

## DEWEY'S METAPHYSICS AND THE PRINCIPLE OF CONTINUITY

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At the beginning of *Experience and Nature* Dewey worries that his effort to present a coherent, comprehensive account of empirical naturalism (or "naturalistic humanism") will sound to many like presenting a philosophy of round squareness.<sup>1</sup> He was right. The immediate critical reaction to the book by such astute minds as Santayana, Cohen, and Hocking agreed that Dewey had produced a round square (though they disagreed whether he should have produced a square or a circle).<sup>2</sup> Criticism and misunderstanding hounded Dewey so that by the Forties he abjured both the terms of "experience" and "metaphysics" and planned to retitling the book *Nature and Culture*.<sup>3</sup> In the Sixties the debate continued among such capable Dewey scholars as John Smith, Richard Bernstein, Gail Kennedy, Gary Brodsky, and Richard Rorty.<sup>4</sup> While Smith and Rorty are critical, and Kennedy and Brodsky supportive of Dewey's naturalism, Bernstein presents us with the case of someone who first defended Dewey, but later deeply reconsidered the matter. Clearly, if there is something not totally inconsistent about Dewey's position, at least there is something difficult to comprehend. It is my hope in this paper to attempt to clarify the problematic ambiguity detected by Dewey's critics and then to focus on a relatively neglected idea of Dewey's, the "principle of continuity," which I believe largely clears the matter up in Dewey's favor. Finally, I wish to suggest how Dewey's principle of continuity reintroduces certain Aristotelian themes, namely the idea of potentiality, into the philosophy of nature.

First, I would like to examine in detail the criticisms levelled at *Experience and Nature*. When Santayana reviewed the book, he commented that Dewey's "near-sighted sincerity" to human problems had made him exaggerate the "dominance of the foreground" in experience. "In nature," said Santayana, there is no foreground or background. . . . The immediate experience of things far from being fundamental in nature, is only a dream which accompanies our action, as other dreams accompany our sleep." Santayana disdainfully sees such an attitude as a "boyish universe," pervaded by Americanism and the "spirit of enterprise," which articulates the "dumb and instinctive" pragmatism of an optimistic "business intellect." Dewey's naturalism "is the specious kind of naturalism possible also to such idealists as Emerson, Schelling, or any Hegelian of the Left. . .," and "The pragmatist becomes...a

naturalist only by accident. . . . The immediacy of experience, that "luminous fog," might be a blessing, he adds, but should not be "a criterion of reality." Instead of a rigorous naturalism or a strict epiphenomenal behaviorism, Dewey tried "to graft something consciously actual and spiritual upon the natural world. . . ." an idea, Santayana observes, which Dewey must have got from "the sympathetic study he has made of Aristotle."<sup>5</sup>

Morris Cohen essentially repeated this criticism, stating that Dewey was "emphasizing the things nearest to him" and was "denying the existence of things that are not in his field of interest"; so saying, Cohen rechristened Dewey's philosophy as "anthropocentric naturalism." "Dewey is so intent on proving everything human is natural," said Cohen, "that at times he seems to drift into the converse view that all nature or existence can be described in the categories of human experience. . . . He seems to think that the invocation of the principle of continuity settles the matter." "Can Dewey whole-heartedly accept the principle of physical determinism?" asks Cohen: No, he cannot is the answer, and so Dewey breaks the link between nature and experience which he wished to establish.

William Ernest Hocking, speaking from the idealist camp, also saw Dewey's main problem as "the relation between experience and reality." Dewey's effort to solve this by "ascribing to Nature a plenum of qualities commonly regarded as mental" was actually a step backward from Cartesian dualism. Only after we realize that nature is "a realm of being, empty of life, impersonal and desiccated," and acknowledge "the existence of a realm of the meaninglessness," can we make "a radical step toward an idealist interpretation of reality." "Thus the scandal of bifurcation," concludes Hocking, "is only genuinely repaired by a type of objective idealism. . . ."

The problem was put most succinctly in the Forties by Sholom Kahn.

For Dewey. . . experience occurs within a framework of "nature," which is a realm of "experience" composed of "events," . . . but the universe he pictures is one in which "experience" bulks large. . . . By Dewey's own familiar statement, "metphysics is cognizance of the generic traits of existence." Thus the distinctively metaphysical problem persists: What is the relationship between experience and existence in Dewey's naturalistic metphysics?

Dewey's metphysics is in danger of committing the "romantic

fallacy" of exaggeration of the ego and reducing all existence to experience. But, says Kahn, there is an alternative solution: experience and nature "might be treated as somehow related, describable in the same terms with one including the other, perhaps as the potential includes the actual." "Existence" thus would stand for "a realm of possibility which experience makes actual for us," or "a kind of ideal limit toward which experience is striving." Kahn, in fact, uses a number of passages from Dewey which acknowledge such a realm of potentiality in nature, though he also points out that in *Logic: The Theory of Inquiry*. Dewey takes an anti-metaphysical interpretation of such ideas, which are said there to be purely functional and descriptive, opening the problem of "a possible split in Dewey's thought between logic and metaphysics."<sup>8</sup> This last point has received substantial scholarly attention from Raymond Boisvert's superb analysis of Dewey's metaphysics.<sup>9</sup>

I will only briefly summarize the discussion since Kahn's article. In response to an article by John Smith, which, like Santayana's, accused Dewey of being too caught up in the immediate so that "nature turns out to be most human affair,"<sup>10</sup> Richard Bernstein offered a most able clarification and defense of the Deweyan perspective. Bernstein even acknowledged the Aristotelian methodology behind Dewey's central concern for the generic traits, while admitting that "Dewey's theory of experience and nature is tangled and sprawling." "Nature," argued Bernstein, "for Dewey designates various levels of transaction which may be discriminated by their different patterns of behavior and the unique qualities they manifest." "Only two years later, Bernstein was having second thoughts. Focusing on Dewey's theory of qualitative immediacy, Bernstein claimed to find "a fundamental ambiguity in Dewey's philosophy between what we may call the phenomenological and metaphysical strains, an ambiguity which he never successfully resolved." There is consequently "a deep crack, a basic discontinuity, that cuts through his naturalism." The familiar criticism is raised: "Dewey claimed as much for experience that it became increasingly difficult to see what was *not* experience. . . ." Dewey's view lacked Secondness, that is, a sense of nature as a brute limitation of experience. Dewey "glibly passes from experience to nature" simply on the claim that "experience is continuous with the rest of nature. . . ." Dewey, concludes Bernstein, instead of rejecting idealism, was merely "serving it up another form." In his book on Dewey, Bernstein repeats the charge, adding, "The difficulties can be seen in what is undoubtedly the most fundamental principle in Dewey—the principle of continuity." But, alas, instead of trying to analyze what Dewey meant by this concept, or what might be

implied by it, Bernstein simply concludes it only has an "emotive" meaning, not a "descriptive" one. The idealist-phenomenological and the realist-metaphysical strains are not not united in his thought, but held together in an "unholy alliance."<sup>14</sup>

Bernstein's view has been less ably echoed by Richard Rorty's attempt to cut the systematic, metaphysical part of Dewey's philosophy off, to save the "anti-foundationalist" or "critical" side. Dewey's mistake lay in trying to traverse the lines between Lockean "physiology" and Hegelian "sociology" (Rorty's terms), gluing these separate domains together with the dubious term "body-mind."<sup>15</sup> Rorty's paper has provoked a number of well-aimed rejoinders, far more than Bernstein's. It is interesting, though, that in replying to Bernstein, Gail Kennedy observed that the troublesome "inherent qualities" of Dewey's transactions are "potentialities" outside of human experience. More precisely, "there is a difference between qualities occurring on different levels of interaction. With each increasingly complex level *new* qualities appear,—he would call them 'emergents,' Dewey says, 'were it not for ambiguities in the notion.'"<sup>16</sup> Another respondent, Garry Brodsky, tried to show that Dewey's principle of continuity, aside from being neither reductionistic nor dialectical, is designed to prevent our distinctions from being erected into dualisms. But while Brodsky considerably elucidated the senses in which "experience" incorporate nature for Dewey, he tended to ignore the principle of continuity as a metaphysical issue.

The upshot of these criticisms is that Dewey seems to present us with a quasi-idealistic theory of nature because he ascribes such human traits to events as quality, doubtfulness, history, etc. More precisely, if we arrive at the generic traits of nature, of existence *qua* existence, through experience, how do we know they provide any basis for understanding nature (or existence) as it is outside of experience, as it is in itself? How is a "naturalistic metaphysics" even *possible*? Dewey justified such claims by his "principle of continuity." But this principle remains a dark saying in Dewey's writings, and his commentators tend to bypass it. There are suggestive allusions to Aristotle's doctrine of potentiality made not only by Dewey's interpreters but by Dewey himself as a means of elucidating the principle of continuity. It is to the analysis of this concept I now turn.

First, it is important to examine Dewey's own response to these criticisms, Dewey sharply criticized Santayana for "kneeling before the unknowable," adding, "In short, his presupposition is a break between nature and man. . . . The former is real, substantial; the latter specious, deceptive, since it has centers and perspectives." "To anyone who takes seriously the notion of thoroughgoing continuity," he continued, "the idea of existence. . . without

perspectival arrangements is not only incredible, but is a hang-over of an intellectual convention which. . . flourished in physics at a particular stage in history." Santayana rejects experience because he views it as a deceptive veil; for Dewey, "the foreground. . . conducts our thought to the background" because "the foreground is itself a portion of nature."<sup>17</sup> Knowledge of nature arises from experience, but, as John Jardine put it, "The experience of nature is not identical with it. . . ." Dewey acknowledges "the circular movement involved" of experience arising from nature and leading back to it, but sees nothing strange in it. What is strange is the dead-end view of experience Santayana takes, "a view that seems to me," said Dewey, "to involve a complete abandonment of the professed naturalistic standpoint."<sup>19</sup>

The theme of continuity arises in Dewey's response to Cohen and Hocking, "Nature in Experience." Dewey there repeats his emphasis on the importance of his perspectivalism and the circularity of the experience-nature relation. Likewise, Dewey re-emphasizes the difference between regarding experience as "something superimposed and alien" and as "a road into the natural world. . . ." This difference reflects a fundamental alternative in both metaphysical presuppositions and philosophical methodology: one operates either with a commitment to the principle of continuity or to the principle of discontinuity. This is Dewey's "either/or." The argument for the principle of continuity is that it opens the path of inquiry and provides a basis for the integration of human activities and meanings in the world; the principle of discontinuity, on the other hand, merely sets up as absolute fundamental distinctions which render everything mysterious and fragmented. "At all events," Dewey says, "a fundamental question is raised. Is experience itself natural, a doing or manifestation of nature?" The clue for Dewey lay in a theory of nature in which "growth, development, [or] history is taken to be primary."<sup>20</sup>

Replying to Sholom Kahn, Dewey reiterated that the question of whether there is any existence beyond experience translates better as whether there is any existence beyond the *reach* of experience: and the answer is a qualified "No." It depends on the tools of experience at hand, like microscopes or cyclotrons as well as physical organs like eyes and nervous systems, and social organizations and traditions like research institutes or methodologies of experimental inquiry. This is not meant to be a glib response to a serious philosophical problem. What alternative answer is there? Pure intuition, telepathy, oracles? Dewey believed his answer was the only sane one—and the only one which explained why nature so grudgingly, slowly, and parsimoniously yields her secrets.<sup>21</sup> But Dewey points to what the real problem is: the use of the terms "metaphysics" and "experience." Metaphysics,

for Dewey, is not the quest for a reality hidden behind appearances which provides an absolute, unwavering standard for making judgments. It is not the uncovering of "the real fact," as Dewey had put it during his idealist days.<sup>22</sup> It is simply the quest for the "generic traits of nature," those omnipresent features of nature encountered in any and every situation. Metaphysics is a descriptive science, as Dewey stressed, stipulating that such an enterprise "at least has the sanction of the historical designation given to Aristotle's consideration of existence as existence."<sup>23</sup> Instead of seeking ultimate "causes," the job of the sciences, "metaphysics would raise the question of the sort of world which has... evolution. . . ."<sup>24</sup> Such a world is one which consists of a plurality of processes, developments, histories, which give rise over time to more complex and qualitatively distinct modes of interaction, and finally which gives rise to experience and inquiry itself. In short, it is a world where the principle of continuity operates.

It is true Dewey came to reject the term "metaphysics" because he could not dislocate the old meaning, though he said "I still believe that which they [the words "metaphysics" and "metaphysical"] were used to name is genuine and important." Dewey similarly verged on abandoning the term "experience"; "culture," he thought would denote the material and social conditions of intelligence better. "Experience," as the critics of Dewey illustrates, could not be liberated so easily from signifying the immediate data of consciousness, the "mind's contents," in spite of Dewey's Herculean labors (which included rewriting the first chapter of *Experience and Nature*). Dewey's examples of the planted field, the sown seeds, the reaped harvest, the breeding of animals, the discoveries of a geologist, the whole spectrum of human life with its poetry, hopes, fears, joys, history, and traditions escaped the notice of most readers who painfully translated all these into sensations. Experience for Dewey denoted the processes of nature clothed and civilized with meaning and value, tamed and guided toward ends which fulfilled goods--or which tragically failed. As Dewey said in his unpublished reintroduction to *Experience and Nature*, "Thus to see and grasp experience it is necessary to overcome the cultivated inability to see what is to be seen in the continuities displayed by what is in process and only by what is in process."<sup>25</sup> In this sense, then, metaphysics is but an art of experience co-operating with nature.

Continuity is a fundamental concept in Dewey's enterprise because it explains both his theory of nature, and of experience and links the two together. It is the key to his methodology, his aesthetics, his ethics, his social philosophy.<sup>26</sup> It is, unfortunately, never rigorously analyzed by Dewey, though *Experience and*

*Nature* is a grand illustration of it in action. In *Logic: the Theory of Inquiry*, we find the following passage, which I quote at length:

The term 'naturalistic' has many meanings. As it is here employed it means, on the one side, that there is no breach of continuity between operations of inquiry and biological operations and physical operations. "Continuity" on the other side means that rational operations grow out of organic activities, without being identical with that from which they emerge. . . . The primary postulate of a naturalistic theory of logic is continuity of the lower (less complex) and the higher (more complex) activities and forms. The idea of continuity is not self-explanatory. But its meaning excludes complete rupture on the one side and mere repetition of identities on the other; it precludes the reduction of the "higher" to the "lower" just as it precludes complete breaks and gaps. The growth and development of any living organism from seed to maturity illustrates the meaning of continuity.<sup>27</sup>

If only Dewey's critics had pondered well this passage. Continuity for Dewey is the rejection of reductionism in any form as it is the rejection of erecting principles and distinctions into self-enclosed, autonomous entities. It is, in short, the concept of a process which brings forth a new, more complex and distinct order out of a material, a process which is *growth*. As Peirce himself said, "Once you have embraced the principle of continuity no kind of explanation of things will satisfy you expect that they *grew*."<sup>28</sup> Continuity, I maintain, thus involves the traditional Aristotelian ideas of potentiality and actuality, which give rise to functionally unified wholes. These wholes Dewey called "events" or "situations."

There is a world of difference between those philosophies which view nature (or "Being" or whatever) as fundamentally and essentially completed, as inherently "fact" (from "factum": something made or done and over with), and those which view it as in some ways inherently unfinished and incomplete. By and large, western metaphysics has adhered to the former view, even when it has paid lip-service to the idea of potentiality. Potentiality in this case is understood as a latent "power" which is predetermined in the course of time to "unfold" itself according to a universal law. Such is the concept of potentiality we find in the Stoics, St. Augustine, the majority of the medievals, Hobbes,

Locke, Leibniz, and Hegel. Potentiality, on the other view, is an irreducible feature of the world, a "generic trait" if you will. Here we include Plato, Aristotle, Peirce, Whitehead, Mead and Dewey. There is a radically indeterminate feature of existence, here, which does not reflect some hidden law or reason at work. More significantly, this feature accounts for the reality of time, that is, for the reality of those processes of the world which constitute time. The modern period, significantly, struggled to understand continuity in terms of an actual infinite, but has grudgingly come around to recognizing the need of the concept of potentiality in its Aristotelian sense, Peirce being a case in point.<sup>29</sup>

Continuity clearly involves the notion of a unity and a plurality, identity and difference, or, better, whole and parts. This is evident in Aristotle's criticism that sheer unity is not a continuum and his statement that "it is clear that continuity belongs to those things out of whose mutual contact a unity naturally arises. And the whole is a unity in the same way in which the continuous is a unity, whether by having been nailed or glued or mixed or having grown together."<sup>30</sup> The whole is not constituted of its elements (as an infinite number of points do not constitute a line), though such elements may be incorporated within it and potentially discriminated. But to resolve a whole into its separable parts is to lose that integrated unity which makes it continuous, whether it be dividing a line at a point or removing the heart from an animal. At such a time, Aristotle would say, "destruction" (*phthora*) has occurred and the form which imposed the unity on the plurality vanishes.<sup>31</sup>

Again with Aristotle, any process involves the idea of continuity, and this, in turn, requires the idea of potentiality as well as actuality. As Abraham Edel puts it, "Aristotle's basic metaphysical concept that ensures continuity is potentiality (*dunamis*)." Potentiality involves the indeterminate feature of the world to act or be acted upon in a certain number of ways, or in Professor Edel's term, "readinesses" in a situation." The realization of these readinesses, or dispositions to action, in one direction or another involves, continues Edel, "a situational or transactional character. . . ."<sup>32</sup> Though he is speaking of Aristotle, Edel's terms are intentionally Deweyan. Without the doctrine of potentiality, change or process is impossible, not to mention an evolutionary view of nature, as Peirce so well argues.

Did Dewey accept this doctrine? Yes, he did. In a late article, "Time and Individuality," Dewey explicitly acknowledges the role of potentiality, connecting it, as did Aristotle, to the reality of individuals and time. For Dewey, "the principle of developing careers applies to all things in nature. . . ."

The idea of development applied to nature involves differences of forms and qualities as surely as it rules out breaches of continuity. . . . Positively, it is implied that potentiality is a category of existence. . . . But it also means that these powers are not unfolded from within, but are called out through interaction with other things.

Thus, "potentialities must be thought of in terms of consequences of interactions with other things. Hence potentialities cannot be *known* until *after* the interactions have occurred." This, for Dewey, points to the element of radical novelty and individuality in existence insofar as "temporal quality and historical career are a mark of everything, including atomic elements, to which individuality may be attributed."<sup>34</sup> There is for Dewey a genuine creativity to the processes of nature.

How does this affect Dewey's problem of the relation of experience to nature? In *Experience and Nature*, Dewey marks off three "plateaus" of existence: the physical, the psycho-physical (or organic), and the mental (that is, the level of meaning and value reflected in social experience).<sup>35</sup> Each of these reflects a level of complexity and organization where uniquely novel features arise out of and incorporate the former. Dewey was attempting, he said, to frame "an 'emergent' theory of mind," but strongly asserted that this was not to be understood as reading traits of the higher levels back into those of the lower, as had Whitehead and Peirce. The doctrine of potentiality saved Dewey from the toils of "neutral monism" since it allowed for the emergence of genuinely novel features. Experience, in the full Deweyan sense, really was "in and of nature" without implying materialism or idealism. Experience might be a transformation of the biological and material world, but it was so in terms of ascribing meaning and value to that world, and making it play a role in the human world of desires, thoughts, and projects. If experience is the foreground of nature, then nature is such that it gives rise to organized fields of perspectives, which, in turn, are capable of giving an organized interpretation of the processes of nature.

But the question remains: How can a purely physical world give rise to consciousness and in what sense are the "generic traits," such as quality, true of "existence as existence"? As to the first, Dewey says that once we acknowledge potentiality or continuity as a principle the question loses its importance. We are simply presented with the fact that nature does give rise to consciousness under certain conditions. The nagging problem here is, I believe, the still powerful if tacit principle that something

ontologically "lower," like matter, cannot be the cause of something "higher," like mind. This assumption is as strong in Descartes as in classical thought.<sup>36</sup> Carried to its logical, democratic conclusions, as Dewey does, the principle of continuity overthrows this dogma. After all, it is just as mysterious how a lower reality proceeds from a higher one, though no one ever considered that belief intuitively false: it was a problem to be answered.

The second question, that of the universality of the generic traits, is likewise answerable. We encounter in our experience a focus of immediacy which we identify as "consciousness" or, more precisely, quality, a sheer *that* which is "undergone" or "had." Does this mean all existences have a qualitative aspect to them--is Dewey a naive realist or an animist? No: what Dewey is saying is that what is encountered as quality or consciousness in experience, on the "third plateau," is a highly developed form of a trait found also on the other levels. On the physical level we might designate it as the immediacy of present existence; on the biological level as the moment of stimulus-response coordination.<sup>37</sup> While there is a similarity, even identity, to these processes, there is also difference and novelty: in short, there is continuity, but no principle of reductionism and no principle of dualism. Though there is no space here, I believe such an interpretation could be carried out for Dewey's other generic traits.<sup>38</sup>

But what is the use of such an enterprise? If the traits are universal, are they trivial, empty, as Rorty states? Even the broadest trait, continuity, "in fact tells us nothing," as Thayer even says.<sup>39</sup> Dewey would agree: qua generic traits, such observations are pointless. But when related to the fallible paths of human inquiry or life in general, they become that "beginning of wisdom," which was the heart and goal of Dewey's philosophy.<sup>40</sup> They are the basis of criticism, evaluation, and intelligence itself because they prevent us from committing the fallacies of selective emphasis, reductionism, dualism, absolutism, and a host of others. There is no forced choice between the principle of continuity as a "metaphysical" or as a "regulative" principle, since it is both, and, in fact, is regulative because it is metaphysical. Is a hammer a physical object or a tool? It is both, and works as a tool because it works within the physical world.

To conclude, Dewey's principle of continuity provides a key to what Dewey meant by "experience" and "nature." It also provides a fruitful ground for developing a rich, human naturalism which doesn't succumb to materialism or positivism, a naturalism in the spirit of Aristotle and not a specious naturalism possible also to Lucretious, Hobbes, Spencer, or Santayana. I am reminded of a story. The late Herbert Schneider once recalled, "I tried to work

out a few pages on nature; he [Dewey] read it and the first thing he said was, 'You don't take nature philosophically enough.'<sup>41</sup> There is a great deal worth considering in that remark, especially when we are trying to understand what nature meant for Dewey.

## Notes

<sup>1</sup> *Experience and Nature*, 2nd edition (EN), p. 1a; *John Dewey: The Later Works: Volume 1 (LW1)*, p. 10.

<sup>2</sup> See George Santayana, "Dewey's Naturalistic Metaphysics," *Obiter Scripta*, edited by Justus Buchler and Benjamin Schwartz (New York: Charles Scribner's Sons, 1936), originally in *The Journal of Philosophy* XXII (1925); Morris Cohen, "Some Difficulties in Dewey's Anthropocentric Naturalism," *The Philosophical Review* XLIV (1940), pp. 196-228; William Ernest Hocking, "Dewey's Concepts of Experience and Nature," *Ibid.*, pp. 228-44. Sholom Kahn, "Experience and Existence in Dewey's Naturalistic Metaphysics," *Philosophy and Phenomenological Research* IX (1948), pp. 316-21.

<sup>3</sup> LW1:361 ff.

<sup>4</sup> See John Smith, "John Dewey: Philosopher of Experience," *The Review of Metaphysics* XIII (1959), pp. 60-77; Richard Bernstein, "Dewey's Naturalism," *Ibid.*, pp. 340-53, "John Dewey's Metaphysics of Experience," *The Journal of Philosophy* LVIII (1961), pp. 5-14; Gail Kennedy, "Comments on Professor Bernstein's Paper," *Ibid.*, pp. 14-21; Gary Brodsky, "Dewey on Experience and Nature," *The Monist* XLVIII (1964), pp. 366-81; Richard Rorty, "Dewey's Metaphysics" (1977) in *Consequences of Pragmatism* (Minneapolis: The University of Minnesota Press, 1982), pp. 72-89.

<sup>5</sup> Santayana, "Dewey's Naturalistic Metaphysics," pp. 213-40.

<sup>6</sup> Morris Cohen, "Some Difficulties in Dewey's Anthropocentric Naturalism," pp. 198-201. This article constitutes perhaps the best criticism of Dewey's philosophy of science.

<sup>7</sup> William Ernest Hocking, "Dewey's Concept of Experience and Nature," pp. 234-41.

<sup>8</sup> Sholom Kahn, "Experience and Existence in Dewey's Naturalistic Metaphysics," pp. 316-20.

<sup>9</sup> Raymond Boisvert, *Dewey Metaphysics* (City: Fordham Press forthcoming), Ch. VII:3 ff. Boisvert saves Dewey from inconsistency by distinguishing logic as methodology from the "logiscible" aspect of nature.

<sup>10</sup> John Smith, "John Dewey: Philosopher of Experience," p. 63.



- <sup>11</sup> Richard Bernstein, "Dewey's Naturalism," pp. 344-47.
- <sup>12</sup> Richard Bernstein, "John Dewey's Metaphysics of Experience," pp. 5-10.
- <sup>13</sup> Richard Bernstein, *John Dewey* (New York: Washington Square Press, 1968), p. 180.
- <sup>14</sup> Bernstein, "John Dewey's Metaphysics of Experience," p. 14.
- <sup>15</sup> Richard Rorty, "Dewey's Metaphysics," pp. 82-83.
- <sup>16</sup> Gail Kennedy, "Comments on Experience and Nature," pp. 5-9.
- <sup>17</sup> John Dewey, "Half Hearted Naturalism," *The Journal of Philosophy* XXIV (1924), pp. 57-64. See also his rejoinder to the same article in Schilpp, op.cit., pp. 530-34.
- <sup>18</sup> John G. Jardine, "Experience as Revelatory of Nature in Dewey's Metaphysical Methodology," *Tulane Studies in Philosophy* XXII (1973) pp. 38-50.
- <sup>19</sup> John Dewey, "Experience, Knowledge, and Value" in Schilpp, pp. 534, 531.
- <sup>20</sup> John Dewey, "Nature in Experiences" (1940) in *Experience, Nature, and Freedom*, ed. Richard Bernstein (Indianapolis: Bobbs-Merrill Co, Inc.), pp. 246-50. This article appeared with those of Cohen and Hocking.
- <sup>21</sup> John Dewey, "Experience and Existence: A Comment" *Philosophy and Phenomenological Research* IX (1949), pp. 709, 711 (reply to Kahn's article).
- <sup>22</sup> This idea crops up in most of Dewey's writings before 1896, but see the *Psychology of 1887 (Early Works of John Dewey, Vol. 2)*.
- <sup>23</sup> John Dewey, "The Subject-Matter of Metaphysical Inquiry" (1915) in *Experience, Nature, and Freedom*, p. 213. At this early stage, Dewey limits the generic traits to what are found by the sciences; later he broadens this to all human endeavors. See James Gouinlock's *John Dewey's Philosophy of Value*, p. 6.
- <sup>24</sup> Dewey, "Experience and Existence," p. 713.
- <sup>25</sup> LW1: 361 ff.
- <sup>26</sup> See H.S. Thayer's discussion in *Meaning and Action* (Indianapolis: Hackett Publishing Co., 1981), Appendix I, pp. 460-61. See also Dewey's introduction to the second edition of *Experience and Nature*.
- <sup>27</sup> *Logic: The Theory of Inquiry* (New York: Henry Holt & Co., 1938), pp. 18-19, p. 23.
- <sup>28</sup> Charles S. Peirce, *Collected Papers* I:175.
- <sup>29</sup> See Peirce's own wrestling with this problem from "The Law of Mind" to the discussion of potential aggregates (VI:185 ff.). See also the articles on "Continuity," "The Continuum Problem," and "Infinity in Mathematics and Logic" in *The*

*Encyclopedia of Philosophy*. Royce's supplement to *The World and Individual*, First Series, represents a strenuous effort to give the actual infinite sense. Aristotle's criticisms are found in Book III of the *Physics*.

<sup>30</sup> Aristotle, *Physics* 227 a 15-17 (Hope translation). See *Metaphysics* V, 1023 b 32 ff.

<sup>31</sup> Abraham Edel has well remarked that, "To choose continuity in one aspect is to find discontinuity coming up in another aspect," *Aristotle* (The University of North Carolina Press, 1982), p. 78. This would imply that Dewey should have a principle of discontinuity (which Edel sees in Aristotle's doctrine of forms). Certainly the forms are in principle different, but they are related in an order, so that they are not discontinuous absolutely. That Dewey did have a semi-Aristotelian theory of forms has been forcefully and brilliantly put forth by Raymond Boisvert in *Dewey's Metaphysics*.

<sup>32</sup> Edel, pp. 82-84: see *Physics* III:3.

<sup>33</sup> See Peirce's significant article, "The Doctrine of Necessity Examined" (1892) *Collected Papers*, VI: 35 ff.

<sup>34</sup> John Dewey, "Time and Individuality" (1940) in *Experience, Nature, and Freedom*, pp. 231-38.

<sup>35</sup> EN, 272; LW1:208.

<sup>36</sup> This assumption, present in Plato and Aristotle, is the cornerstone of Neo-Platonism, especially that worked out by Proclus in *The Elements of Theology* (Prop. 70 ff.), an enormously influential work. It occurs also at the crucial stage of Descartes' *Second Meditation* where he argues that the cause of his idea of God must be as real as the effect. See also *Principles* I: xvii.

<sup>37</sup> Not to be understood in Dewey's philosophy as a simple stimulus-response "reflex-arc," a concept which Dewey thoroughly criticized in his 1896 article, "The Reflex-Arc Concept in Psychology" (*EW*:V). It is simply the coordinating phase of a whole act.

<sup>38</sup> Dewey never gives a comprehensive list of these traits but they might include continuity, transaction, individuality, change (the precarious), order (the stable), society or community, quality and relation (or ends and means), selectivity, etc. See: "Time and Individuality," "Nature in Experience," and "The Inclusive Philosophic Idea" as well as *Experience and Nature*.

<sup>39</sup> Thayer, op.cit., p. 465. Thayer admirably traces the importances of continuity to Dewey's idealistic background, but the Aristotelian implications of his mature view seem far more significant in understanding his thought, in my opinion.

<sup>40</sup> See EN, 412 ff; LW1: 408 ff.