Book Reviews

Logic: The Theory of Inquiry
John Dewey, The Later Works, 1925-1953, Vol. 12
Jo Ann Boydston, editor
Introduction by Ernest Nagel
Carbondale and Edwardsville: Southern Illinois University Press, 1986
v-xxvii + 793 pp.

Dewey's *Logic* first appeared in 1938 and the present edition in 1986. The purpose ordinarily served by a "review" is obviously not possible here. For if a reviewer is a dog who yelps at its master, the urge to bark now would be fifty years off cue and with no threat of a bite. I will accordingly limit my focus to the new critical edition. If I waver somewhat in this resolve and venture into themes of irresistable intrinsic interest in the text, I ask the reader's indulgence.

The new printing fully embodies the standards of scrupulous editing and the construction of an authoritative text that we have come to expect from Jo Ann Boydston's distinguished supervision of the Works of Dewey. A textual apparatus of 242 pages will convince any reader that we are in good hands and that what we see on the page is just what ought to be there. The apparatus includes a valuable brief commentary by Kathleen E. Poulos on the evolution of Dewey's book and its initial publication. In all, this edition is so nearly perfect in its impeccable attention to the authenticity of textual details that I hesitate to mention one small but not insignificant flaw. Dewey's book is carefully ordered into four sections. In accord with the philosophic contextualism espoused in the work, the first printing gave us the section heading on the top of the left page and the chapter title on the top right. As we read on, we always knew where we were, section and chapter. The new edition eliminates the section leading on the page top; a loss of contextual reference and helpful coordinate to guide us over occasionally difficult terrain. In reading the famous pages in the chapter on The Pattern of Inquiry, I like to be reminded

that I am also situated in the section on The Structure of Inquiry and that I have passed on from earlier chapters in The Matrix of Inquiry. This loss is not calamitous, of course; it is rather to be put down as a bit of unfortunate *Logic*-chopping.

The Introduction by Ernest Nagel is characteristically illuminating in its discussion of cardinal features of Dewey's logical theory and the place of the *Logic* historically and philosophically. It is also characteristically critical in locating problems in several of Dewey's central arguments and conclusions, a "number of difficulties and gaps in Dewey's proposed reconstruction of logic" (p. xiii).[1] The problems are matters both of substance and interpretation. My reflections follow some of the important issues raised in Nagel's discussion.

1. *Logical Form*

Nagel rightly points out that for Dewey "all logical forms (with their characteristic properties) arise within the operations of inquiry and are concerned with the control of inquiry so that it may yield warranted assertions" (pp. xx, 11). Many readers have found it difficult to understand how logical forms "arise" or "originate" within inquiry. How can abstract and formal structures "arise" at all? The reasons for the difficulty are worth considering for they illustrate one of the most recalcitrant obstacles to understanding and appreciating Dewey's philosophy. On the one hand there is a firmly established history of 'form' that identifies the term with *species* and, further back with *eidos*. For Plato, and almost always for Aristotle, *eidos,* form, is not something that arises or becomes; the structural element is not itself processive; things, materials, become formed. On the other hand influential writers on logic in the first part of this century – notably Russell – placed considerable emphasis on the notion of 'logical form' as syntactical structure. Constituents of the structure, schematic symbols for constants and variables, might "stand" for different sorts of objects and take different values; but the logical form is a pure configuration or schema not to be confused with its content or interpretation.

The two conceptions of 'form' are ubiquitous and influential in philosophic literature. They have even to some extent become assimilated to one another as the accepted way of thinking and speaking about form. Consequently, one of the main problems to understanding Dewey is the effort required to free oneself from certain preconceptions and doctrines embedded in much of the official language of philosophy. Something of this kind of struggle is detectible even in Dewey's own expositions of his views; it is one reason for the style which has so often been criticized even by admirers of his ideas. The style is not bad, but it is difficult. It is a product of the ultimately impossible task of using the common language to critically expel common assumptions residing in and parasitical on its uses and to mold the language in uncommon ways in order to furnish new insights and conclusions. So we must reckon with Dewey's language as he did. In his preface Dewey remarked on "the need for development of a general theory of language in which form and matter are not separated" (p. 4). The language of the *Logic* is not elegant; but it does achieve a peculiar eloquence. In an impressionistic image of Dewey's style I would liken it to the Mississippi river: a massive moving coherence with many critical cross currents and qualifying eddies occasionally forming peripheral whirlpools of dialectic but ebbing back again into the main stream; the deep central flow proceeds unremittingly with undiminshed force uprooting and dispersing obstacles in its way and in stretches is muddy from friction with the bottom sediments and disturbing of ancestral clay. There has been nothing like Dewey's language since Hegel in the sheer power of expostulation.

Also like the Mississippi, language can be as treacherous as it is indispensible as a medium of trade and communication. Dewey is especially heedful of these polar traits. He is conscious of how easily the expression selected in order to convey a thought can also deflect or even damage its deliverence through encroaching misassociations and classifications unintended and unwanted.

As to the subject of "logical form," we must view Dewey as avoiding

one tradition while initially cultivating another in which the separation of form and matter is disavowed. Dewey's conception of logical form derives from Hegel – and Hegel's thought reworked by George S. Morris as "real logic" – and the Darwinian theory of biological evolving forms. He is also indebted, I think, to Mead's interest in the notion of living forms.[2] In this setting 'form' refers to an order of development of an evolving subject or subject matter. In its primary sense, for Dewey 'logical form' denotes evolved, tried and continuous operations performed on and with materials (organic and environmental) in order to produce warranted conclusions. The forms prescribe conditions to be met by any inquiry; they also function as instruments in the conduct of inquiry. Since logical forms are involved in any kind of effectively controlled deliberation, they are not confined to 'logic" in some exclusively narrow sense; they are present in some of the activities of craftsmen, artists and statesmen and even philosophers.

2. *Forms: Potential and Realized*

There is thus the question how logical forms can "arise" from a subject matter which does not initially possess them. How do the new traits get there? The answer is emergence and growth. The forms are not "abstracted" from a subject matter, as a scholastic Aristotelianism would have it. Nor is it a passage from the concrete to the abstract that issues in form. For Dewey, as for Hegel, the process is rather from the abstract, the distracted and disordered and indefinite to the coherent and concrete, to form. Finally, the forms are not imported into subject matters from some outside agency of mind or a Universal knower. For this part of his theory Dewey is indebted, perhaps unconsciously, to Aristotle. How do the uninviting and inhospitable stones and timber become a house? They become a house because of activities performed on and with them; they are made (formed) into a house. We could say, in a manner carefully distinguished by Aristotle, they were first *potentially* a house. But, as Aristotle also is careful to point out, the potentiality did not

make the house; that was the work of the builder. It is important to notice, then, when Dewey argues that logical forms "arise" or "originate" in the subject matter of inquiry, we are not to think of this as some kind of miraculous or spontaneous emergence. The new properties or forms arise in the subject matter because of *other* activities performed on the subject matter. One of Dewey's examples was also used extensively and effectively by Mead. A certain substance exists which, before there were living creatures, cannot be said to be *food*. But the "same" substance becomes food (the properties of food, edible, digestible, nourishable, "arise") when new things and relationships happen to it; namely, when it would be or is eaten by animals. The animal with its needs and activities in relation to the substance produces a "reconstructed" substance. In the same way certain demands and relationships are instituted in the subject matter of inquiry by intelligent creatures; active operations on that kind of existential materials become formed and formulatable.

There remains, however, that interesting locution in which, as we noticed, one could speak of the stones and timber as a potential house or of the substance as potential food. It is interesting because it is true, curiously opaque and maybe important. It has occasioned a large and controversial literature;[3] It is grist for the mill of analysis and metaphysics. In the present instance it sparks a speculation on some deep but dimly evident relation between language and the world. For that logical forms can arise at all means, as Dewey notes, that existence was capable (i.e., potentially) of taking on logical form (p. 387).

3. *The Hypothesis of the* Logic

If we seem to have become bogged down in logical form – to misuse a metaphor – it should be explained that the topic is of singular consequence in Dewey's theory and interpretation of logic. The view he takes of logical form is introduced as a hypothesis and is one of the extraordinary features of the work. For the entire volume of 529 pages is offered as a development and tracing out of the implications

of the hypothesis so as to provide a provisional but detailed explanation and elaboration of the conceptual and factual subject matter of logic – logic as inquiry. The form of the *Logic*, in turn, is one vast conditional statement.

Dewey states three conditions that must be satisfied by any hypothesis if it is to merit serious attention and find confirmation (p. 11). The three conditions form the parameters within which the argument of the *Logic* proceeds. He also expresses the hope that the position taken might be further developed by others willing to engage in the task (p. 5). This is the spirit of science rather than of the philosophers' study. As the formation and expression of a hypothesis, the book is one of the most remarkable and unique works to be found in philosophical literature.

4. *The Ultimate and Proximate Subject Matter of Logic*

At the beginning of the book Dewey distinguishes what he regards as the ultimate and proximate subject matters of logical theory. The ultimate subject matter comprises the philosophic conception and doctrines that govern the interpretation of the proximate, that is, of the more familiar domain of propositions and structural relations usually termed "logic." Dewey's *Logic*, then, is a philosophy of logic. The discussion of the proximate subject matter, an extensive and detailed treatment of kinds of propositions and relations, of judgment, terms and laws. is illustrative and probative of the cogency and fruitfulness of the position assumed in the ultimate subject matter. One might object that the structure of the work is thus: If A (ultimate subject matter) then B (proximate subject matter), and B; therefore A : a logical fallacy (as Dewey notes, p. 11). But this is to misconstrue Dewey's procedure. The idea is that B is a more specific investigation of the meaning and value of the consequences of the position assumed in A and with respect to a carefully demarcated subject matter of inquiry. The work, accordingly, is conceived as an "inquiry into inquiry" (p. 12).

The idea of inquiry into inquiry is suggestive on several counts.

(1) We are reminded again of affinities with Hegel,[4] and the process through which, as Hegel puts it, "mind becomes an object for its self." There are, of course, differences. For Hegel mind comes to full consciousness through stages and movements – in a "self-enclosed circle" – to form a universal whole encompassing the entire objective world. And according to Hegel this is "the mediation of Being." But for Dewey the process of inquiry does not issue in some universal state of consciousness and truth. A specific problem generates and determines the course of thought and circumscribes its conclusions. There are nonetheless many interesting similarities: each individual inquiry is like a little Hegelian universe; an evolutionary struggle of consciousness against "otherness" proceeding through moments and 'forms' (*Gestalten*) to a unified concrete whole, self-realization and truth; thought mediating existence. (2) The notion also suggests the reflexive character of inquiry. I do not recall Dewey discussing the matter, but I believe it would be correct to say that any inquiry is to some extent also an inquiry into inquiry. For in the course of an inquiry some attention will be given not only to the problem but to the efficiency and reliability of the procedures used to arrive at a solution; such is the self-critical and self-corrective nature of inquiry. This feature of self-regulated activity occurring in and as a part of inquiry suggests an analogy with living processes. But it is more than just an analogy since inquiry is a living activity for Dewey and is composed of organic-environing interactions (ch. 2).

5. *Continuity*

Dewey's is a naturalistic theory. He explains that by "naturalistic" he means:

> that there is no breach of continuity between operations of inquiry and biological operations and physical operations. . . [and also] that rational operations *grow out of* organic activities without being identical with that from which they emerge. (p. 26)

The notion of 'continuity' forms the "primary postulate of a naturalistic theory of logic" which holds that there is:

> continuity of the lower (less complex) and the higher (more complex) activities and forms . . . its meaning excludes complete rupture on one side and mere repetition of identities on the other; it precludes reduction of the "higher" to the "lower" just as it precludes breaks and gaps. (p. 30)

The question has often been raised as to precisely what Dewey means by 'continuity' here and why a postulated affirmation of continuity is required of a theory of logic. Nagel raises the question anew. He observes that Dewey does not define 'continuity'; instead we are given illustrations. Consequently, he finds Dewey's account "much too vague to serve as the basis for significant research" (p. xiv). There is a difficulty in understanding the contexts and the extent to which Dewey regards it a responsibility for those who reject supernatural powers to show "how the logical may be connected with the biological in a process of continuous development" (pp. 31-32). Is this responsibility incumbent on us when we are engaged in any aspect of logical study? Considerations of this sort lead Nagel to conclude with his main criticism of Dewey's theory:

> the most serious criticism of the requirement is that a theory of inquiry may be a sound account of the methods of modern experimental science, even though the requirement is not satisfied. In short, it is not at all clear that the stipulated continuity between the logical and the biological is either a necessary or sufficient condition that an otherwise sound account of modern scientific method must satisfy. (pp. xiv-xv)

I find this a startling observation to encounter in an essay designed to introduce us to Dewey's *Logic*. I am not at the moment ques-

tioning the justice or acuity of the criticism; it might even be true. But it comes as a surprise in its present place since, despite his warm and sympathetic treatment of many of Dewey's ideas and aims, Nagel's criticism is a repudiation of the very center of the outlook chosen and so assiduously developed by Dewey. Perhaps 'repudiation' is too strong; but the contention is that a "sound account" of scientific method (and thus, for Dewey, inquiry) might be set forth independently and apart from the thesis of continuity of biological and logical operations and forms. But this is to suggest that by far the largest – if not the whole of Dewey's book is gratuitous in its fundamental position and in its endeavor to construct a naturalistic theory of logical subject matter. The idea of continuity animates the entire work. And in Dewey's view the suggested alternative, "sound account," would be neither "naturalistic" or "sound."

I believe that on this matter much of the misunderstanding of Dewey is not merely due to some unclarity in his discussion of continuity. There is a distinction to be made which, if I am right, Dewey might have stressed and exploited to diminish most of the controversy over the merits and intent of his postulate. The postulate of continuity is an important integral part of the *ultimate* subject matter of Dewey's logical theory. It thus does not directly enjoin the requirement that in any stage or phase of research and study in the *proximate* subject matter – say, in the analysis of terms and structural relations – connections between the biological and logical must first be established. The value of the postulate is in its contribution to understanding and assessing the fundamental hypothesis of Dewey's logical theory: that logical forms (the more complex) arise from and are continuous with lower (less complex) biological activities.

In reflecting on Dewey's conception of continuity and the role it plays in the *Logic* there are four additional points about which something should be said.

(1) One difficulty in understanding Dewey's accounts of the postulate of continuity is that it has several different kinds of applications. In one respect it serves as a methodological ideal, the naturalistic

version of nature's abhorrence of a vacuum. It counsels us to eschew explanations of events in natural contexts which make use of ulterior and non-natural principles whose validity is allegedly established outside of those contexts. But as we have seen, the postulate has other applications as well.

(2) The paradigm of continuity is *growth* of an organism or seed. With great skill Dewey traces the characteristic features of growth as a transaction and reciprocal interchange of organic and environmental energies and materials. In these pages of Chapter Two in which the postulate is set forth, it is interesting to see how the discussion closely reproduces the argument and ideas of the earlier classic paper on the Reflex Arc Concept (especially pp. 36-39).[5] The growth of an organism exhibits the passage from less complex activities and differentiations of structure and function to the more complex. As growth occurs there are corresponding – or co-responding – changes in environing structures and energies. The process of growth is continuous, but in interaction with environing conditions the growing organism develops properties and functions it did not possess at some earlier stage. Organic and physical changes, impositions and alternations generating new needs and adaptive activities mark the cumulative co-responding process. It is in this way and with reference to this fundamental process of growth that Dewey argues for the origination and rise of logical forms in inquiry.

(3) In the process of growth, Dewey remarks, "each particular activity prepares the way for the activity that follows" (p. 33). The order is not just a series – or, it is a special kind of series as serial and seriated; for it is one in which each of the component parts is generated and qualified by both antecedent and by future parts and activities. Here continuity is conceived as a functional and teleological order. And it is also here that we come upon another major innovation in Dewey's logical theory: logical subject matter and logical operations are inherently temporal in character. With the exception of Hegel, Dewey is alone in offering a comprehensive theory of logic in which *time* and temporal sequences and patterns of activities and

operations are of paramount consideration. The change in point of view is revolutionary. The essences and structual orders of terms in the logic of old now give way to temporally qualified and differentiated functions as actual and possible *ways* for attaining warranted conclusions; essence is replaced by operation in time, or as the meaning of an operation symbolized in a system of symbols (pp. 27, 53-62).

(4) There is, finally, one other essential role given to the postulate of continuity in Dewey's theory. The special organic activities and operations that eventuate as the subject matter of inquiry form an inclusive differentiation into means and ends. As Dewey often points out, an "end" is both the termination of some activity and a directive factor in activities as an aim by which an end is reached. The entire movement of inquiry is the deliberate and controlled organization of existential and conceptual materials into effective means for transforming a problem into a solution. The transformation and the movement by and through the means to the end is a continuous activity of contained serially ordered activities.

A difficult part of the *Logic* consists of a patient and detailed elaboration of the morphology of kinds of factual materials and the operations with and on them that make up the means-end continuum of inquiry. There is an extended analysis of types of operations and of symbols, of propositions, orders of relations and terms. These discussions are thickened by recurrent critical commentaries on traditional and contemporary treatments of the subjects. It is as if Dewey were engaged in providing us with a taxonomy of the functioning parts of an organism in the execution of a special task. The analysis is fully in accord with William James's advice: "It is a good rule in physiology, when we are studying the meaning of an organ, to ask after its most peculiar and characteristic sort of performance . . . that one of its functions which no other organ can possibly exert."[6] The main difficulty for Dewey is to state and describe these differences of function and of the forms of the logical subject matter, as *distinctions*; as discriminatable features of the subject matter, but not as separate parts or isolatable objects. Inquiry is not a progres-

sion of parallel or dual existences of matter and of form. So conceptual and linguistic meanings and symbolization invest the operations of inquiry; logical forms are correlative with and implicated in the existential operations of inquiry.

In all this, one begins to appreciate how allegiance to the principle of continuity and fidelity to the subject matter make severe inverse demands on resources of language and sheer skill of expression and explanation. Dewey is sensitive to the problem and on guard against the lurking equivocations through which the exposition must pass. He labors to keep the naturalistic view both intelligible and true. But in the course of his efforts to keep things straight and state them truly, as he sees them, I think it is not unjust to observe that the line between language and existences is ever less easily discernable; it waxes but also wanes and finally disappears in a graduated difference or kind of grey area in which a finer continuity insinuates itself erasing sharp boundaries. It is clear, I hope, that I speak of the subject matter of inquiry, or Dewey's view of it. As for the *theory* of inquiry, it is wholly a matter of language.

6. *Generic and Universal Propositions*

The primary linguistic or symbolic instruments in inquiry are *propositions.* In the means-end structure of inquiry, propositions function as means to the institution of judgment. Judgment is the conclusion of inquiry; it is not confined to formulation in words or symbols for it also has "*direct* existential import" (p. 123).

As means and ways of advancing inquiry, propositions are regarded by Dewey as essentially instrumental and, like tools, useful or ineffective, but not true or false.

Propositions are not all of one kind, as has long been recognized in logical literature. But in this new perspective on logic, with inquiry as the inclusive subject matter and continuity the key to analysis, Dewey is led to many radically new ways of construing the traditional classifications of propositional forms. One major theoretical innovation is the distinction of two fundamental kinds of proposi-

tion, generic and universal, possessing two distinct kinds of function and thus of "meaning" in inquiry (Ch. 14). Roughly, the difference is that a generic proposition states a relation among spatio-temporal connections of kinds of things (where 'kind' is a technical term for Dewey) and so have reference to existing conditions. The universal proposition states "necessary interrelations" (p. 270) of the clauses and contents of the proposition. Universal hypothetical propositions have "the form of a definition" (p. 271). The distinction reflects that of material or factual and the procedural operations of inquiry (p. 272).

In an interesting passage Dewey speaks of "two logical movements" (p. 276). There is the order of (generic) propositions that regulate *inference* which is rooted in connections or "involvements" among existential materials; there is the order of (universal) propositions that directs reasoning or discourse in the form of *implication*. The two orders or movements consist wholly of propositions, that is, symbol-formulations. But inquiry is an *existential* transformation of a problematic situation into one that is unified and resolved. Thus the logical movements are located within the existential continuum of inquiry as means of promoting and effecting existential consequences. The symbol-forms when used in inquiry become operations endowed with existential properties as well as reference. On this view, the question whether "logic" has an ontological ground or not is almost meaningless. For logic, according to Dewey, is neither grounded in or outside of existences; its "ground" is in inquiry. And in inquiry some existences become logical subject matters and some do not as decided by the particular inquiry at work. There is no universal separation of logical light and ontological darkness. Again, the space between language and existence and between thought and things grades off into a continuum of transitional qualitative changes and correlative linkages.

For Dewey the distinction of the two types of propositions is essential to an adequate account of scientific inquiry. In section Three of the *Logic* this theory of propositions is discussed and amplified

in much detail. A number of critical difficulties are uncovered in logical theories where the difference between the types of propositions has failed to be noticed. Dewey even proposes solutions to some well-known paradoxes (such as the barber who must and must not shave himself, p. 361, and the paradox of the liar, pp. 380-81). These and other paradoxes, Dewey argues, result from confusing and mixing generic with universal propositions.

Nagel expresses two reservations about this theory of propositions. First, the distinction of the two types of proposition cannot be discerned from "the linguistic form of the statements alone" (p. xvii). Second, the "necessity" ascribed to universal propositions is unclear. As to the first difficulty, it is true that if one relies on "linguistic form" alone the significant difference between kinds of general propositions may be unrecognizable. Perhaps there is a need of special symbols in order to obviate possible confusion of propositional forms. Nagel restates the criticism (p. xvii) remarking that:

> Dewey did not always keep in mind that the linguistic form in which a general proposition is expressed does not settle the question whether it is a generic or universal. For example, he cited the Newtonian laws of motion as instances of universal propositions, without indicating how they are used in given contexts of inquiry. . . . (p. xviii)

This is odd; for the fact is that Dewey often makes the point that "linguistic form, apart from content does not determine whether a sentence is logically about existential relationships or about abstract possibilities" (p. 304). After finding four different meanings for the one word 'all', Dewey concludes: "That 'all' has these four meanings is a warning against using words as a clew to logical form apart from their context in inquiry" (p. 209).

However, there is a more subtle issue here that deserves notice concerning Nagel's reference to the Newtonian laws. There is an am-

biguity in speaking of "*the* laws." For Dewey's attention is directed to symbol-*formulations,* as propositions, stating certain relationships in some context. It is not that the *same* statement (or *the* one meaning) has two quite different applications or uses. There is no one "same" statement – save for the wording. The words may become a statement and its meaning will be determined in relation to other statements in "their context in inquiry." The generic formulation has an existential role in experimental operations; the universal formulation discloses relationships of meanings and also prescribes possible conditions that might be relevant in directing futher operations of an inquiry.

One of the functions of universal propositions is to clarify the grounds and possibilities of materials in a specific inquiry and to prepare the way for existential operations represented in generic propositions. In this capacity some universal propositions may serve as a definition; that is, "an analysis of a conception into its integral and exhaustive contents" (p. 270). In this sense a definition is not to be construed simply as a relation of synonymy permitting substitution of one expression for another; for it represents an *analysis* of a conception.

I believe it is in accord with Dewey's views, therefore, to regard the Newtonian laws, when formulated as universal propositions, as statements of relations among meanings of concepts and thus implying other formally related propositions in a system of meanings.[7] But the "same" propositions (note the verbal snare) can receive an "operational application" (pp. 263, 176) within inquiry. They then function as prescribing certain ideal (possible) conditions to be met by and to regulate the organization and course of specific inquiries. The universal hypothetical proposition may contain, as Dewey says, "a necessary relation between antecedent and consequent" (p. 312). However, the necessity does not carry over into all of the relations of the proposition to others, procedural and existential, that form the matrix of inquiry. The theory of inquiry is not a piece of rationalist epistemology. Indeed, the relevance and adequacy of uni-

versal propositions, especially in relation to other propositions in an inquiry – despite the internal necessity among meanings – makes them subject to critical evaluation and even to possible revision of formulation.

For reasons such as these, although sketchily adduced, it is not altogether clear, I think, why Nagel finds the notion of 'necessity' so obscure and mysterious in Dewey's account of universal propositions. If, however, one should subscribe to the doctrine of analytic-synthetic truths; and if one should associate the *synthetic* with Dewey's *generic* and the *analytic* with his *universal* – then the problem of how the hybrid *analytic-universal* has any empirical or testable role in the experimental procedures of inquiry is, indeed, mysterious. But it is precisely at this point where the mystery sets in that it can also be dispelled. The crux of the problem is that analytic propositions have always been explained as true, and "necessarily" so, by virtue of the meaning of their terms. Thus when Dewey speaks of a universal proposition as containing a "necessary relation" among its contents, it is a tempting but illicit step in the wrong direction to conclude that he must be thinking of universal propositions as embodying *necessary truths.* The question then naturally arises as to how necessarily true propositions have a role in experimental inquiry? But Dewey is not attributing necessary truth to these propositions. The necessity is a relation of *meanings;* that is, of the symbolized constituents of the propositions. The hypothetical universal states that "*if* certain contents, *then* necessarily certain other contents" (p. 270). The theory is not about the truth of propositions at all; it is about their meaning and uses. The notion of necessarily related meanings is not without its own difficulties; but that is not what critics have seized upon as so especially questionable in Dewey's theory. One last and, I think, decisive reason for not associating Dewey's universal propositions with analytic statements is to recall that, for him, propositions are neither true nor false (p. 287). They function as means to the institution of truth, or warranted assertibility; they do not, however, constitute the conclusion or "truth" of in-

quiry. Propositions have a use-value but no truth-value and hence cannot be even remotely identified as vehicles of analytic or necessary truth.

As it is, the analytic-synthetic doctrine is clearly the basis of the critical portion of Nagel's 1939 review of Dewey's *Logic.* [8] In the present Introduction the two pages of criticsm are reprinted from the earlier review (pp. xvii-xviii). While he notes here that the doctrine or "dogma" has been rejected by some contemporary philosophers (p. xviii), it continued to exert an influence on Nagel's thinking.

There are a number of further highly interesting and original arguments in Dewey's book that, due to limitations of space, I have not discussed. Among these is Dewey's account of induction (Ch. 21) and causality (Ch. 22). As Nagel observes, these are not only new examinations of old subjects; they are full of insights in which Dewey's approach proves quite successful and certainly meriting attention.

In these pages I have had occasion to dissent from some of the views to be found in Nagel's Introduction. My remarks should not be construed as diminishing my high opinion of Nagel's eminence as a philosopher of science and, over the years, the author of many illuminating and important writings on Dewey. Indeed, those who knew him will agree that he was always more interested in a critical response to his work than mere acceptance or even praise. Nagel died one year before this edition of the *Logic* was published. I am sure he would have been pleased to be associated in this way with his former teacher. The Introduction becomes – to use Dewey's idiom – a permanent involvement with this excellent publication of one of the great works of modern philosophy.

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NOTES

1. All page references in parentheses are to the present edition.

2. The notion is omnipresent in Mead's writings. Thus: *Movements of Thought in the Nineteenth Century* (Chicago: University of Chicago Press, 1936), 157ff., 252-53; *Philosophy of the Act* (Chicago: University of Chicago Press, 1938), 450; Andrew Reck, ed., *Selected Writings* (New York: Bobbs-Merrill Co., 1964), 109-110.

3. Peirce, among others. Thus his well-known comments on the sense in which a diamond which has never been put to the test can still be said to be (potentially) 'hard'; i.e., *would* resist being scratched. See especially, *CP* 5.457.

4. I have in mind particularly Hegel's *Die Phänomenologie des Geistes*, from which a few brief and scattered paraphrases and quotations are given here.

5. "The Reflex Arc Concept in Psychology" (1896). In *John Dewey. The Early Works* (Carbondale and Edwardsville: Southern Illinois University Press, 1972), vol. 5, 96-109.

6. William James, *The Varieties of Religious Experience* in *The Works of William James* (Cambridge: Harvard University Press, 1985), 44.

7. A universal proposition states a necessary relation among its constituent concepts. In the case of reasoning in mathematical physics or pure mathematics the necessary relation is between propositions in an ordered system of relations. "The strictly mathematical phase resides in the necessary relations which propositions sustain to one another, not in their contents." And the propositions of pure mathematics have "no extra-systematic reference whatever" (p. 395).

8. "Some Leading Principles of Professor Dewey's Logical Theory" *Journal of Philosophy*, 21 (1939), 560-565 and especially pp. 563-564. In addition to published articles a valuable record of Nagel's views on Dewey's *Logic* has been preserved by Patrick Suppes. See his paper, "Nagel's Lectures on Dewey's Logic" in S. Morgenbesser, P. Suppes, and M. White, eds., *Philosophy, Science, and Method* (New York: St. Martin's Press, 1969), 2-25.

Readers who may be interested in the several subjects I have discussed in these pages will find it rewarding to look into the recent excellent study of Dewey's thought by Ralph Sleeper, *The Necessity of Pragmatism* (New Haven: Yale University Press, 1986). But on the vexed subject of universal propositions and their interpretation, Sleeper's account is recondite. He rightly sees how the analytic-synthetic doctrine can encourage misinterpretation of Dewey. I must plead guilty on this matter years ago in *The Logic of Pragmatism* (New

York: Humanities Press, 1952). Sleeper favors a characterization of Dewey's position as placing "the analytic in the synthetic" (pages 141 and 150 and some ten other page references in his Index). It is an unfortunate phrasing of the idea, however, since it inadvertently suggests a nesting of necessary *truth* in factual contexts and thus a version of synthetic-apriori knowledge.

Royce's Mature Philosophy of Religion
Frank M. Oppenheim
University of Notre Dame Press, Indiana, 1987
xviii + 403 pp.

Throughout his scholarly life, Frank Oppenheim has been unflaggingly loyal to the philosopher of loyalty, Josiah Royce. Not only his articles and books but his own participation in the Beloved Community reflect this loyalty. Oppenheim seems to share most of Royce's key ideas, and his own theological background and life in community facilitate his interpretation of Royce.

Oppenheim's prodigious dissertation (1962) on *Royce's Mature Idea of General Metaphysics* laid the groundwork for the present volume. Many of his publications since that time represent key elements in building from the groundwork to this culminating tome – for example, his bibliography of Royce's published works (1967), articles on Royce's intellectual development (1966), his concept of community (1970, 1983) and Royce's idea of spirit (1983), and an intellectual biography of Royce's voyage to Australia (1986).

In one of the earlier articles (1976), three different construals of Royce's intellectual development were rejected: a "simple curve" theory attributed to Kuklick and Fuss, a "straight arrow" theory attributed to me, and a "forked-road-that-rejoins" theory attributed to Clendenning. Oppenheim proposed the image of a butterfly undergoing metamorphosis to explain the continuity and changes of Royce's thought. Each stage of development, he claimed, was triggered by a