a level that it causes pain (e.g. a Beatles' concert) and then actually passes over a threshold so that one becomes aware of it as a tactile sensation (e.g., the detonation of a percussion grenade, or simply 'feeling' the beat of a loud rock-n-roll band). There are similar experiences in seeing such as when the energy level of the light source becomes so high that it causes pain.

Another similarity of light and sound that is disguised due to the relative magnitudes of the respective elements of the media of transmission, concerns the frequency of vibrations. We are aware of light frequency as color (albeit along a rather narrow band on the electro-magnetic spectrum). Different audio frequencies are perceived as different tones. The question might be raised as to how it is that I am able to perceive a seemingly static color or tone, when in fact I am arguing that these static images are truly processes. The problem is that a vibration is a process, a fluidity, a changing; it is not static! Jonas offers the following as an explanation:

The smallness (in dimension, time rate, and energy) of the unit-actions and reactions involved in affection of the senses, i.e., their minute scale relative to the organism, permits their mass-integration into one continuous and homogeneous effect (impression) in which not only the single impulses are absorbed, but the character of the impulse as such is largely canceled and replaced by that of a detached image. (PoL, p. 29)

Our sensory apparatus assimilates the fluid activity into static representation: in this respect vision accomplishes this assimilation to a much greater degree than the other senses.

I can point to an experience which is an example of this sort of assimilation of a process into a static image. If I have a powerful audio signal generator I may generate a bass tone (very low frequency) such that I can actually 'feel' the oscillation of the tone. The tone is not presented as a single homogeneous effect. As we increase the frequency, the oscillating aspect of the tone will blend into a single qualitative presentation. I realize that this example assumes the form of a 'faculty explanation'; this sort of explanation is specifically warned against by Whitehead in the early pages of *PROCESS AND REALITY* (Cf. PR, p. 8). I offer in its defence that much work needs to be done concerning physiological-phenomenological surveys of the different sense modes. My example and explanation have the advantage of providing a theoretical backdrop which might then suggest felicitous exper-

imentation.

I wish to suggest that the human being's (and ultimately any 'living' organism as we know 'life') relative size is integrally related to the sorts of perceptions it may have. Were I the order of magnitude of a light wavicle, vision would not be the noble, wonderful experience that poets say it is. Were I the size of an electron, dodging wavicles would be a downright dangerous occupation: even more so when we remember that we couldn't see them coming. Jonas writes: "Organisms not far exceeding that scale can therefore have no perception, but the collision experience only. Theirs would be a world not of presences but of incidences, or not of existences but of forces." (PoL, p. 29) Perhaps this discussion adds further meaning to Pascal's enigmatic pensée, "Man is the mean proportion between two infinities."

What I have hoped to accomplish with this cursory analysis of various sensory modes is to suggest that an exclusive emphasis or reliance on visual phenomena will provide the basic structure and the 'atoms' of the Humean empirical doctrine, or what Whitehead means by the 'sensationalist doctrine.' If we rely on the way vision provides images as simultaneously presented, dynamically independent or neutralized, and presented in a spatially organized structure, then we can easily see

how the Humean conception of 'ideas' came to be grounded. Simultaneous presentation gives 'ideas' their characteristic of temporal atomicity. The complete neutralization of the dynamic or causal element in 'image-presentation' affords first the 'distinct existence' aspect of 'ideas' which leads to the impossibility of finding 'any real connexion' between the perceiver and the perceived world. This aspect of neutralization then contributes a fortiori to the impossibility of discovering 'real connexions' among 'ideas' in the world: thus any possibility of there being a Nature which is really related is, in principle, eliminated. Nature must be irrational. The combination of simultaneous presentation and dynamic neutralization affords the 'image' its characterization as being a distinct and inert existence, the datum which is the sole possession of my mind.

Vision's presentation of the 'distance-matrix' relates coherently with these other two aspects. It is from a consideration of distance, especially linear distance, that we are brought to analyse time as the pure succession of moments. The 'atomistic' suggestions made by 'simultaneous presentation' break the 'temporal line' into discrete moments, or states which are further reduced to the ultimate elements; the entities which are distinct, inert sensa, 'ideas'.

Were this essay an attempt at a positive contribution, then it would now be the occasion for suggesting alternative sensory models. I suspect that 'touch' might afford a more successful model, but at present I lack both the time and the understanding to provide even a sketch of this model.

#### SECTION IV: SOLUTION

It is now appropriate to consider briefly Whitehead's solution to the problem of Hume's incoherence which was discussed and developed in the first section of this essay. I have argued that Whitehead saw the 'solipsism of the present moment' to be the inevitable outcome of Hume's incoherent first principles. Hume took 'ideas' to be the ultimate realities of experience, yet as Whitehead pointed out, these 'ultimate realities' were in fact the results of a high-grade and sophisticated process of abstraction. I argued further that Hume's 'ideas' were the creatures of a further abstraction which took a certain model of visual experience to be an adequate paradigm for sensory experience, <sup>and</sup> a fortiori, all experience.

As a result of this critical consideration of Hume's abstractions, Whitehead posits two modes of perception, presentational immediacy and causal efficacy. The interaction between these two modes, symbolic reference, is what most experience is for human beings. It is because Hume neglected the aspect of causal efficacy in this interaction, that is, by taking all experience to be given by the mode of presentational immediacy, that he found himself in the difficulties voiced in the appendix to the TREATISE. Had Hume consistently followed his principles

and method, as Santayana shows, he would have been reduced to the "solipsism of the present moment."

It should now be fairly obvious that Whitehead's strategy has been to show that the Humean account of experience is incoherent and inadequate. I have cited his understanding of Hume's difficulties with 'personal identity' and the depiction of 'time as pure succession' as examples of the problems that taking abstractions to be concrete realities can cause. In an early work, THE CONCEPT OF NATURE, Whitehead explicitly discusses this strategy:

The whole theory is perfectly logical. In these discussions we cannot hope to drive an unsound theory to a logical contradiction. A reasoner, apart from mere slips, only involves himself in a contradiction when he is shying at a reductio ad absurdum. The substantial reason for rejecting a philosophical theory is the 'absurdum' to which it reduces us.. In the case of the philosophy of natural science the 'absurdum' can only be that our perceptual knowledge has not the character assigned to it by the theory. If our opponent affirms that his knowledge has that character, we can only -- after making doubly sure that we understand each other -- agree to differ. Accordingly the first duty of an expositor in stating a theory in which he disbelieves is to exhibit it as logical. It is not there where his trouble lies. (CN, pp. 38-39)

The difficulty will lie in the basic system of abstractions which Hume selected and upon which he constructed his account of experience. Whitehead, Macmurray and Jonas are all clear on one fact. If our experience be as Hume construed it, then Hume's sceptical conclusions are correct.



Whitehead calls the two distinct modes of perception, presentational immediacy and causal efficacy. Symbolic reference is the complex mode of interaction whereby the vague, inarticulate awareness of an intruding cosmos is refined and presented to the actual occasion in question. Human beings rarely if ever achieve ideal purity of these perceptual modes. "Such isolation, or at least some approach to it, is fairly easy in the case of presentational immediacy, but is very difficult in the case of causal efficacy." Complete ideal purity of perceptive experience, devoid of any symbolic reference, is in practice unobtainable for either perceptive mode." (S, p. 54) Thus it will be difficult to cite any single experience as an example of either presentational immediacy or causal efficacy. My descriptions must, of necessity, be inaccurate.

Presentational immediacy can best be described as the type of perception one experiences with vision. I suspect that Whitehead's choice of words in the term was made with the visual experience of images in mind. 'Presentational' points to the fact that the data of this mode of experiencing are presented; they are given to the subject as the objects of his consciousness. 'Immediacy' suggests two aspects of this experience. The first is that the objects are 'not mediated' in their presentation; in other words, there is no 'real connexion amongst them.' Secondly,

'immediacy' suggests that there is no mediation between the subject and the object. The data are simply 'presented'; the degree of dynamic neutralization is extreme.

Presentational immediacy is the type of experience one has when he neglects the 'primitive' sense of 'withness' of the extensive continuum and dwells on the abstract notions of space and time. Whitehead remarks: "We shall find that generally -- though not always -- the adjectival words express information derived from the mode of immediacy, while substantives convey our dim percepts in the mode of efficacy." (PR, p. 272) But as I hope I have shown in the section on vision, the mode of immediacy, by itself, presents us only with a series of mysteriously successive 'nows' and 'heres'. When we realize the dynamic interplay between presentational immediacy and causal efficacy we shall see a way free from the difficulties of the 'solipsism of the present moment.'

A description of causal efficacy is much more difficult. One of the reasons for this is that causal efficacy as a perceptive mode is so pervasive a factor of our experience. We cannot employ the 'method of difference'. Something which is in everything soon ceases to be noticed. If the world were pervaded by a purple haze, we should soon cease to bother to notice it. It would ordinarily be of no

interest to us. But, if our goal be to construct an adequate and coherent philosophical scheme accounting for our experience, then such pervasive factors cannot be neglected. Causal efficacy is one of the most general aspects of the cosmos; it cannot go on holiday.

The most general instance of causal efficacy, and thus the most difficult to clearly distinguish, is the procession of actual occasions. Perhaps another way of saying this is that it is the flow of time itself. It is the passing of the individual immediate past to present; it is to be discovered in the individual's expectation of proceeding to the immediate future. Whitehead stressed that when we seek this evidence we should not consider memories of yesterday, or even a few minutes ago. We ought to focus our attention on the immediate past and present; on the fact that we are focusing on what we have intended to focus on. Barring unexpected interruptions, I am completing this sentence because I began it. "The overwhelming conformation of fact, in presentation, to antecedent settled fact is to be found here." (S, p.41) But, if Hume's account of experience be correct, there should be an impression of the habit of causality here in order for us to notice this continuity of past to present: ". . . the inhibition of thought and the vagueness of sense-data should be extremely unfavourable to the prominence of causal efficacy as an element of experience." (S, p. 42)

Causal efficacy should depend on sophisticated mental operations of sophisticated mental animals. But the facts present a different case. A flower errs less often than man when turning towards the light although its theoretical understanding of light and light detection is probably inferior. A happy little stone seldom veers from strict Newtonian causal laws. Even the proverbial billiard ball performs according to causal dicta. Whitehead states the case of the more sophisticated dog:

A dog anticipates the conformation of the immediate future to his present activity with the same certainty as a human being. When it comes to calculations and remote inferences, the dog fails. But the dog never acts as though the immediate future were irrelevant to the present. Irresolution in action arises from consciousness of a somewhat distant relevant future, combined with inability to evaluate its precise type. If we were not conscious of relevance, why is there irresolution in a sudden crisis. (S, p. 42)

Two important points may be noticed from a consideration of the preceding quotation. First, Whitehead suggests that error becomes a possibility only because of our "consciousness of a somewhat distant relevant future combined with an inability to evaluate its precise type". Only beings which employ symbolic reference may err. Simpler beings are always correct in being aware that something happens, but their lack of complexity (that is, access to presentational immediacy) prohibits them from knowing what it is that happens. Beings without an awareness of causal efficacy are vividly presented with images, or sense data, but they cannot discern

the imaginary from the real, memory from present perception. They know what happens but not that it happens. Whitehead comments concerning these simpler entities:

... the reason why low-grade purely physical organisms cannot make mistakes is not primarily their absence of thought, but their absence of Presentational Immediacy... In short, truth and error dwell in the world by reason of synthesis: every actual thing is synthetic: and symbolic reference is one primitive form of synthetic activity whereby what is actual arises from its given phases.  
(S, pp. 20-21)

In further support of this Hans Jonas suggests entities roughly the order of magnitude of light would not have perception (at least as we know it) but would live in a world of incidences and forces. (Cf. PoL, p. 29) For Jonas, presentational immediacy, afforded through visual perception, gives essences and presences to our world. For Whitehead the synthesis of presentational immediacy and causal efficacy, or symbolic reference, is the activity which allows men to know what their world is, but also it is the activity which, wrongly interpreted, can set the stage for error. Without presentational immediacy there would be no error or truth. As Artemus Ward puts it: "It ain't so much the things we don't know that get us into trouble. It's the things we know that ain't so."

Whitehead describes other sorts of instances of causal efficacy as the feelings we have of our bodily functionings,

This includes both primitive visceral feelings and the extraordinarily common feelings we have of our body's integral activity in sensory experience. Such experience is so common that it is only when our body malfunctions that we notice it. Normally, seeing is effortless; if I have eye-strain, I become aware of my eyes' part in the activity of seeing. I am not aware of my throat until it's sore. As before, such evidence, being extremely general, runs the risk of being overlooked if one is employing the 'method of difference.' Also, my enthusiasm for conducting a philosophical inquiry into body functioning is severely dampened by sore throats and the usual remedies.

Whitehead suggests that were we more aware of our body's functionings through attention to causal efficacy we would realize that our body constitutes our own most immediate environment. Many of our intense emotional states are cited as examples of causal efficacy:

Anger, hatred, fear, terror, attraction, love, hunger, eagerness, massive enjoyment, are feelings and emotions closely entwined with the primitive functioning of 'retreat from' and 'expansion towards.' They arise in the higher organism as states due to a vivid apprehension that some such primitive mode of functioning is dominating the organism. But 'retreat from' and 'expansion towards', divested of any detailed spatial discrimination, are merely reactions to the way externality is impressing on us its own character. You cannot retreat from mere 'subjectivity', for subjectivity is what we carry with us. Normally, we have almost negligible sense perception of the interior organs of our bodies.

(S, p. 45)

Note the use of 'normally' in the final sentence of the quotation. This supports my suggestion that the 'method of difference' must be carefully employed when looking for examples of causal efficacy in our bodily functionings. These feelings and emotions are not examples of pure causal efficacy. Such experiences are probably denied to beings at our sophisticated level of organization. Whitehead's account of experience as a synthesis between presentational immediacy and causal efficacy takes on new explanatory power. We must remember Hume's difficulties when he claimed that such feelings or emotions are habits. A feeling is not a habit!

The data presented by causal efficacy appear vague and indistinct compared to those of presentational immediacy:

But there are exceptions to this geometrical indistinctness of causal efficacy. In the first place, the separation of the potential extensive scheme into past and future lies with the mode of causal efficacy and not with that of presentational immediacy. The mathematical measurements, derivable from the latter, are indifferent to this distinction; whereas the physical theory, expressed in terms of the former is wholly concerned with it. In the next place, the animal body of the percipient is a region for which causal efficacy acquires some accuracy in its distinction of regions -- not all the distinctiveness of the other mode, but sufficient to allow important identifications. For example, we see with our eyes, we taste with our palates, we touch with our hands, &c.: Here the causal efficacy defines regions which are identified with themselves as perceived with greater distinctness by the other mode. To take one example, the slight eye-strain in the act of sight is an instance of regional definition by presentational im-

mediacy. But in itself it is no more to be correlated with projected sight than is a contemporary stomach-ache, or throb in the foot. The obvious correlation of the eye-strain with sight arises from the perception, in the other mode, of the eye as efficacious in sight.

(PR, p. 258)

The phrase 'with the eyes, ears, toes, knees, &c.' which Hume took to be merely a convenient linguistic convention, becomes for Whitehead a clue pointing towards what shall become a fundamental feature of his philosophic scheme.

Thus our best instance of causal efficacy is to be found in the integrity of our own lives. Rather than hypothesizing a substance which undergoes qualifications, Whitehead focuses on the individual occasion of experience and finds there a genetic relation between occasions. The present occasion has the past as its immediate datum to work with. Causal efficacy is the mode in which genetic heritage is passed on; it accounts for the continuity of our life, our personal identity. With this aspect of causal efficacy Whitehead has an account which can deal with the internal incoherence of the 'solipsism of the present moment.' But another aspect of causal efficacy provides us with direct, though by the standards of presentational immediacy, vague and inarticulate, awareness of our body's essential part in our experience. Our sensory experience, albeit presented immediately, is presented because of



of our bodies. <sup>16</sup> We see an image with our eyes. With this aspect of causal efficacy we are put into a world, and causally integrated with it. This side of the experience, causal efficacy, dissolves the external incoherence of the 'solipsism of the present moment.'

What Whitehead's 'discovery' of causal efficacy has accomplished is to suggest a rational and coherent way of accounting for man's quite basic experiences of being a personal being, and of being an integral part of a 'world'. He accomplishes this by investigating all forms of experiences and by asking crucial questions concerning the model which had hitherto been employed for accounting for experience. The necessary activity of abstraction was discovered to be the cause of many of the problems Whitehead discovered in the philosophies of other men. Human presumption which considers human thought to be the organizing 'blue-print' for the cosmos had reversed the actual situation.

The world, given in sense-presentation, is not the aboriginal experience of the lower organisms, later to be sophisticated by the inference of causal efficacy. The contrary is the case. First the causal side of experience is dominating, then the sense-presentation gains in subtlety. Then mutual symbolic reference is finally purged by the consciousness and the critical reason with the aid of a pragmatic appeal to the consequences.

(S, p. 49)

## CONCLUSION

I have attempted to present the general arguments in Whitehead's critique of the Humean philosophical endeavor. To some extent I have been unfair in presenting only the negative aspects of Whitehead's critique. Whitehead's admiration for Hume's genius permeates the entire Whiteheadian corpus. In view of this I venture to suggest that one might consider Whitehead to be carrying on a dialogue with Hume, unfortunately one from which the interlocutor was absent. Hume was chosen, I suspect, because Whitehead believed his was the clearest exposition of both the sensationalist position, and the inevitable ramifications of holding any position which is based, either explicitly or implicitly, on the pervasive abstractions of this position. Whitehead makes it clear that he considers modern philosophy to be the progeny of the fundamental abstractive system initially presented by Descartes and ultimately reduced to absurdity by Hume. Of the 'general presentation' of Descartes, Newton, Locke, Hume, and Kant, Whitehead writes: "These philosophers were perplexed by the inconsistent presuppositions underlying their inherited modes of expression." (PR, p. vi) These 'inconsistent presuppositions' constituted various aspects of the primordial abstractions with which modern philosophy has chosen to conduct its investigations. Whitehead's initial philosophic endeavor was to expose these abstractions as abstractions and to define their

limits. But philosophy must do more! It is not enough to expose inadequacies and incoherence.

Whitehead gives a brief, profound definition of philosophy at the beginning of *PROCESS AND REALITY*. He writes: "Speculative Philosophy is the endeavor to frame a coherent, logical, necessary system of general terms in which every element of our experience can be interpreted." (PR, p. 4) I have discussed the relation of 'coherence' to 'abstraction' in Sections I and II of this essay. The word 'every' is Whitehead's plea for an 'adequate' philosophical scheme. It should be clear that this essay is not an instance of speculative philosophy. I have not offered a scheme, born out of the dialectical interplay with other philosophers, which "unflinchingly explores the interpretation of experience in terms of that scheme." (PR, p. x)

In view of this pusillanimous lack of constructive philosophy I offer the following mitigating excuses. Whitehead claims that his philosophic meditations have left four strong impressions which dominate his mind. The first is:

...that the movement of historical, and philosophical, criticism of detached questions, which on the whole has dominated the last two centuries, has done its work, and requires to be supplemented by a more sustained effort of constructive thought. (PR, p. x)

To some extent it has been the intent of this essay to focus

on the main features of Whitehead's criticisms of the critical philosophers and the critical philosophies in order to understand the bases of the Whiteheadian alternative. The third 'impression' is:

...that all constructive thought on the various special topics of scientific interest, is dominated by some such scheme, unacknowledged, but no less influential in guiding the imagination. The importance of philosophy lies in its sustained effort to make such schemes explicit, and thereby capable of criticism and improvement. (PR, p. x)

The primary intent of this essay has been to explore one such 'unacknowledged scheme' using Whitehead as a guide. I have hoped to discover the conceptual parameters of the 'sensationalist doctrine', a philosophical conception which I have tried to show is based on visual experience.

We must now take stock of our position. Whitehead has a positive doctrine which must be considered and subjected to the same rigorous scrutiny to which he has subjected Hume's doctrines. Whitehead has also made a suggestion about the activity of philosophers. Philosophers must partake of a dual activity. They must be critics of abstractions. But they must also be creators of new and better abstractions. I have deliberately confused the words 'abstraction', 'model', 'analogy', 'paradigm', and 'metaphor' throughout this essay in order to allow philosophers a hitherto unsolicited alliance.

Philosophers are critics of abstractions yet they must also create new and better abstractions, more adequate and more coherent conceptual systems. Philosophers may learn much from those whose task it is to create metaphors, analogies and new ways of seeing the world. Poets and philosophers must complement each other. Whitehead expresses this close relationship as follows:

Philosophy is akin to poetry, and both of them seek to express that ultimate good sense which we term civilization. In each case there is reference to form beyond the direct meanings of words. Poetry allies itself to metre, philosophy to mathematical pattern. (MOT, p. 174)

We must alternate between creating metaphors and abstractions, and criticizing them. We must remember that at the bottom of all thought lies abstraction, necessary yet restricting. Philosophy is the activity of ever increasing the quality of our basic abstractions.

It might seem that the case I have presented is a bleak one, rather like the endless task of Sisyphus with his rock. How does one live with the everpresent thought deep in the back of his mind that no matter what abstraction, no matter how beautiful and apt a metaphor one creates, it is still merely a finite, limited attempt at an infinite cosmos? This possible despair never seemed to have threatened Whitehead. I suggest that the reason is one which hearkens back to the

two foremost philosophers of the western tradition. Both Plato and Aristotle stated that philosophy begins in wonder. Whitehead, in affirming this statement, guarantees freedom from fear and despair.

Philosophy begins in wonder. And, at the end, when philosophic thought has done its best, the wonder remains. There have been added, however, some grasp of the immensity of things, some purification of emotions, by the understanding. Yet there is a danger in such reflections. An immediate good is apt to be thought of in the degenerate form of a passive enjoyment. Existence is activity ever merging into the future. The aim at philosophic understanding is the aim at piercing the blindness of activity in respect to its transcendent functions. (MOT, pp. 168-169).

## FOOTNOTES

1. I might also cite Hans Jonas for additional support of Whitehead's audacious 'confusion of Hume and Kant:

Hume has shown that 'causation' is not found among the contents of sense perception. This is incontrovertible so long as 'perception' is understood, with Hume, as mere receptivity that registers the incoming data of sensation. This is how Kant understood it when he accepted Hume's negative finding. And if, again, such passive perception is held, with both Hume and Kant, to be the only mode in which the outer world is originally 'given' -- so that even of our own bodily activity we only know by our receptivity, whose sequential data then have to be interpreted in terms of action -- then indeed causality must be some mental addition to the raw material of prime givenness; and the difference of doctrine concerns only the source and nature of that addition. Hume saw it in the habit of association (itself passive on the part of the subject), Kant in the structuring by the understanding ('active' to be sure, but in strict mental immanence.) (THE PHENOMENON OF LIFE, P. 23.)

The justification for such a confusion is one of the goals of this essay.

2. There is much scholarly debate concerning whether Hume meant the arguments of the TREATISE to deal such a decisive blow to experimental science. I cannot but agree with Whitehead's conclusions, particularly when confronted by Hume's alledged ABSTRACT. His words; "It follows then, that all reasonings concerning cause and effect, are founded on experience, and that all reasonings from experience are founded on the supposition, that the course of nature will continue uniformly the same. We conclude, that like causes, in like circumstances, will always produce like effects. It may be worth while to consider what determines us to form a conclusion of such importance." (A, pp. 14-15) Whitehead's intuition concerning Hume's understanding of his conclusions concerning experimental science seems especially sound when we consider that both PROCESS AND REALITY and SCIENCE AND THE MODERN WORLD were both published prior to the discovery of the ABSTRACT.
3. With respect to this 'obstinate belief' which Whitehead points to, one might consider the whole of Robert Anderson's HUME'S FIRST PRINCIPLES (University of Nebraska Press, 1966) as a sustained polemic stressing the subtle but certainly strong materialistic bias of Hume. Anderson's thesis that Hume conceived the universe to be made of atoms of the Newtonian variety will surface as an interesting corollary of the 'visual predjudice.'

4. A modern Humean, Bertrand Russell, tries to affirm both the incomprehensibility 'of the notion of cause' and the legitimacy of varying experimental conditions. In other words, there can be no rational knowledge of causes, yet experimental science is rationally justified in modifying experimental conditions as a technique. I find Russell's argument incomprehensible. (See Russell, B., "On the Notion of Cause," MYSTICISM AND LOGIC (1963).
5. Concerning this 'inconsistency' I find myself in agreement with David Pears that the two principles are consistent and it is these two principles, taken with the 'fact' of personal identity that causes the inconsistency. Pears also concludes that the crucial problem for Hume revolves around Hume's analysis of memory. Here Pears suggests that Hume's neglect of the body brought him to grief. At this juncture I part company with Pears. Whitehead's explanation will be to affirm the second alternative that Hume offers, i.e., to find some real connexion between perceptions. Cf. Pears, David, "Hume's Account of Personal Identity" in QUESTIONS IN THE PHILOSOPHY OF MIND, (Duckworth, London, 1975.) PP. 207, 215, 220.
6. Again See Robert Anderson's HUME'S FIRST PRINCIPLES and the early pages of Section I, this essay.
7. The information on which this etymological excursion is based is to be found in: THE OXFORD ENGLISH DICTIONARY, A CONCISE ETYMOLOGICAL DICTIONARY OF LATIN, DICTIONNAIRE ETYMOLOGIQUE DE LA LANGUE GREQUE, and A GREEK-ENGLISH LEXICON. See bibliography for publishers' information.
8. Here we should remember the etymologically radical meaning of 'decide': it derives from the Latin *de-* = 'away' and *caedere* = 'to chop, beat, fell, slay, or cut.' As with the word 'abstraction' I suggest we keep in mind the violent sense of this activity of 'cutting away.' (Cf. A CONCISE ETYMOLOGICAL DICTIONARY OF LATIN, pp. 39 and 75.)
9. The preceding paragraph is another way of discussing the fundamental principle of Heisenberg's Uncertainty Principle. We cannot measure (observe) quantum sized entities without influencing them. Heisenberg discovered the ultimate experimental ramifications of taking the visual metaphor to be the model of the scientist's activities of observation and measurement.



10. This fact is basically the same insight that Gilbert Ryle formulated in the chapter on "Self Knowledge" in THE CONCEPT OF MIND. Of course, what he learned from this discovery is radically different from what Whitehead learned.
11. Much must be considered concerning the active element in the generation of the tactile object; the active element in touch is intimately related to the elemental relation with the Other in the concept of force. Cf. Macmurray, THE SELF AS AGENT, ch. V. Hume was aware of the difficulties that the 'idea' of nisus posed for him. (Cf. FIRST ENQUIRY, p. 67) Unfortunately his depiction of 'ideas' prohibits his adequate dealing with nisus. Berkeley is in the same boat when he rightly points out that three dimensional space is given through a complex integration of eye 'ideas' and eye-muscle 'ideas'; but his characterizing the awareness of the proprioceptive activity of the eye-muscles as 'sensation' prohibits him from drawing the appropriate conclusions. Cf. A NEW THEORY OF VISION, p. 106.
12. Perhaps this is a parameter prescribed by Indo-European languages. On this point I am reminded of Parmenides' technique in Plato's dialogue where he takes antithetical propositions and develops both; I take this to be pointing to the essential 'elemental' or 'correlative' relationship of BEING and NON-BEING, which finds its most popular formulation in that exceedingly narrow abstraction, the 'law' of contradiction.
13. I am reminded here of Gulliver's perceptions in Lilliput and Brobdingnag. Swift's device (perhaps a subtle satire of Newton's 'microscope') of significantly altering Gulliver's frames of reference with regard to human magnitude turns on this 'vista' feature which Jonas is pointing to. Allan Bloom, in an unpublished essay entitled "Gulliver's Travels" comments on Gulliver's experience with the Lilliputians: "That they all see with great exactness but at no great distance", they suffer from a loss of perspective. It's not their fault; that's the way they are built." (p. 4)
14. The possibility that there might be direct awareness of 'speed intensity', that is, knowledge of an object's velocity without the unconscious geometricizing of the situation into distance over time, is intriguing. I have just been directed to evidence suggesting an entirely different account of distance-movement determination in visual activity in M.T. Turvey's "Contrasting Orientations to the

Theory of Visual Information Processing" in PSYCHOLOGICAL REVIEW, v. 84, # 1. Unfortunately my acquaintance with this article has been so short that the required gestation period has not transpired. At this time, I suspect that were one to adopt Turvey's suggestions for a reformation of 'visual-theory' Whitehead's case would be strengthened.

15. With regard to 'infinity' it is interesting to compare Jonas' demonstration of the integral relation between distance-infinity-potentiality-actuality and Husserl's use of the definitely visual 'image', horizon in order to indicate the eidetic nexus of objects. If anything, Husserl was more of a slave to visual imagery than Hume. Cf. CARTESIAN MEDITATIONS, II, III.
16. I find intriguing similarities of views between Whitehead's censure of Hume's neglect of the body -- "...the animal body is the great central ground underlying all symbolic reference." (PR, p. 258) and a recent book on Hume by James Noxon, HUME'S PHILOSOPHICAL DEVELOPMENT. In Part IV, Section I, "The Trouble with Dualism", Professor Noxon argues virtually the same point.

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